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POLITEKNIK MALAYSIA
PORT DICKSON

PERSATUAN TEKNOLOGI MALAYSIA

Product of RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"Technical and Vocational Education Training Sustainability Generates Innovation"

RESPEX
8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

Product of

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PREFACE

Bismillahirrahmanirrahim

Assalamualaikum w.b.t.

All praise to Allah SWT for His permission, Department of Polytechnic and Community College Education (POLYCC), Malaysia and Polytechnic Port Dickson (PPD), Malaysia in collaboration with main organiser Politeknik Negeri Padang, Indonesia, and Institute of Technologist Malaysia have successfully organised the Regional Educators and Students Product's Exhibition 2023.

Technical and Vocational Education Training Sustainability Generates Innovation: That was the theme of the RESPEx 2023. Hundreds of educators and students joined the innovation and gave presentations. In sum, RESPEx's line up of presenters aimed to support the mission of improving TVET in Malaysian Higher Education, many speaking to the elusive concept of fluency in its various forms and contexts. We are grateful to all our contributors who have written summaries of their presentations collected in this volume. There is undoubtedly something here for everyone. We hope that you enjoy reading these papers, and moreover, that you find much that resonates with you in your teaching context. The success in organising this event is very significant to our future researchers and knowledge seekers to share their products and improve education quality. I would like to congratulate all participants who took the opportunity to enhance their results and findings with the latest research at this international ceremony. I wish the researchers will apply the knowledge as reference material and utilise it to develop national education.

Finally, I hope the innovative products and presented papers in this RESPEx 2023 contribute to the academic reference materials from various fields and indirectly expand the knowledge itself. May our great effort in producing this book of proceedings remain continuous and beneficial towards education quality.

Thank you.

Ts. DR. BAHARIN BIN AHMAD
Head of Programme
Regional Educators and Students Product's Exhibition | **RESPEx 2023**

MESSAGE

Alhamdulillah, with God's grace, we have successfully organized RESPEx2023.

As the host of RESPEx 2023, it is with great honor that I welcome all of you to the Closing Ceremony of RESPEx 2023. It is noteworthy to mention that from 2017 to 2018, RESPEx was the acronym for Regional Students' Projects Exhibition and was changed to Regional Students' and Educators' Project Exhibition from 2019 to 2021 due to the immense involvement and contributions from educators. However, in 2023, it was again renamed as Regional Educators', Students' Products Exhibition in which the word 'Projects' was replaced with 'Products'.

RESPex 2023, which marks its eighth, is organized by Politeknik Negeri Padang, Indonesia and co-organized by the Ministry of Higher Education Malaysia, Politeknik Port Dickson Malaysia. The main strategic partners have always been Politeknik Port Dickson, Polytechnic and Community College (POLYCC) and Technological Association of Malaysia (TAM). Politeknik Port Dickson had formalized the collaboration with both revered strategic partners in 2021 by signing a Certificate of Collaboration.

Politeknik Port Dickson is honored to host RESPEx 2023. We view this as an acknowledgement by our strategic partners that we can host this exhibition. In addition, I would like to convey my gratitude to each committee member for investing the time, expertise and talent in co-organizing this event. Over the years, we have gained the tenacity and confidence to amplify the importance of this event. More importantly, RESPEx has gradually gained its footing as one of the innovation exhibition platforms in the higher education system. It is evident by the significant increase of exhibitors from Malaysia. This year the majority of submissions are from Malaysia and majority are also student exhibitors. Congratulations to all exhibitors!

We will continue to commit to RESPEx because we believe that innovation is quintessential for the future generation. We believe that the best way to predict a future is to create and be part of it.

Dr. ISHAK BIN MOHAMAD
DIRECTOR
POLITEKNIK PORT DICKSON

MESSAGE

Assalamualaikum Warahmatullahi Taa' la Wabarakatuh and good day.

I am pleased to extend a warm welcome to the closing ceremony of RESPEx 2023, particularly to the exhibitors from Malaysia, Indonesia, South Korea, Laos, and Brunei. As we know, RESPEx 2023 aims to gain recognition for great creative designs and offers an exciting opportunity for inventions to be showcased to the local and international industry. In addition, RESPEx 2023 endeavours to foster enhanced cooperation and collaboration between students and educators across the South East Asia region. The event seeks to facilitate the sharing and acquisition of best practices for innovative projects while strengthening networks to facilitate knowledge transfer. Furthermore, the event wishes to support students' outreach programme, promoting their mobilisation and engagement.

RESPEx 2023 advocates for the continuous pursuit of excellence and attaining sustainable competitiveness in the higher education system. To this end, the event lends its support to innovation competitions within POLYCC, which includes RESPEx. RESPEx 2023 has attracted the attention of 410 participants from Malaysia, other ASEAN countries such as Indonesia, Laos and Brunei as well as Asia-Pacific countries like Korea, who submitted 100 innovative products. This event's significance in improving lives and livelihoods through innovation cannot be overstated.

An occasion such as this presents an opportunity to gain fresh insights into the efficacy of an innovative product and identify potential avenues for further improvement. Additionally, it allows us to assess our understanding and implementation of the innovation creation process and the adoption of relevant strategies. This reflective exercise facilitates learning from past errors and enhances our innovation methodology. Ultimately, the success of any innovation hinges on its ability to benefit the intended end-users and positively impact their lives. It follows that innovation is not just about generating ideas but also about actualising them.

Our strategic partners will likely strive to expand their collaborative efforts with other regional universities that share our steadfast commitment to community-industry-driven innovation. We can achieve a meaningful transfer of knowledge and technological expertise through this.

The Department of Polytechnic and Community College Education, Ministry of Higher Education Malaysia, extends its gratitude to all institutions for sending exceptional participants to participate in this event.

Dr. HAJI MOHD. ZAHARI BIN ISMAIL
DIRECTOR GENERAL
DEPARTMENT OF POLYTECHNIC AND
COMMUNITY COLLEGE EDUCATION

RESPEx 2023

MESSAGE

Assalamualaikum Warahmatullahi Taa' la Wabarakatuh and good day.

First and foremost, let me extend my heartfelt congratulations to the committee members who dedicated their time and effort towards making RESPEx 2023 a success. It is a triumph made possible by the tireless efforts of the committee. Well done! The collaboration between Politeknik Negeri Padang and Politeknik Port Dickson has proven to be highly successful, even in the face of global challenges posed by the Covid-19 pandemic. This innovative program demonstrates remarkable adaptability to the new norms and continues to be implemented.

The world is evolving at a fast pace. Advancements in the industrial sector, construction technology, and various other technology-related areas have become much more sophisticated. In recent years, projects that were once thought to be unfeasible are now garnering substantial investments and gaining recognition from experts around the world.

Through observation, competition in the market has become more intense due to technological advancements. The ever-increasing global economy has intensified the competition even more. Hence, this program is of utmost importance not only for professionals in the technology industry but also for sociologists, cultural observers, and prominent religious leaders.

Many designs and ideas have bogged down in specific facts and examples as designers and innovators forget their connection to the broader knowledge base. Hence, when designing products, it is vital to maintain a holistic perspective and avoid getting caught up in trivial details, which can hinder development and be detrimental to the overall quality of the product. It is crucial to keep in mind that a critical aspect of creating successful products is the ability to suggest future enhancements. As you delve deeper into the design process, you may come across areas with limited research or unanswered questions. These gaps should serve as inspiration for future research and lead to the development of groundbreaking ideas.

Researchers can effectively communicate design limitations through these techniques. In presenting their findings, researchers should provide specific recommendations for further investigation. This not only helps future researchers understand the areas that need attention but also highlights the product's significant contribution to the field. The products showcased in this presentation encompassed a vast range of fields, such as social sciences, environmental studies, engineering, architecture, and economics. The judges we have on board are accomplished experts with extensive experience in their respective fields.

Finally, I would like to convey my utmost appreciation to all those who played a crucial role in making RESPEx 2023 a huge success. Your unwavering commitment and hard work towards this event are truly inspiring. I also want to thank Politeknik Port Dickson for their exceptional organisation of the ceremony, leaving no detail overlooked. May your tireless efforts be blessed, and may you continue to set the standard for excellence. Congratulations!

Dr. SURFA YONDRI
DIRECTOR
POLITEKNIK NEGERI PADANG

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Product Innovation Categories

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Category **02**	**MECHANICAL & AUTOMOTIVE ENGINEERING**
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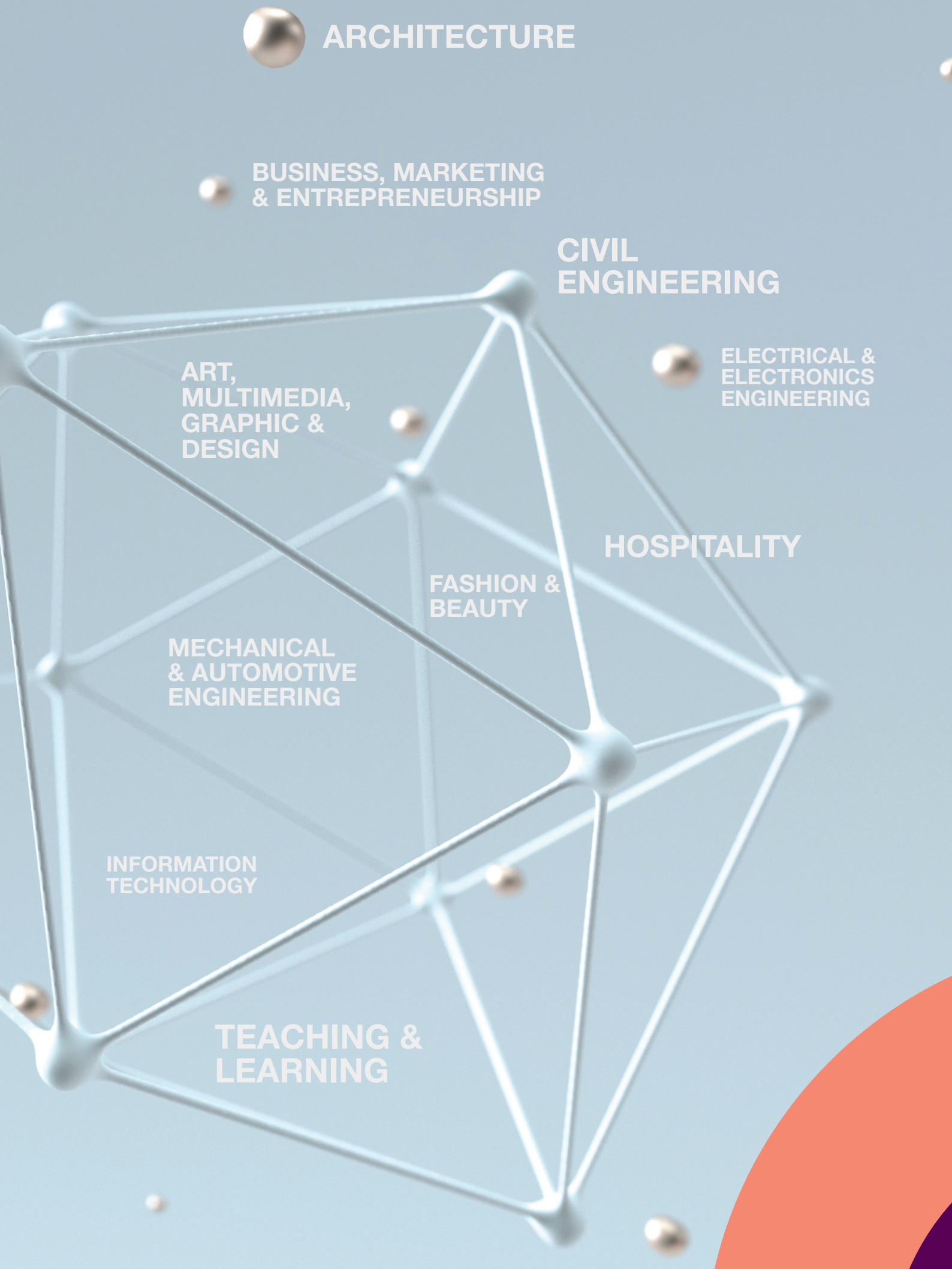
Category **09**	**BUSINESS, MARKETING & ENTREPRENEURSHIP**
Category **10**	**INFORMATION TECHNOLOGY**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TECHNOLOGY
TEACHING &
LEARNING

CIVIL ENGINEERING

Category

01

Regional Educators, Students Product's Exhibition

ECO FLEXIBLE PAVEMENT BY USING CRUMPED WASTE TYRES AND WASTE PLASTIC

Sarawanan S/O Chandran[1], Kabilan S/O Mahandran[2], Meenadharsini D/O Arumugam[3], Baharin Ahmad[4]
[1,2,3,4] Politeknik Port Dickson, Km 14 Jalan Pantai, 71050, Negeri Sembilan, Malaysia

Abstract.

Waste tyres and waste plastic in Malaysia are neither categorized as solid waste or hazardous waste. It is generally considered as business or trade waste; hence currently, there is no specific law or regulation, which govern waste tyre management. Because of this, I prefer using wastes in more beneficial way. In my suggestion, i prefer using the plastic waste and waste tyre in Flexible pavement construction. To be more specific, the flexible pavement construction by waste plastic and waste tyre contribute to reduce plastic waste and waste tyre. In the surface road construction plastic waste material like High Density Polyethylene (HDPE) can be as sand. High Density Poly Ethylene (HDPE) can be as sand in short supply crushed plastic is being used as an alternative. The next, in the flexible pavement construction, waste synthetic rubber polymer product that is waste tyres also can be used as sand which is substitute of sand. This rubber chip very useful while using in surface road construction because this rubber chips can be long lasting and mainly its can be lower susceptibility to daily and seasonal temperature variation. This way of flexible pavement construction is more environmentally friendly and sustainable infrastructure while it continues to find economical alternative resources. The primary concerns are preserving natural resources and reducing the impact of waste plastic and waste tyre emissions on the environment. This review aims to encourage the sustainable use of reclaimed materials which is waste plastic and waste tyre In pavement construction. Based on my suggestion, can be use the waste plastic and tyre mix in flexible pavement construct can be more effective than typical road construction in Malaysia.

Keywords: Pavement, waste, tyres, plastic

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA PORT DICKSON

PERSATUAN TEKNOLOGI MALAYSIA

RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

POLYTECHNIC PORT DICKSON

ECO FLEXIBLE PAVEMENT BY USING CRUMPED WASTE TYRES AND WASTE PLASTIC

PRODUCT ID : Respex23-001

Contributors :


TS. DR. BAHARIN BIN AHMAD (PROJECT SUPERVISOR)


SARAWANAN CHANDRAN (990319055165)


KABILAN MAHANDRAN (990922055303)


MEENADHARSINI ARUMUGAM (990301055140)

Background

This project aims to encourage the sustainable use of reclaimed materials which is waste plastic and waste tyre In pavement construction. To be more specific, this eco way of flexible pavement construction is more environmentally friendly and sustainable infrastructure while it continues to find economical alternative resources. The primary concerns are preserving natural resources and reducing the impact of waste plastic and waste tyre emissions on the environment.

Objective

- Determine the optimum mix ratio of the composite road surface with 5% of bitumen.
- To determine the skid resistance value (SRV), macro texture of road pavement surface.
- To determine the strength and stability as the maximum load carried by the specimen at a standard test temperature of 60°C.

Problem statement

Waste plastic and waste tyres have begun to negatively impact the natural environment. Create problems for plants, wildlife, and even the human population. Often, this includes killing plant life and posing dangers to local animals. Plastic and tyre are incredibly useful materials, but they are also made from toxic compounds known to cause illness, and since it is meant for durability, it is not biodegradable.

InnovationHighlights

Based on this eco flexible pavement construction way, more environmentally friendly and sustainable infrastructure while it continues to find economical alternative resources.

Commercial Value

The cost project is < RM350/m³.
This project is suitable for reduce waste plastic and waste tyre by construct this eco flexible pavement.

Pictures & Diagrams

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

EFFECTIVENESS STUDY OF SMART DRAINAGE SYSTEM TO REDUCE FLOOD RISK IN RESIDENTIAL AREAS

Ts Engku Shahrulerizal Bin Engku Ab Rahman[1], Muhammad Syakir Bin Mohd Shokri[2], Aleya Aisya Binti Azman[3] and Muhammad Adam Muhklis Bin Noor Azmer[4]

[1,2,3,4,] Politeknik Port Dickson, Malaysia

*Corresponding member: muhammadsyakirf1041@gmail.com

Abstract.

The project in terms of this study is applied from observation based on manual methods that are often used, which is to use qualitative methods of observation and interviews as well as data analysis methods and so on. This project aims at studying and designing a new drainage system that enables water to flow more efficiently to reduce clogged discharges, by measuring and developing an enhanced surface area for the drainage system's structure and installing drain debris barriers. This project has set out a number of research objectives, such as the study and design of modified drainage systems that could allow more effective circulation of water. All aspects of this work are set out to resolve some of the flooding problems that occur when there is heavy rain. The methodological study used to prepare the project's production process involves using qualitative methods for observation and interview, data analysis techniques to draw a sketch that will make use of "diversion drainage systems", widen and deepen them, and install garbage traps. As a result, based on the results of the study, the analysis, and the discussions that took place, the whole project has been successfully developed. Therefore, it can also be concluded that the widening and retention of the structure of the drainage system is an alternative for improving the original drainage system and has achieved the objectives that have been discussed.

Keywords: qualitative methods, data analysis methods, studying and designing a new drainage system, enables water to flow more efficiently to reduce clogged discharges, effective circulation of water, resolve flooding problems, ", widen and deepen the drainage and install garbage traps.

RESPEX
8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023
"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

DRAINAGE SYSTEM TO REDUCE FLOOD RISK IN RESIDENTIAL AREAS

FYP-G25 | Respex23-009

POLITEKNIK PORT DICKSON


MUHAMMAD SYAKIR BIN MOHD SHOKRI


MUHAMMAD ADAM MUHKLIS BIN NOOR AZMEER


ALEYA AISYA BINTI AZMAN

BACKGROUND

- The study of the effectiveness of the drainage system in containing or dealing with flooding disasters
- proposes some methods or ideas to improve the existing drainage system that may help residents reduce or prevent a recurrence of this flooding disaster.
- Bandar Puteri, Klang is where the study we have chosen and certified by the supervisory authority will be located.

PROBLEM STATEMENT

There have been problems in this research location, such as flooding that happens at regular times due to rain. Study the problems that might cause flooding, which is by studying current drainage systems in urban areas, designating an improvement system, and looking for suitable solutions to this problem.

OBJECTIVE

1. To conduct a preliminary study of the efficacy of the drainage system located in this research area.
2. To propose a new drainage system that can make better use of water.
3. The data from the study shall be analysed.

COMMERCIAL VALUE

In Range Price for 100 feet installation
RM 4000 - RM 10,000

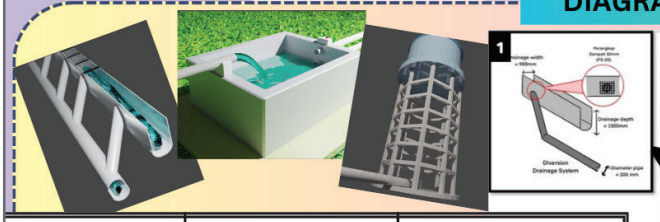
METHODOLOGY

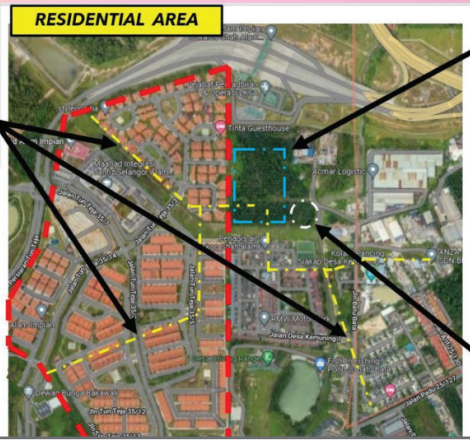
Selection of research topics → Literature Research → Designing → Surveying Data → Analized Data → Create simulasion using Blender → RealTime Simulation in a Mini Model Form

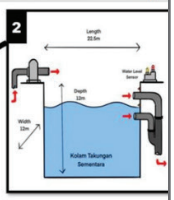
CONCLUSION

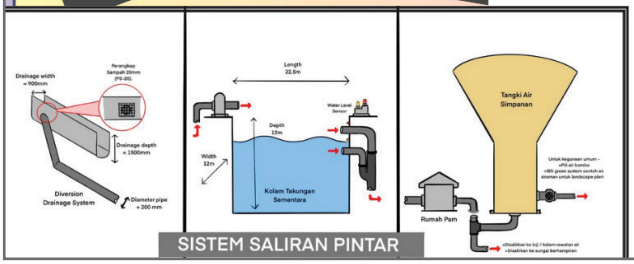
The results of that study can improve the current drainage system's efficiency in the rainy season. Consequently, users in the area could benefit from an examination of the effectiveness of this System to be more careful. In the future, this study could be applied to ensure the safety of people living in Taman Sri Muda, Klang, Selangor, and additional areas at high risk for flooding.

DIAGRAM / PICTURE / INNOVATION HIGHLIGHTS

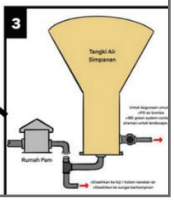








SISTEM SALIRAN PINTAR



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Regional Educators, Students Product's Exhibition

MINI SOIL DRILL

Muhamad Aiman Hadi Azliza @ Mohd Anuar[1], Muhamad Hafizuddin Shamsol Bahari [2], Zulhilmi Sukri[3] and Khairudin Che Husain[4]

[1]Politeknik Sultan Mizan Zainal Abidin, Malaysia

[2]Politeknik Sultan Mizan Zainal Abidin, Malaysia

[3]Politeknik Sultan Mizan Zainal Abidin, Malaysia

[4]Politeknik Sultan Mizan Zainal Abidin, Malaysia

Abstract.

Mini soil drill is one of the important tools in excavation work. The purpose of this tool is to facilitate soil excavation work at the PSMZA geotechnical workshop. This is because the preliminary study made shows that the geotechnical workshop is facing problems in digging the ground. In addition, the problem that students often face is the lack of tools to be used in soil digging activities at the PSMZA geotechnical workshop. This Mini Soil drill can also not only be used for workshop work, but it can be used by workers to plant trees in PSMZA area. The price to make this mini soil drill is also not that high compared to the price of the tools available in the geotechnical workshop which may cost hundreds of ringgits and require a high cost to maintain when damage occurs. This mini soil drill is made using a bicycle sprocket, a drill and an iron rod. This can be done by placing an iron rod on the drill and it can turn the sprocket for digging the soil. By using a mini soil drill to dig the soil, it can reduce human effort compared to machine power. The product we create aims to make it easier for lecturers and students to do tests more effectively and easily.

Keywords: mini soil, geotechnical, excavation

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

MINI SOIL DRILL

GROUP MEMBER : MUHAMMAD AIMAN HADI BIN AZLIZA @ MOHD ANUAR
MUHAMMAD HAFIZUDDIN BIN SHAMSOL BAHARI
ZULHILMI BIN SUKRI
SUPERVISOR : KHAIRUDIN BIN CHE HUSAIN

BACKGROUND

Mini soil drill is one of the important tools in excavation work. The purpose of this tool is to facilitate soil excavation work at the PSMZA geotechnical workshop. This is because the preliminary study made shows that the geotechnical workshop is facing problems in digging the ground. In addition, the problem that students often face is the lack of tools to be used in soil digging activities at the PSMZA geotechnical workshop. The price to make this mini soil drill is also not that high compared to the price of the tools available in the geotechnical workshop which may cost hundreds of ringgits and require a high cost to maintain when damage occurs.

PROBLEM STATEMENT

- The difficulty for students and lecturers is because the existing tools take a long time to dig the soil. This will cause students and lecturers to feel tired when doing work for a long time because of using a lot of manpower.
- The existing soil digging tools are also quite heavy. The iron mold also has many shortcomings in terms of weight, size and material.
- The existing tools are also quite sharp and dangerous. It can have a bad impact when the tools hit the students and lecturers like wounds. After that the existing tools require a lot of manpower for the soil digging process.

OBJECTIVE

Here are some objectives that have been outlined to achieve the goals of this study, among them are:

- ✓ To compare efficiency, time taken and effectiveness to existing tools.
- ✓ To design and produce tools based on simple technology.
- ✓ To analyses machine strength and human physical strength.

INNOVATION HIGHLIGHT

'Mini Soil Drill' can have an impact on users due to the effectiveness of digging tools which are 'Mini Soil Drill' which can simplify the process of digging soil by reducing the time taken, less manpower, easy use and can be carried anywhere.

COMMERCIAL VALUE

Availability: Students can access the product easily. Convenience: The product is available on multiple devices, everywhere and every type of soil. Speed: The product does its job quickly with no lag or delay. Cost: The product is more affordable than its competitors.

METHODOLOGY

- ➢ Finding project materials
- ➢ Measure the length of 'iron road' measuring 1m
- ➢ Measure and mark the sprocket and divide it into 2 parts
- ➢ Cut the bicycle sprocket
- ➢ Join the 'iron rod' with the sprocket using a 21mm size nut

CONCLUSION

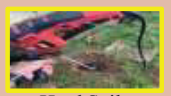
Overall evaluation of these tools, they are proven to be effective for soft soil types, less for harder and harder soils. In addition, the manpower required to use these tools is less, that is 1 person to dig the ground.
This 'Mini Soil Drill' it can make it easier for geotechnical students to dig soil and save time. In addition, it will also help students in terms of use and reduce the burden during the process of digging the soil.

DIAGRAM/PICTURE


Mini Soil Drill


Medium Soil


Soft Soil


Hard Soil

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Regional Educators, Students Product's Exhibition

WRS Signboard – An Innovation for Traffic Safety

Nor Haniza Mustafar Kamar[1] , Jagatheswari a/p Sanas[2], Gethan a/l Kartini[3] and Mogan Raj a/l Arumugam[4]

[1,2,3,4,] Politeknik Port Dickson, Malaysia

*Corresponding member: annemustafar@gmail.com

Abstract

The visibility of signboards plays a crucial role in ensuring road safety. Elements such as Information Accessibility, Early Warning, Reaction Time and Low-Light and Adverse Weather Conditions are highly affected by the visibility of Traffic Signs. Innovative signboards are creative and unique displays used for advertising, information dissemination, or wayfinding purposes. These signboards surpass conventional static signs by integrating imaginative design elements, advanced technologies, and interactive features to captivate attention, involve viewers, and effectively convey messages. This project involves users' perception on the development of an innovative traffic sign known as "WRS Signboard" which improves the visibility of signboards during low-lighting conditions and bad weather. The purpose of this innovation is to increase the safety of road users by increasing visibility of the sign, in terms of distance and users' ability to define the sign. The methodological study used to prepare the project's production process involves selecting a study area and obtaining user feedbacks through observation and distribution of a questionnaire. Based on the results obtained, it was found that most respondants give positive feedback on the design of WRS Signboard, the visibility of the signage and perception of the product effectiveness. However, only an average number of the respondants give positive feedback on the awarenss of innovative signboards. It can be summarized that road users are only familiar with the conventional standard signboards and have limited exposure to innovative signboards, despite their established efficiency and effectiveness. Further research is strongly recommended to explore the advancement of innovative signboards aimed at producing standardized, effective, and efficient traffic control equipment. Such developments have the potential to significantly enhance traffic safety on roads, fostering a safer driving environment.

Keywords: Innovative Signboards, Road Safety, Traffic Safety, Road Furniture, Traffic Signs, Solar-powered signboards, Traffic Equipment, Highway Engineering, Traffic Engineering

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WRS SIGNBOARD

An Innovation for Traffic Safety

Nor Haniza Mustafar Kamar (Supervisor) Jagatheswari a/p Sanas, Gethan a/l Kartini and Mogan Raj a/l Arumugam

BACKGROUND

Road accidents are a serious problem that occur everywhere in the world and result in significant damage and fatalities. Previous studies have indicated that, with 1.35 million fatalities and millions of injuries annually, traffic accidents are the leading cause of death and injury worldwide (World Health Organization, 2018). Road accidents have a significant societal cost in addition to high economic costs for lost productivity, property damage, and medical expenses (OECD/ITF, 2015). The visibility of signboards plays a crucial role in ensuring road safety. Elements such as Information Accessibility, Early Warning, Reaction Time and Low-Light and Adverse Weather Conditions are highly affected by the visibility of Traffic Signs. This project involves users' perception on the development of an innovative traffic sign known as "WRS Signboard" which improves the visibility of signboards during low-lighting conditions and bad weather. The purpose of this innovation is to increase the safety of road users by increasing visibility of the sign, in terms of distance and users' ability to define the sign.

PROBLEM STATEMENT

There are many reasons why a traffic sign could become hidden. Several things could obstruct the driver's view of the traffic sign, including low-lighting environment and bad weather such as rain and fog. When reviewing the sign visibility, many studies often divide it into two main areas: sign detection and sign reading (Yukiharu Akagi, Takuya Seo, Yoshitaka Motoda, 1996). Following investigations and observations, it was found that the Tanah Merah to Lukut route lacks street lighting and that the traffic signboard is difficult to see from a distance due to the curving road. Drivers' visibility is further limited by the current traffic signboard, particularly at night and in foggy conditions. According to information obtained from an interview session, they think the visibility of the road inventories, especially the traffic sign boards, must be increased. Inexperienced drivers who are new to the road face a substantially worse position because they may be more dangerous.

OBJECTIVE

The following are the project's goals:

1. To innovate an improved traffic signboard with waterproof and solar-powered features.
2. To propose a solution that can help reduce accident occurrences in the area.
3. To improve the visibility of information on the traffic sign board for the drivers.

INNOVATION HIGHLIGHT

Solar Panel for recharging battery + Daylight Sensor

LED Backlight – will switch on automatically during low light condition

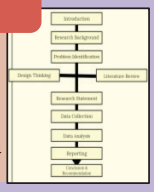
Tire / rubber absorber for collision pre-caution.

COMMERCIAL VALUE

A comprehensive analysis revealed that the implementation of the WRS signboard proves to be **a practical approach in enhancing traffic sign visibility, thereby leading to a reduction in accident rates.** The outcomes of this study hold significant value in guiding future research endeavors, as well as informing the development of **traffic safety solutions**. Moreover, the **findings can serve as a valuable reference for making informed decisions pertaining to road safety policies**.

METHODOLOGY

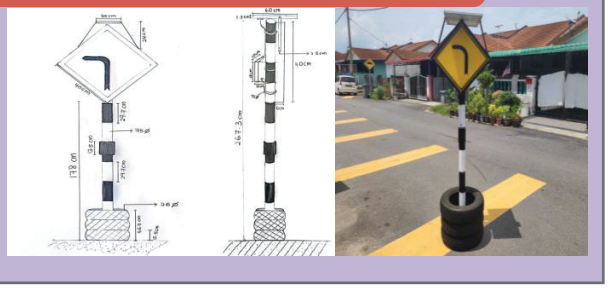
Extensive research was conducted before the initiation of this project on projects related to our subject of study, civil engineering. Through Design Thinking, a problem statement was obtained and WRS Signboard was developed, and users' feedback was researched.



CONCLUSION

The project's goal is to create a better traffic signboard with waterproof and solar-powered features to lower accidents, improve information visibility on traffic signboards, and increase road users' safety. The team has established three key objectives: to design a better traffic signboard, to put forth a solution that lessens the likelihood of accidents, and to increase the visibility of the information on the traffic signboard for drivers. In conclusion, adding solar power and waterproof components to the WRS signboard will greatly increase its efficiency in lowering the incidence of accidents nearby. The wiring system, battery capacity, charging time, and maintenance strategy must all be taken into account to guarantee that the sign board is operational at all times. These upgrades will increase the sign board's overall visibility and robustness, making it a crucial part of managing traffic safety.

DIAGRAM/PICTURE



Regional Educators, Students Product's Exhibition

ACOUSTIC ECO PANEL

Tina Mustafa[1], Nabila Wahidah Mohd Amir[2], Yuhanis Nurfazelyn Kahar[3] and Nur Sakinah Mohamed Kuhonaiyakin

[1]Department of Civil Engineering, Politeknik Port Dickson

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Acoustic Eco Panel is a panel that consists of 3 different recycled materials such as coconut fiber, kenaf and sago as a binding material that is studied to determine the rate of sound absorption in a room. Eco Acoustic Panels that are 300mmx300mmx50mm in size are produced according to 6 different sample percentages which use 3 main materials namely Coconut Fiber (Sample 1), Kenaf Fiber (Sample 2) and Sago (Sample 3) as much as 100%. While 3 mixed samples which are 55% Coconut Fiber, 35% Kenaf Fiber and 10% Sago (Sample 4), % Coconut Fiber, % Kenaf Fiber and % Sago (Sample 5) and % Coconut Fiber, % Kenaf Fiber and % Sago (Sample 6). All of these samples have been tested with Sound Meter Level Tests, Fire Resistance Tests and Moisture Tests to obtain the best percentage of samples that are suitable for use as Eco Acoustic Panels. These tests are carried out to obtain results and in accordance with the requirements of the standards from the Occupational Safety and Health Department, the Environment Department and the Fire Department. Through this study it was found that the percentage of Sample 4 shows the best sound absorption value which is 54.8 dB. A mixture of these three materials has a better sound reading than other mixtures.

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ECO PANEL AKUSTIK KEDAP BUNYI

NABILA WAHIDAH BINTI MOHD AMIR (06DKA20F1056)

YUHANIS NURFAZELYN BINTI KAHAR (06DKA20F1055)

NUR SAKINAH BINTI MUHAMMED KUHONAIYAKIN (06DKA20F1075)

>>>>> INTRODUCTION

Panel akustik ini berkonsepkan sebagai penggantian panel yang sedia ada berinovasi kan kedap bunyi menggunakan serat kelapa , serat kenaf dan sagu sebagai pengikat.

>>>>> OBJECTIVES

- Menghasilkan panel akustik menggunakan bahan sisa pertanian seperti sabut kelapa, kenaf dan sagu.
- Menguji serapan bunyi panel akustik daripada sisa pertanian.

METHODOLOGY <<<<<

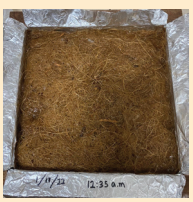
1. Mengenal pasti masalah
2. Mencari tajuk yang sesuai
3. Objektif projek
4. Skop kajian projek
5. Membuat kajian literatur
6. Reka bentuk sampel panel
7. Membuat Ujian Bunyi
8. Membuat ujian api
9. Membuat ujian kelembapan
10. Keputusan

>>>>> ANALISIS DATA

	BUNYI	API	KELEMBAPAN
SAMPEL 1	57.3	6.53	1.307
SAMPEL 2	58.1	10.8	1.058
SAMPEL 3	60.7	12.46	0
SAMPEL 4	54.8	11.35	0.684
SAMPEL 5	59.0	9.68	0.485
SAMPEL 6	57.3	10.28	0.369

KESIMPULAN <<<<<

Sampel yang paling kedap bunyi ialah sample 4 iaitu kelapa (55%), kenaf (35%) dan sagu(10%) dan dapati nilai dB nya 54.8. Kesimpulannya, sagu ialah bahan paling kurang serap air dan sagu juga boleh mengurangkan air dan juga sesuai sebagai kedap bunyi..



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Glowing Roadstud – An Innovation for Road Safety

Nor Haniza Binti Mustafar Kamar[1] , Muhammad Haikal Hakimie Bin Abd Rahim[2], Muhammad Imran Bin Mohd Azam[3] and Muhammad Adam Bin Abd Aziz[4]

[1,2,3,4,] Politeknik Port Dickson, Malaysia

*Corresponding member: norhanizamustafar@gmail.com

Abstract

Glowing road studs, alternatively referred to as solar road studs or solar-powered road markers, are inventive devices employed to improve road safety and visibility, particularly in low-light or nighttime scenarios. These studs are integrated into the road surface and incorporate compact LED lights that derive their power from solar panels. Reflective road studs are used to mark the lanes and edges of the carriageway. The primary objective of this project is to collect users' perspectives on the advancement of an exceptional road marker named Glowing Roadstud. This groundbreaking road marker is designed to significantly improve visibility when compared to conventional road studs, especially in demanding situations like low lighting and unfavorable weather conditions. The methodology employed to develop the production process for this project includes several steps. Firstly, a study area is carefully chosen. Then, user feedback is gathered through a combination of observation and distribution of a questionnaire. This systematic approach ensures a comprehensive understanding of user perspectives and aids in refining the project's production process. Based on the users' feedback, it was found that the majority of the respondents strongly agree on the perspective, aesthetic, durability and visibility of the Glowing Roadstud. However, very few had also shown concern in the durability and eco-friendliness of the product. It is recommended to further improve the design and functionality of this innovation in these aspects. It can be concluded in this project that the innovation of Glowing Roadstud has potential to reduce road accidents caused by insufficient lighting in dark areas as its battery powered lighting is independent on its own in addition to its reflective properties in terms of brightness, visual distance, and visibility in foggy or rainy weather.

Keywords: Innovative Road Stud, Road Safety, Traffic Safety, Road Furniture, Road Marking, Traffic Signs, Solar-powered road stud, Traffic Equipment, Highway Engineering, Traffic Engineering

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GLOWING ROADSTUD

An Innovation for Road Safety

Nor Haniza Binti Mustafar Kamar (supervisor), Muhammad Haikal Hakimie Bin Abd Rahim, Muhammad Imran Bin Mohd Azam and Muhammad Adam Bin Abd Aziz

BACKGROUND

Glowing Roadstud is a safety device that improves driver visibility on roads and highways. They mark boundaries and show the correct direction, embedded or attached to the road surface. Reflective materials create the glowing effect by reflecting headlights back to the driver. They are made of durable materials and withstand weather conditions. Some road studs have additional features like solar powered LEDs or smart technology for real time data.

PROBLEM STATEMENT

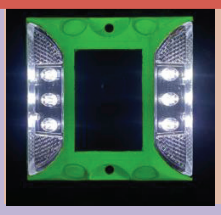
1. Inconsistent visibility due to weather and environmental factors
2. current road studs is that they depend on headlights of other vehicles to reflect light back to the driver
3. the lighting of road studs is their maintenance. Road studs that are not properly maintained can become dirty or covered with debris, which can reduce their visibility and effectiveness.

OBJECTIVE

The following are the project's goals:

1. To innovate a traffic control instrument that can help to reduce road accidents caused by insufficient lighting.
2. To propose solutions to improve the safety situation in the study area.
3. To prove the efficiency of the "Glowing Roadstud" in terms of brightness, visual distance, and visibility in foggy or rainy weather.

INNOVATION HIGHLIGHT



The Glowing Roadstud represents an innovative advancement in road safety and visibility. Here are some key highlights of this technology:

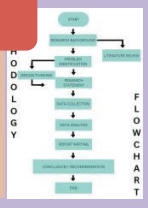
- Durability and Weather Resistance
- Enhanced Visibility
- Easy Installation and Maintenance

COMMERCIAL VALUE

The commercial value of Glowing Roadstud is extensive, as they offer numerous benefits across a wide range of road networks and applications. These innovative road studs, with their advanced technology and luminous capabilities, have the potential to revolutionize road safety and visibility on Rural Roads, Federal Roads and Highways.

METHODOLOGY

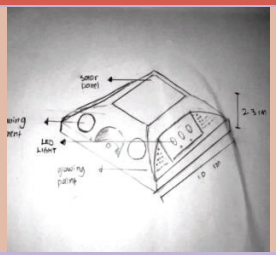
The methodology of this project is shown in the flowchart →



CONCLUSION

It can be concluded in this project that the innovation of "Glowing Roadstud" has potential to reduce road accidents caused by insufficient lighting in dark areas as its battery powered lighting is independent on its own in addition to its reflective properties . Otherwise , it is possible to propose solutions to further improve the safety situation in the study area . Last but not least , this study has proven that the "Glowing Road Stud" increases efficiency in terms of brightness, visual distance, and visibility in foggy or rainy weather.

DIAGRAM/PICTURE



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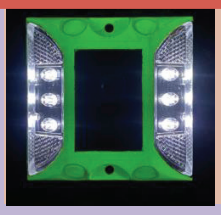
INNOVATION HIGHLIGHT



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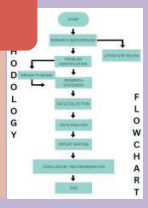

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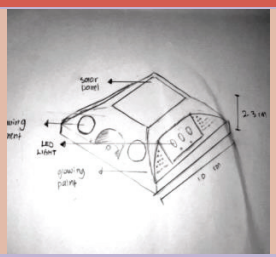
DIAGRAM/PICTURE



EFFECTIVENESS OF STANDARD OPERATING PROCEDURE (SOP) MODIFICATION IN IBS BUILDING

Tengku Juliani binti Tengku Mamat[1,*], Raudhatul Izzah binti Musa[2]

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Abstract.

Malaysians has developed in construction industry by using Industralised Building (IBS) method in building construction. In general, completed IBS houses are prohibited to modified. Purchase rate of IBS houses is reduced when compared to conventional houses. Normally buyer always concerned about renovation and extension to a room. The objective of this study is to produce a standard operating procedure (SOP) for IBS house modification. Other purpose is to study effectiveness to solve the problems of IBS house buyer in the house modification. This SOP contains the Flow Chart, Plan and cost of IBS home renovation. Scope of study is house building only and IBS type using sandwich steel frame. The SOP has been reviewed and received feedback from Ajiya Sdn Bhd which is a company that manufactures IBS components in Selangor. A questionnaire surveying the level of effectiveness of the SOP has also been distributed to IBS house buyer, conventional house buyer and prospective house buyers. In conclusion, the respondent feel relieved and safe after the SOP that has been prepared. Prospective house buyers also feel safe and happy to buy an IBS house. This SOP will increase the rate of IBS house purchases in Malaysia in five year's time.

Keywords: IBS, house modification, IBS house renovation, SOP house modification

KAJIAN KEBERKESANAN PROSEDUR OPERASI STANDARD (SOP) PENGUBAHSUAIAN BANGUNAN IBS TERHADAP PENGGUNA

Tatacara pengendalian piawai (TPP atau SOP, daripada bahasa Inggeris: standard operating procedure) ialah suatu arahan kerja dan garis panduan terperinci berkenaan sesuatu tugas yang bertulis dan didokumentasikan.

AHLI KUMPULAN & PENYELIA

PUAN TENGKU JULIANI BINTI TENGKU MAMAT

1. RAUDHATUL IZZAH BINTI MUSA (KETUA)
2. NUR ADRIANA BALQIS BINTI FAIRUZI
3. NUR AFRINA SYAHIRAH BINTI SYAHMI
4. MAHSURI BALQIS BINTI MAT ARAS

INSTITUSI

POLITEKNIK MALAYSIA PORT DICKSON

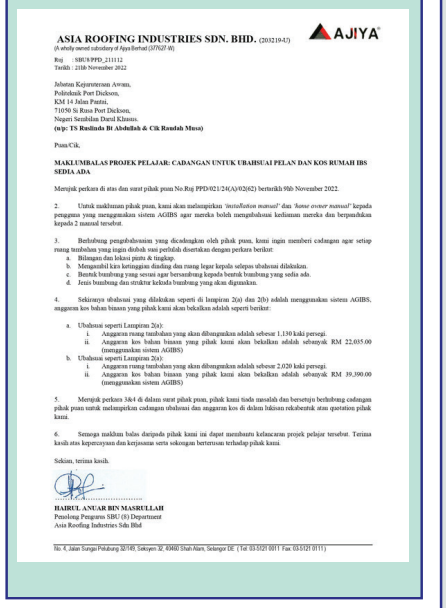
Latar Belakang

Seperti yang kita tahu sistem IBS ini adalah satu cara yang digunapakai dalam pembinaan sesebuah bangunan, di mana ia melibatkan proses pencantuman pelbagai komponen pembangunan yang telah dihasilkan di kilang. Masalah yang sering berlaku adalah apabila penduduk rumah IBS ingin membuat pengubahsuaian atau penambahan di rumah yang didiami tetapi tidak ada lagi prosedur operasi standard diwujudkan untuk penyelenggaraan bangunan IBS ini. Jadi, kami bercadang untuk membuat kajian keberkesanan prosedur operasi standard pengubahsuaian bangunan IBS ini dengan merujuk di bawah Syarikat Ajiya yang telah bersetuju untuk bersama- sama mewujudkan prosedur operasi standard tersebut. Kajian ini bertujuan untuk memudahkan urusan para penghuni yang ingin membuat ubahsuai rumah yang berkonsepkan IBS.

Metodologi

1. Memfokuskan pada tinjauan (survey or questionnaire).
2. Menghasilkan SOP ubahsuai rumah IBS dengan merujuk kepada syarikat pembinaan rumah IBS dan mencadangkan kepada syarikat pembinaan IBS

Sigfinikasi Projek



ASIA ROOFING INDUSTRIES SDN. BHD. (203219-U)
(A wholly owned subsidiary of Ajaya Berhad (377027-H))

AJIYA

Rujukan : SBUB/PPD_211112
Tarikh : 21hb November 2022

Jabatan Kejuruteraan Awam,
Politeknik Port Dickson,
KM 14 Jalan Pantai,
71050 Si Rusa Port Dickson,
Negeri Sembilan Darul Khusus.
(u/p: TS Rosihada Bt Abdullah & Cik Rasidah Musa)

Puan/Cik,

MAKLUMBALAS PROJEK PELAJAR: CADANGAN UNTUK UBAHSUAI PELAN DAN KOS RUMAH IBS SEDIA ADA

Merujuk perkara di atas dan surat pihak puan No.Ruj PPD/021/24(A)/02(62) bertarikh 9hb November 2022.

2. Untuk makluman pihak puan, kami akan melampirkan *'installation manual'* dan *'home owner manual'* kepada penguna yang menggunakan sistem AGIBS agar mereka boleh mengubahsuai kediaman mereka dan berpandukan kepada 2 manual tersebut.

3. Berhubung pengubahsuaian yang dicadangkan oleh pihak puan, kami ingin memberi cadangan agar setiap ruang tambahan yang ingin diubah suai perlulah disertakan dengan perkara berikut:
   a. Bilangan dan lokasi pintu & tingkap.
   b. Mengambil kira ketinggian dinding dan ruang lejar kepala selepas ubahsuai dilakukan.
   c. Bentuk bumbung yang sesuai agar bersambung kepada bentuk bumbung yang sedia ada.
   d. Jenis bumbung dan struktur kerkuda bumbung yang akan digunakan.

4. Sekiranya ubahsuai yang dilakukan seperti di lampiran 2(a) dan 2(b) adalah menggunakan sistem AGIBS, anggaran kos bahan binaan yang pihak kami akan bekalkan adalah seperti berikut:

   a. Ubahsuai seperti Lampiran 2(a):
      i. Anggaran ruang tambahan yang akan dibumgunkan adalah sebesar 1,130 kaki persegi.
      ii. Anggaran kos bahan binaan yang pihak kami akan bekalkan adalah sebanyak RM 22,035.00 (menggunakan sistem AGIBS)
   b. Ubahsuai seperti Lampiran 2(a):
      i. Anggaran ruang tambahan yang akan dibumgunkan adalah sebesar 2,020 kaki persegi.
      ii. Anggaran kos bahan binaan yang pihak kami akan bekalkan adalah sebanyak RM 39,390.00 (menggunakan sistem AGIBS)

5. Merujuk perkara 3&4 di dalam surat pihak puan, pihak kami tiada masalah dan bersetuju berhubung cadangan pihak puan untuk mahupekan cadangan ubahsuai dan anggaran kos di dalam bahsian rekabentuk atau quotation pihak kami.

6. Semoga maklum balas daripada pihak kami ini dapat membantu kelancaran projek pelajar tersebut. Terima kasih atas kepercayaan dan kerjasama serta sokongan berterusan terhadap pihak kami.

Sekian, terima kasih.

HAIRUL ANWAR BIN MASRULLAH
Penolong Pengurus SBU (H) Department
Asia Roofing Industries Sdn Bhd

No. 8, Jalan Sungai Pelabang 3/21H, Seksyen 32, 40460 Shah Alam, Selangor DE. (Tel 03-5121 0011 Fax 03-5121 0111)

Pernyataan Masalah

1. Masalah dari segi pengubahsuaian rumah tiada lagi prosedur operasi standard pengubahsuaian bangunan IBS diwujudkan.
2. Penghuni rumah yang tiada pengetahuan asas mengenai struktur asal rumah IBS.
3. Masalah dari segi pengubahsuaian rumah.

Objektif

- Untuk mengetahui bilangan penghuni yang mengalami masalah mengubahsuai rumah IBS
- Membuat SOP untuk memudahkan urusan pihak penghuni yang ingin membuat ubahsuai rumah IBS
- Membuat kajian keberkesanan hasil pembinaan SOP ubahsuai rumah IBS

Kesimpulan

Kesimpulan kajian kami menunjukkan bahawa pembinaan rumah IBS tidaklah sukar untuk didiami.Orang ramai masih ragu -ragu untuk mendiami rumah IBS kerana bagi mereka rumah berkonsepkan IBS ini tidak boleh melakukan pengubahsuaian.Jadi,dengan adanya pelan SOP kami ini pelanggan baru yang ingin mendiami rumah IBS akan berasa yakin kerana telah tersedianya SOP yang kami lakukan ini.

SOIL STABILISATION USING WASTE PLASTIC WATER BOTTLES

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Abstract.

Nowadays, the use of plastic products, such as polyethylene (PE) bottles, has been significantly increased, which may lead to many environmental issue. Therefore, it is important to find methods to manage these waste materials without causing any ecological hazards. One of these methods is to use plastic wastes as soil stabilizer materials. Soil stabilization using plastic waste is a technique that involves incorporating plastic waste materials into soil to enhance its engineering properties and improve its strength, durability and load-bearing capacity. This method offers a sustainable solution for managing plastic waste while addressing soil related challenges in construction and civil engineering projects. In this study, plastic bottles have been used in the form of fibers. The physical properties of the native soil and the effect of the stabilization with plastic waste was evaluated through carrying out standard laboratory tests. These tests have been conducted on native soil and stabilized soil (plastic waste) with 1%, 2% and 3% of the soil weight. The tests included soil properties tests, Standard Compaction test and California Bearing Ratio(CBR) test. In compaction test and CBR test, the plastic bottles were used as fiber stabilizers. Plastic fiber were prepared by cutting waste water bottles into size in length of 15mm and in width of 10mm. Laboratory test results revealed that the plastic pieces decrease maximum dry density (MDD) and optimum moisture content (OMC) of the stabilized soil, which are required for the construction of subgrade rural road. Results of the CBR tests demonstrated that the inclusion of plastic fiber in soil improves the strength and deformation behavior of the soil especially 3% of fiber contents. Therefore, soil stabilization using waste plastic water bottles can be a cost-effective solution, as plastic waste is often readily available and can be used as a substitute for conventional stabilizing materials.

Keywords: Soil stabilization, plastic bottles, fiber stabilizer, properties test, Standard Compaction Test. California bearing ratio(CBR).waste

RESPEX
8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023
"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

SOIL STABILIZATION USING WASTE PLASTICS WATER BOTTLES

01
AMIRUL HAKIM BIN YAZID
06DKA20F2005

02
SUWETHA A/P KIRUBANANTHAN
06DKA20F2083

03
JEGATHISWARAN A/L MARUTHAMUTHU
06DKA20F2018

OBJECTIVE

- To determine physical properties of the native soil
- To determine the strength and deformation behaviour of the stabilized soil (waste plastic materials)

INOVATION HIGHLIGHT

LAB TEST

- SEIVE TEST

-The objective of this test is to determine the relative proportions of different granular sizes as they are passing through certain sieve sizes.Thus the percentage of sand,gravel,silt and clay can be obtained from the sieve analysis test.

- ATTERBERG LIMIT

-To determine the moisture content at which fine-grained clay and silt soils transition between the different phases.

- STANDARD PROCTOR COMPACTION TEST

-To determine the maximum unit weight and optimum moisture content of compacted soil.

- CALIFORNIA BEARING RATION TEST

-California bearing ratio test is one of the soil strength evaluation tests. In this test, the relative strength of a soil specimen is measured with respect to the standard sample.

PROBLEM STATEMENT

- To reduce the cost of soil stabilization using common additives such as cement and lime, it is necessary to explore the use of cheaper materials or waste products that can significantly lower the cost of stabilizing soils used in construction. One promising alternative is the use of waste plastic strips, which are generated in large quantities but are often not recycled properly, leading to environmental pollution. By using plastic strips as soil stabilizers, the cost of construction can be reduced, while at the same time, addressing the issue of environmental pollution.

COMMERCIAL VALUE

- For these road pavement design codes of practice that use the CBR as design parameters, the fibre stabilization is cost-effective and it can be used successfully for sustainable road construction if compare with chemically stabilized soil. There for, stabilized soil with waste plastics can increase the strength of the rural road. Stabilized soil also can be used to patch the pothole of rural road.

CONCLUSION

This paper assessed the method of stabilizing soils using plastic bottle strips. The following conclusion are drawn based on the analysis and interpretation of the results obtained. The results of the compaction test show that, the increase in fiber content results in an increase in maximum dry density and decrease in optimum moisture content.

The results of CBR test show that the CBR value for stabilized soil (soil + waste plastic) is increased. As it can bee seen, the addition of waste plastic to the soil increased the strength considerably compared to the native soil strength. In addition, this increase in CBR can we noted with an increase in the fiber content ratio.

METHODOLOGY

To begin the soil stabilization process, we embark on a comprehensive site assessment, thoroughly examining the site and collecting soil samples for analysis. Through a series of tests, including particle size distribution, plasticity, and compaction characteristics, we gain a deep understanding of the soil's properties. Armed with this knowledge, we carefully select the most suitable plastic fibre, considering important factors like length, diameter, and tensile strength. Upholding our commitment to recycling, we repurpose plastic bottles by transforming them into fibres that possess the necessary length and strength for effective soil reinforcement.

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

BILIK MANDI MUDAH ALIH (BMMA)

Zulzana Binti Zulkarnain[1,*], Muhammad Zhahirin Azwar Bin Mokthar [2], Muhammad Mukhlis Bin Masaduddin[3] and Alya Binti Mohd Taufek[4]

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Abstract.

Recreation centres and picnics are favourites of many people in Malaysia. Most popular recreation centres provide facilities such as toilets, bathrooms, and changing rooms for visitors. Likewise, when there is a flood disaster, temporary evacuation centres also become the focus of the victims involved. However, the main problem faced by visitors and flood victims at the evacuation centre is the limited and overcrowded facilities, such as bathrooms and changing rooms. For the safety factor and to protect the privacy of the public, an innovation has been carried out, which is to create a *Bilik Mandi Mudah Alih* (BMMA) that uses the main material of polyvinyl chloride (PVC) pipes as a frame and canvas as walls and a roof measuring 1100mm long, 1100 mm wide, and 2000mm high. This BMMA is equipped with a water pump, a 30-litre water tank, and a rainwater spout. Project design is done using AutoCAD software. The methodological study starts with generating ideas, sketching, designing, and testing the product. Tests on solar-powered water pumps were conducted to calculate the efficiency (ŋ) of the pump. Testing the efficiency of a water pump typically involves measuring the input power and output power of the pump to determine how effectively it converts it into hydraulic energy. The rate of efficiency depends on the rotation of the stopcock. If the number of stopcock rotations decreases, the efficiency percentage will increase. This water pump efficiency test proves the effectiveness of the BMMA project. Although it does not reach an efficiency of 90% or above, the water pump can work well when used. Using only one rotation has shown good water efficiency. In addition to good water efficiency, this product also has interesting features such as being light, easy to carry and install, and having a suitable size. Therefore, this product has the potential to be commercialised.

Keywords: *Bilik mandi mudah alih*, recreation centres, temporary evacuation centres, protect the privacy, AutoCAD software, testing the efficiency of a water pump

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
POLITEKNIK MALAYSIA PORT DICKSON
PERSATUAN TEKNOLOGI MALAYSIA

RESPEX
8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023
"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

Bilik Mandi Mudah Alih (BMMA)

Zulzana Binti Zulkarnain[1*], Muhammad Zhahirin Azwar Bin Mokthar[2], Muhammad Mukhlis Bin Masaduddin[3], Alya Binti Mohd. Taufek[4]

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BACKGROUND

Inovasi ini dibangunkan untuk kemudahan orang ramai di tempat rekreasi dan pusat pemindahan sementara. Di pusat-pusat pemindahan sementara, mangsa-mangsa banjir menghadapi kesukaran untuk membersihkan diri akibat kekurangan fasiliti seperti tandas atau bilik mandi. Keadaan ini menyebabkan tidak keselesaan kepada mangsa banjir. Bilik Mandi Mudah Alih (BMMA) ini mudah dipasang, tidak memerlukan peralatan khas untuk kerja-kerja pemasangnan. Penggunan hanya perlu merujuk manual ringkas kaedah pemasangan yang disediakan.

PROBLEM STATEMENT

Pusat-pusat rekreasi dan perkelahan menjadi kegemaran sebilangan masyarakat di Malaysia. Kebanyakan pusat rekreasi yang popular ada menyediakan kemudahan fasiliti seperti tandas, bilik air dan bilik persalinan untuk para pengunjung. Begitu juga ketika berlaku bencana banjir pusat-pusat pemindahan sementara juga menjadi tumpuan kepada mangsa yang terlibat. Namun masalah utama yang terpaksa dihadapi oleh pengunjung atau mangsa banjir adalah kesesakan dan kekurangan bilangan fasiliti berkenaan yang menjadi rungutan pengunjung atau mangsa di pust pemindahan sementara.

OBJECTIVE

- Mereka bentuk bilik mandi mudah alih (BMMA)
- Menghasilkan bilik mandi mudah alih (BMMA) yang mudah dipasang berserta tangki air dan pam berkuasa solar
- Mengukur keberkesanan kecekapan pam air berkuasa solar.

INNOVATION HIGHLIGHT

Produk ini dilengkapi dengan pam air berkuasa solar, tangki bermuatan 30 liter air dan paip pacuran air hujan. Mudah dibawa dan dipasang serta ringan.

COMMERCIAL VALUE

- Rekabentuk dan ciri-ciri yang menarik - ringan, mudah dibawa dan dipasang
- Boleh dijual dan diguna oleh sekolah / institusi Pendidikan bagi menjalankan aktiviti perkhemahan
- Menepati citarasa dan kehendak pengguna - saiz yang sesuai

METHODOLOGY

Carta alir penghasilan produk

CONCLUSION

Produk yang dibangunkan iaitu BMMA mudah dibawa dan dipasang di lokasi rekreasi atau pusat-pusat pemindahan banjir bagi kemudahan orang awam untuk persiapan diri seperti mandi dan menyalin pakaian. BMMA dilengkapi dengan pam air berkuasa solar, tangki bermuatan 30 liter air dan pacuran air hujan. Rekabentuk projek menggunakan perisian Autocad. Ujian terhadap pam air berkuasa solar dijalankan bagi mengira kadar kecekapan (ŋ) pam air. Kadar kecekapan bergantung kepada putaran *stopcock*. Bilangan putaran berkurangan kecekapan kecekapan meningkat.

DIAGRAM/PICTURE

Bilangan putaran *stopcock*	Turus, H (m)	Kadar alir,Q (m^3/s)	P_{input}, watt (W)	Kecekapan, η(%)
Satu putaran	1.95	0.00085	300	5.42
Dua putaran	1.95	0.00048	300	3.06
Tiga putaran	1.95	0.00037	300	2.36

Rajah 1 : Data Ujian Kecekapan Pam Air BMMA

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THE STUDY OF EFFECTIVENESS OF CLAM SHELL IN CONCRETE MIXTURE ON COMPRESSION STRENGTH AND REINFORCEMENT CORROSION

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Abstract.

Concrete is one of the mixtures that uses cement, sand, aggregate, and water as the main materials in its production. Reinforced concrete is widely used to add additional strength to a structure. However, the issue of corrosion presents various methods carried out to control corrosion by replacing and adding other materials to the concrete mix. Therefore, this study was carried out using clam shells as an additive and substitute for sand because of their characteristics of containing calcium carbonate compounds. The objective of this study is to obtain the corrosion rate of reinforced concrete for each mix percentage and the compressive strength. The percentage of clam shell used are 20%, 30%, and 50% based on the weight of sand, using the ratio 1:2:4. About 24 sample cubes were produced in a 150 x 150 x 150 mm steel mould and cured for 7, 14, and 28 days before testing. Compression tests were conducted to determine the compressive strength using the Universal Tensile Machine. Additionally, a Half Cell-200 was used on a reinforced concrete cube, which was prepared using the same ratio and immersed in a salt solution to accelerate corrosion. The cube was tested on day 28. The results show that the compressive strength of concrete on 20% mixture clam shells is 19.9 MPa, followed by 19.2 MPa for 30% and 15.4 MPa for 50%. For the corrosion rate test, the 20% shell mixture showed the highest corrosion effect with a 95% chance of the rebar corroded, followed by 30% and 50% with only 5% probability of corrosion. The results showed that 50% of the shell mixture had a low possibility of corrosion. Nevertheless, overall, the 30% shell mix gave the best results in terms of concrete strength and the lowest corrosion effect to the reinforcement. The results of the study show that clam shell concrete can be used as a material in construction, especially in the Industrialised Building System (IBS) and commonly in the construction industry, and can also be widely used in the brick and other masonry industries because of the strength and influence of concrete on low corrosion. As a conclusion, the strength of concrete depends on the type and size of aggregates, and the difference in materials can differentiate between the strength used and the compressive strength.

Keywords: Clam shell, Reinforced concrete, Compressive strength, Half Cell-200, corrosion.

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

KAJIAN KEBERKESANAN PENGGUNAAN KULIT KERANG DALAM CAMPURAN KONKRIT TERHADAP KEKUATAN MAMPATAN DAN PENGARATAN TETULANG

LATAR BELAKANG

- Kulit kerang banyak dijumpai di pantai-pantai di seluruh dunia dan berbentuk seperti hati, bersimetri serta mempunyai tetulang di luar yang nyata
- Kulit kerang merupakan bahan sisa makanan yang boleh dijadikan sebagai bahan gantian agregat kasar dalam campuran konkrit. Penggunaan kulit kerang juga mampu menangani masalah kekurangan bahan, peningkatan kos penggunaan pasir dan factor pengaratan tetulang konkrit
- Kajian ini menggunakan sifat-sifat fizikal kulit kerang sebagai bahan gantian pasir dengan pelbagai peratusan kulit kerang bagi menetukan kekuatan konkrit di tahap maksima dan minima tahap kadar pengaratan yang dihasilkan daripada campuran bahan
- Peratusan kulit kerang yang digunakan adalah 20%, 30% dan 50% daripada berat pasir berdasarkan nisbah campuran simen : pasir : batu iaitu 1 : 2 : 4 dimana jumlah sampel yang disediakan secara keseluruhan adalah sebanyak 24 sampel yang berukuran 150mm x 150mm x 150mm

OBJEKTIF

- Mengenal pasti kadar pengaratan bagi konkrit bertelulang campuran pelbagai peratusan kulit kerang
- Mendapatkan kekuatan mampatan konkrit campuran berdasarkan peratusan kulit kerang

KETERANGAN INOVASI

- Boleh diaplikasikan dalam Industri Building System (IBS)
- Digunakan dalam pembinaan yang berskala kecil

NILAI KOMERSIAL

- Konkrit terinovasi dapat diperluaskan kepada pembinaan batu bata, batu blok dan juga penggunaan konkrit

GAMBAR PROSEDUR

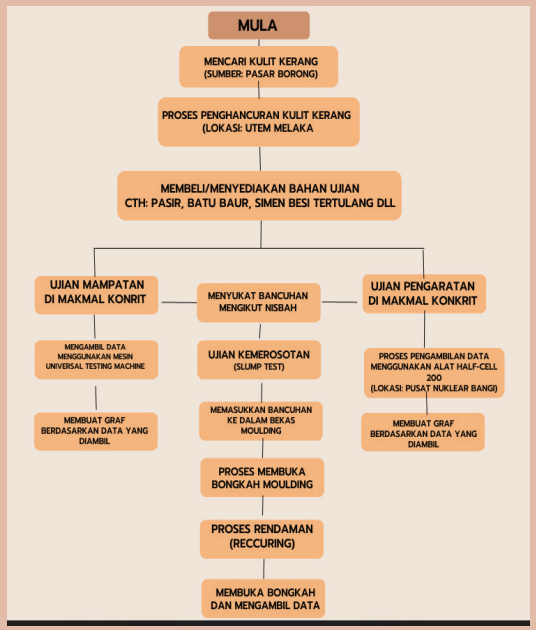
KESIMPULAN

- Kajian mendapati kekuatan konkrit dapat dicapai dengan penggunaan 20% dan 30% kulit kerang secara effisien pada kekuatan 19.9 Mpa
- Kadar pengaratan minimum adalah pada bancuhan 50% kulit kerang dan diikuti dengan 30% dan 20%
- Saranan penggunaan kulit kerang dalam bancuhan adalah pada 30% kerana memberikan kekuatan konkrit yang maksima dan pengurangan kadar pengaratan yang berkesan

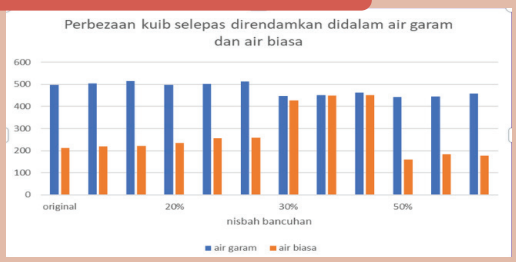
PENYATAAN MASALAH

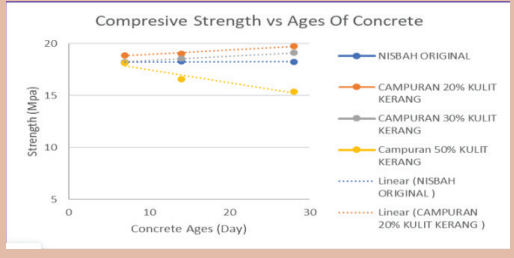
- Masalah kekurangan pasir yang kritikal dalam permintaan pembangunan yang kian memesat
- Permintaan penggunaan pasir yang melambung mempengaruhi peningkatan harga kos bahan
- Kes pencurian pasir di pelbagai tempat seperti dibukit mahupun sungai semakin berleluasa
- Kegunaan pasir yang berlebihan dalam proses pembinaan
- Pengaratan besi berlaku di dalam struktur konkrit yang membawa kepada masalah keretakan

METODOLOGI



GAMBAR KEPUTUSAN





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ECO COMPOSITE BLOCKS

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Abstract.

Solid waste management continues to create significant difficulties. Due to its weightlessness, resistance to corrosion, great reusability, and durability, plastic are one of the preferred materials utilized in the engineering sectors. Rubber-based tires are widely used in the transportation industry and their prominence results in significant trash production each year. By using this waste material, it can also reduce the disposal of solid waste at landfills, protecting the environment, life on land, and marine life. The objective of our project are as follows to test the strength and durability of blocks, to test water permeability of the blocks, do drop test to the blocks and to obtain the optimum content of eco composite block. In the preparation of materials, we have used waste materials that can be recycled such as plastic, we used the type of Polyethylene Terephthalate and also tire rubber to make blocks. For sample preparation, we only use plastic and tire rubber to make blocks. We replace plastic as cement and tire rubber as aggregate. The way to prepare it is that we have melted the plastic bottle first and then put the tire rubber into the plastic liquid and mix it until it melts together and is well mixed. Then we will insert the sample into a mold measuring ″180x85x30". All these blocks will be tested to determine whether they meet and comply with the standards or not. Next, we will carry out three test, firstly, test the strength and durability. Secondly, test the water absorption and drop test. In conclusion, compressive strength test, drop test and water absorption capacity were investigated. By using only two materials, which are plastic bottles and rubber tires, this can reduce density, increase ductility and increase workability which leads to producing light materials.

Keywords: Blocks, waste, tires, plastic

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

ECO COMPOSITE BLOCKS

BACKGROUND

To solve the following problems, we have created a new innovation which is Eco Composite Pavement. We use discarded materials such as bottles and car tires to make pavement. By using this waste material, it can also reduce the disposal of solid waste in landfills which according to the Solid Waste Management Department's study, plastic waste is the second largest contributor to the amount of waste dumped in landfills and it can protect the environment, protect life sea and land.

PROBLEM STATEMENT

- Hydrocarbon-based plastics and tires are the main source of non-biodegradable and difficult-to-recycle waste.
- The effects of tire and plastic pollution can cause flash floods due to clogged drains due to clogged plastic.
- Rivers and beaches can also be polluted because plastic and tires will make it difficult for us to get clean water and marine life will be polluted and we will transport marine resources.

OBJECTIVES

- The objective of our project is to test the strength of paving blocks.
- Making blocks using recycled materials.
- We will also get the optimal mix of eco composite pavement.

METHODOLOGY

COMMERCIAL VALUE

This innovation is very important to us because this project can bring many benefits to society and the environment. this is because this project can reduce recycled materials that are always wasted such as plastic bottles and tire rubber.

INNOVATION HIGHLIGHT

- These blocks require low maintenance compared to regular concrete or asphalt pavement.
- This block paving is environmentally and labor friendly intensive paving technology that is widely used in many countries to solve special purpose paving problems

CONCLUSION

- Recycling plastic waste and tires we can take care of the environment because plastic and tires are materials that take hundreds of years to decompose naturally.
- We can use the benefits of this material to develop new beneficial pavement technologies that will be used in the future.

PICTURE OF PRODUCT

Regional Educators, Students Product's Exhibition

ADJUSTABLE CONCRETE FLOAT

Hazlina binti Marwan[1*], Muhammad Izzul Ikhwan bin Idris[2], Muhammad Muhaimin bin Khilmy[3], Kamal A/L Suresh Kumar[4]

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Abstract.

The concrete float is an equipment that is used to level and smooth the concrete surface. If the concrete float is challenging to handle the workers may become fatigued and take a long time to level the concrete surface well. If this equipment's features are enhanced, it will be feasible to make sure that a project runs more smoothly, can be handled conveniently, and is less demanding on workers. The objectives of this study is to produce an "Adjustable Float" that can be increased in length from 4 feet to 6 feet so it can reduce the amount of time required to level the concrete surface. The adjustable concrete float that was developed follows the specifications that have been set for the equipment that will be used by workers at the construction site. This product has been innovated from the existing bull float in the market but has been modified for easy use. The results show that the average amount of surface that can be levelled in 10 minutes using the adjustable concrete float is 31m^2. In terms of time, the average time taken to level the concrete surface using a normal float is 6 minutes for an area of 12 m^2, while the average time taken using an adjustable concrete float is 4 minutes for the same area. Its indicate that 67% was able to be saved. According to survey results about the usefulness of this product, 87% of respondents believe that utilising it will make it easier for them to level the concrete surface well. In conclusion, the adjustable concrete float's broad head and long handle make it easier to cover more concrete surface than other trowels. Additionally, this product is simple to operate and helps speed up the process of levelling concrete surfaces at construction sites.

Keywords: Concrete float, concrete surface, time saving

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ADJUSTABLE CONCRETE FLOAT

BACKGROUND

- This study produce an "Adjustable Float" that can be increased in length from 4 feet to 6 feet so it can reduce the amount of time required to level the concrete floor surface.
- Its was developed follows the specifications that have been set for the equipment that will be used by workers at the construction site.
- Its has been innovated from the existing bull float in the market but has been modified for easy use

PROBLEM STATEMENT

According to interviews and observations conducted at construction site:

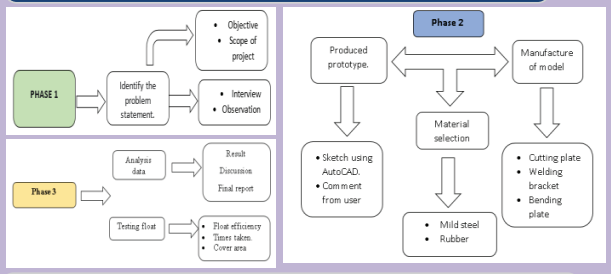
- levelling the concrete surface for the floor structure is one of the issues frequently faced by building site workers. The use of a long wooden float can produce an uneven surface if the workers lack skills
- Workers may become fatigued and take a long time to level the concrete surface if they have a difficulty to handle its.

OBJECTIVES

Objectives of this study are to:

- produces an Adjustable Concrete Float that can be increased in length from 4 feet to 6 feet.
- reduces the amount of time required to level the floor surface.
- determine the usability of Adjustable Concrete Float among user at a construction site.

METHODOLOGY



COMMERCIAL VALUE

This product is very important and has commercial value for use at construction site area to level the concrete floor surface.

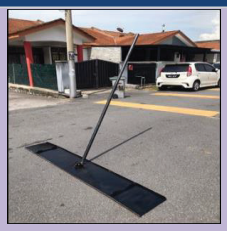
INNOVATION HIGHLIGHT

- The base surface of this product can be changed from 4 to 6 feet long.
- Its has a wide head and long handle make it simpler to cover more concrete surface.
- Facilitates a quicker levelling of concrete surfaces

CONCLUSION

Adjustable Float Concrete is a normal float concrete that has been innovated, where the base surface can be extended from 4 feet to 6 feet in order to reduce the amount of time needed to flatten and smooth the concrete surface. This product helps to save time because the workers can swiftly cover huge areas and accomplish the job with less time and effort expended.

PICTURE OF PRODUCT



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WASTE WATER FILTER

Noorziawati Binti Mohd Sahap[1], Muhamad Muammar Bin mohd Yazid [2] ,[,] Muhammad Syahmi Nazmi Bin Badrul Hisham[3] ,Mohammad Shafiq Bin Rasuzian[4] , and Nur Firdalina Binti Othman[5]
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Abstract.

Nowadays, population growth is increasing and causing an increase in waste water pollution from houses or restaurants that are not well maintained by irresponsible parties. The main objective of this project is to improve the existing filter so that it is more efficient and cheaper and the water flow that out to the drain is waste water that is safe to use for other living things such as fish. Therefore, we must identify the problems we are facing and also provide suggested methods to solve the problems we are facing. The scope of this study is aimed at focusing on how users manage waste water either among residents or traders around the Port Dickson Polytechnic area. This study also focuses on the quality of waste water released into the channel whether it meets the standards set by the local authorities. Apart from that, it also aims to find out if the traders in the surrounding area filter the waste water before it is released into the channel.Most of the drains in our study area are very sad because they are very dirty and smelly, there are also drains that are blocked as a result of food waste that is thrown directly into the drain without filtering first. The pollution will affect the waste water management system. In addition, the irresponsible parties do not pay attention to the problems faced in the country by violating the rules set by the authorities. Therefore, the authorities have taken appropriate action against irresponsible individuals. The study that has been carried out in the designated area has been carried out and found that many shops or restaurants in the Port Dickson Polytechnic Housing Park do not follow the rules set by the authorities and cause waste water pollution in the drains that come from solid waste and waste water that is not maintained well by the party. Therefore, the research implementation method is done by checking every eatery and restaurant. The surrounding factors also become the rate of increase in pollution such as rubbish in the drain which can also make the drain clogged. Therefore, the purpose of this product is to make it easier for the public to install this waste water filter in their respective shops and be able to keep the drains in the area clean. Overall, this waste water filter is very effective for public use, especially in restaurant areas. In conclusion, all objectives have been achieved so this project was successfully implemented so well.

Keywords: waste, water filter, manage waste water, quality waste water, waste water filter

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BACKGROUND

Today environmental pollution as a pollution of drains and rivers is very sad especially in the area of food-based business premises. *Taman Politeknik* andPolytechnic Port Dickson areas were selected to conduct the study because that area has many food premises such as shop, restaurants and residential. Conservation control measures and drain cleaning can be taken by making a product that can be used to clean waste water that can be channeled down the drain safely. This project is environmentally friendly where the impurities and oil found in the waste water will be separated first before the waste water is allowed to flow out and this will not cause the drain to be clogged and dirty. The product produced can prevent impurities and oil from the sink to flow out because the impurities will be filtered using a special filter while the remaining oil and waste will be separated from the water using the floatation method. The introduction of this new system is expected to save the river and the environment around us.

OBJECTIVE

For this project, there are two goals. A few of the goals are:

1.Createg a cheap and efficient waste water filter from existing filters.
2.Ensure that the flow of water that goes out to the drain is clean.

COMMERCIAL VALUE

Waste water filter is an environmentally friendly product that helps in the management of waste water from the sink to produce unpolluted water that goes out to the river/drain.This product have significant commercial value in various industries and applications. Here are a few examples:
1.Residential Buildings
2. Restaurant/food shop
3.Commercial buildings

CONCLUSION

The project is to make improvements to the waste water filter that is ready to be a cheaper and more efficient and to ensure that the water comes out of the sink should be safe water for other living things. The objective can be implemented effectively. We made an experiment on the waste water filter. We managed to change the function and design of the filter to be better and the function is different from the existing filter. After the experiment, we got very good results, the filtered waste water came out clean, odorless and not greasy. Therefore, we do a water PH test to ensure that the drain water is safely released into the drain using a ph meter that we bought ourselves at the store.

PROBLEM STATEMENT

1.Drains in Taman Politeknik look greasy, dirty, mossy and smelly which can disturb the people who pass by there.
2.Food seller throw waste water such as oily water, dirty water directly into the drain, they do not filter the waste water first before throwing it into the drain.
3.Existing wastewater filters are too expensive.
4.Drain water does not flow smoothly due to dirty and greasy drains. It can also lead to clogged drains

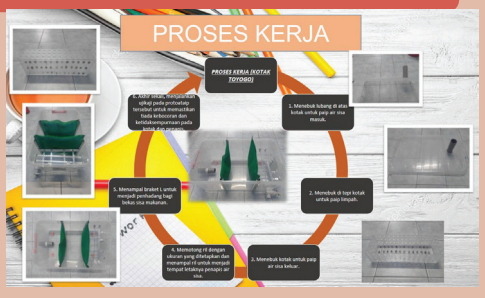
INNOVATION HIGHLIGHT

This project uses environmentally friendly materials such as coconut coir, shell, cotton and small stones to produce filters for waste water filters that are cheap and efficient. In addition to being able to produce a safe pH for waste water for aquatic life before it is released into the drain/river

METHODOLOGY

From the commencement of the project until its conclusion, the techniques and project flow will be covered in this chapter. Each sprint is followed by an evaluation of the researcher's progress and any necessary course corrections. These changes in direction enable the researcher to Reevaluate the ultimate result and make any adjustments necessary to achieve the established objective. For instance, the first several sprints of a software development project are devoted to the project's early phases, which are subsequently evaluated and altered as necessary. The project can be more robust and advance more quickly towards the intended final result thanks to this procedure.

DIAGRAM/PICTURE



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Smart Eco-Rubber Ball (ERB) for slab for earthquake mitigation

Nubailah Abd Hamid, Muhammad Hasiffuddin shamsuddin, farah Natasya Amril,Muhammad Aiman Haziq Ghazali
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This product namely Smart Eco-Rubber Ball Slab (ERBS) for earthquake mitigation are highlight to introduce the use of bubble deck technology against floors, for constructions industry. Bubble deck technology is a cutting-edge reinforced concrete system that uses spherical hollows as concrete savers. This technology is commonly used in slabs to reduce the concrete usage is refer to spherical-shaped items or materials used for the construction industry. These Smart Eco-Rubber Ball Slab (ERBS) are made from the strong material such as rubber, which one of its properties is to have elasticity, where it is more strong material than plastic. The main purpose of the use of rubber balls in this project is to test the applicability of the bubble deck technology (made from rubber) in Malaysia. Feasibility study were experimentally investigated to replace the plastic with rubber and study the effect to the strength comparison between conventional slab, rubber ball and sponge rubber ball and using the other additives such as alloys where the compression test, slump test, curing test and structure test conducted. In the nutshell, As a result, each sample has a distinct load and strength. Sample 1 is a typical slab that was utilised in all buildings. The sponge rubber ball used in samples 2 and 3 has the same characteristics, but in a different proportion. The same rubber ball and varied ball percentages were employed in samples 4 and 5, which were similar to samples 2 and 3. Sample 6's slab had 50% rubber and alloy that apply on it. The relationship between load and deflection illustrated from the largest deflection occured at a force of 213kN since the sample will deflect more when a higher load is applied. However, this is merely an analysis; the sample test will be conducted in order to determine the predicted result. The data indicates that our goal has been accomplished, and we should do a compression test on day 28 to assess the condition and strength of the concrete. This is because most construction sites perform a compression test or concrete test on day 28 because that day or week is customary for determining the true strength of the concrete. All the samples were subjected to the highest strength and load. We can therefore conclude that sample 6 met the project's goal of using less concrete mix in the slab while increasing the structure's strength.

Smart, Eco-Rubber Ball, slab, earthquake mitigation

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BACKGROUND

Bubble Deck is an innovative new technology that replaces a significant percentage of a concrete slab's mass with hollow or foam filled rubber balls. In technology terms, it creates a voided biaxial slab. The "bubbles" are sandwiched between the top and bottom meshes creating a natural cell-like structure that when concreted. Performs just like a traditional solid reinforced concrete slab. Bubble Deck, however, has all kinds of advantages over the traditional solid slab. The voids in the Bubble Deck slab also saving materials and costs.

PROBLEM STATEMENT

Among the problems faced are, there were reports of building cracks involving the floor. After we examined the problem and did some research, we found that the plastic balls is not enough strength to support the slabs structure. Not only that, the plastic bubble is non structure. So, we developed our idea to replace plastic materials with materials made of rubber called rubber balls and sponge rubber balls in this project.

OBJECTIVE

For this project, there are three goals. A few of the goals are:

1. To reduce the use of cement in the manufacture slab
2. To compare the strength of rubber ball, conventional slabs and sponge rubber ball.
3. To test the applicability of the bubble deck technology (made from rubber) in Malaysia.

INNOVATION HIGHLIGHT

Among 6 samples, 50% Rubber Ball +Alloy) is stronger than sample 4 (with 50% Rubber Ball) without alloy, where, the strength value is 9.6Mpa compared to 4.3Mpa.

COMMERCIAL VALUE

50% Rubber Ball + Alloy) is stronger than sample 4 (with 50% Rubber Ball) without alloy, where, the strength value is 9.6Mpa compared to 4.3Mpa.The slab can reduce the concrete in the center of the slab. High density rubber spheres replace the ineffective concrete in the slab's center, lowering deadweight and increasing floor efficiency.

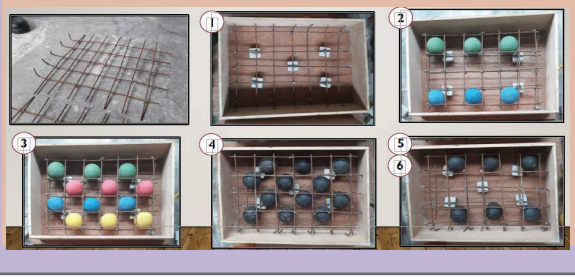
METHODOLOGY

1.Complete the formwork.
2.The next step is to mix concrete to all samples.
3.Then, do cube test and slump test. The curing test for sample cubes for 28 days.
4.After that, perform a compression test on the sample cube. 5 Record & collect the data.

CONCLUSION

The use of rubber balls and sponge rubber balls in this project can have an impact on the construction industry, especially on floors.

DIAGRAM/PICTURE



Smart Hybrid Steel-Alloy wire fibre with steel insert in Beam to Column of IBS structure for Seismic mitigation and Crack recovery

Nubailah Abd Hamid, Ain Damia, Ahmad Syawal, Nor Ailyn Husin and Anis Shafiqah Rosli
Jabatan Kejuruteraan Awam,
Politeknik Port Dickson, KM. 14, Jalan Pantai 71050 Si Rusa Negeri Sembilan

This study aims at establishing new smart Smart Hybrid Steel-Alloy wire fibre with steel insert embedded in Beam to Column of IBS structure for post-earthquake design mitigation and crack recovery to compare with the conventional method of construction which can be an alternative to steel solutions for , IBSF and FRP sheets or strips are used for shear strengthening of reinforced concrete beams. Test the strength of three test cubes with different percentages of alloy in them, namely control, 15% and 64%. Promising results have shown that the new strengthening system works well in practice. The shear capacity could be increased significantly. Furthermore, at the serviceability limit state, the prestressed memory-steel stirrups reduced the overall beam deflections, the stresses in the internal steel stirrups, the number of cracks, and the crack widths.As an alternative to steel solutions, IBSF and FRP sheets or strips are used for shear strengthening of reinforced concrete beams. Test the strength of three test cubes with different percentages of alloy in them, namely control, 15% and 64%. Promising results have shown that the new strengthening system works well in practice. The shear capacity could be increased significantly. Furthermore, at the serviceability limit state, the prestressed memory-steel stirrups reduced the overall beam deflections, the stresses in the internal steel stirrups, the number of cracks, and the crack widths.

Smart, Hybrid, Steel-Alloy, steel insert, beam to column, seismic mitigation, Crack recovery

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BACKGROUND

The main purpose of this project is to find out the effectiveness of additional materials to the building structure with the concept of precast beam to column connection has been improved with addition of alloy material. This precast beam to column connection focuses more on the connection between beam and column. A joint may be required to transfer several loads simultaneously so each of those loads must be considered in the design. It is influenced by several things, including the strength and cracking of the building structure to be built. Apart from that, the background of this project is also an idea from previous studies in which they used precast beam to column connection instead of ordinary concrete mix without other additives in order to test the strength and durability of buildings built for a long time.

PROBLEM STATEMENT

1.The addition of steel insert in this product as joint is not well-known in the building structure because the material used in this project is a little expensive and difficult to obtain. Here in the feasbility study is in need to conduct.
2.To determine the addition of materials such as alloy and steel insert is it able to withstand the high load in the building structure.
3.To determine the effectiveness of building structures, to provide longer lifespan and the durability with the addition of alloy and steel insert.Because most of the building structures in Malaysia do not have a long lifespan because within 50 years there will start to be cracks that occur in the development even if it is small but it can have a profound effect on the public.

rofound effect on the public.

OBJECTIVE

For this project, there are three goals. A few of the goals are:

1.To study the feasibility of addition of materials such as alloy and steel insert can be used in the construction industry as a joint that can reduce cracks in the building structure.

2.To analyze,compare the variable strength of six (6) cube test samples with different materials and determine the strongest cube compression test.

3.To determine the position of the alloy and steel insert affects the strength of the beam to column connection

INNOVATION HIGHLIGHT

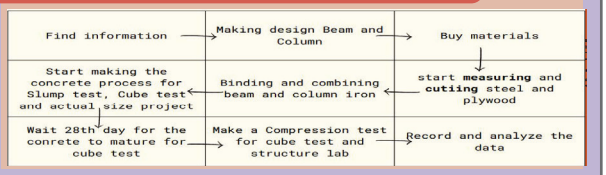
Among 6 samples, 50% Rubber Ball +Alloy) is stronger than sample 4 (with 50% Rubber Ball) without alloy, where, the strength value is 9.6Mpa compared to 4.3Mpa.

COMMERCIAL VALUE

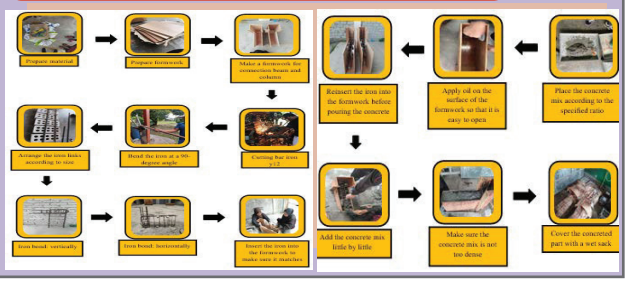
50% Rubber Ball + Alloy) is stronger than sample (with 50% this project can help the construction industry especially in further developing the use of unusual materials such as alloy and steel insert in the construction process. ber Ball) without alloy, where, the strength value is 9.6Mpa compared .The slab can reduce the concrete in the

center of the slab. High density rubber spheres replace the ineffective concrete in the slab's center, lowering deadweight and increasing floor efficiency.

METHODOLOGY



DIAGRAM/PICTURE



CONCLUSION

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Pedestrian Overpasses Bridge for Vertical Evacuation from Tsunami - POBET

Prayoga Damiharja[1], M. Yogi Saputra[2], Andi Syukri[3]
Civil Engineering Department – Politeknik Negeri Padang, Indonesia

ABSTRACT

Pedestrian Overpasses Bridge for Tsunami Vertical Evacuation - POBET is an alternative to the availability of vertical evacuation infrastructure, which is still insufficient when compared to population density in coastal locations. POBET has arisen as an alternate vertical evacuation facility for a number of reasons:

1) Allow for evacuation bottlenecks at junctions for persons stopped in traffic while evacuating horizontally.
2) Assist in the distribution of refugees in a close and effective manner, so that they are not concentrated at a single evacuation route point or shelter.
3) Accessibility by being positioned on traffic lanes that are commonly used and easily recognised by road users or the local population.

The planned POBET is located at a crossroads with the following considerations:

1) The intersection has a large enough area to create a bridge for crossing people and a huge area above it for vertical evacuation.
2) The intersection features a large number of lanes for vehicles and pedestrians to use.
3) Intersections are locations of convergence (assembly) for various areas that are prone to congestion or evacuation bottlenecks.

This study will assist in the development of tsunami evacuation in coastal locations, particularly in the city of Padang. The evacuation system, which still relies on horizontal tsunami evacuation, is insufficient, and the usage of shelter buildings, which requires highly sophisticated planning, especially in terms of land availability and functions in daily activities, is a major issue at this time. Modifying the structure of persons crossing a bridge as an evacuation site is a renewable technology that can be applied to transportation development and disaster risk reduction. This study will develop a POBET prototype of people crossing a bridge as an evacuation site, which will become part of the vertical evacuation structure after there are evacuation routes and evacuation facilities.

Refer to the Tsunami Mitigation Guidelines for Evacuation Building - Disaster Management, Cabinet Office Japan, 2005, and FEMA 646 about Guidelines for Design of Structures for Vertical Evacuation from Tsunamis to assess POBET in candidate areas. The technical data that will form the basis of this research is the Padang Inundation Map from 2005, which will yield observations and candidates who are highly vulnerable and require alternate vertical evacuation facilities such as POBET.

Keywords: *POBET, Vertical Evacuation, Pedestrian, Tsunami*

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BACKGROUND

The main purpose of this project is to find out the effectiveness of additional materials to the building structure with the concept of precast beam to column connection has been improved with addition of alloy material. This precast beam to column connection focuses more on the connection between beam and column. A joint may be required to transfer several loads simultaneously so each of those loads must be considered in the design. It is influenced by several things, including the strength and cracking of the building structure to be built. Apart from that, the background of this project is also an idea from previous studies in which they used precast beam to column connection instead of ordinary concrete mix without other additives in order to test the strength and durability of buildings built for a long time.

PROBLEM STATEMENT

1.The addition of steel insert in this product as joint is not well-known in the building structure because the material used in this project is a little expensive and difficult to obtain. Here in the feasbility study is in need to conduct.
2.To determine the addition of materials such as alloy and steel insert is it able to withstand the high load in the building structure.
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OBJECTIVE

For this project, there are three goals. A few of the goals are:

1.To study the feasibility of addition of materials such as alloy and steel insert can be used in the construction industry as a joint that can reduce cracks in the building structure.

2.To analyze,compare the variable strength of six (6) cube test samples with different materials and determine the strongest cube compression test.

3.To determine the position of the alloy and steel insert affects the strength of the beam to column connection

INNOVATION HIGHLIGHT

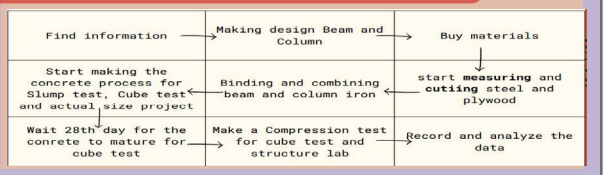
Among 6 samples, 50% Rubber Ball +Alloy) is stronger than sample 4 (with 50% Rubber Ball) without alloy, where, the strength value is 9.6Mpa compared to 4.3Mpa.

COMMERCIAL VALUE

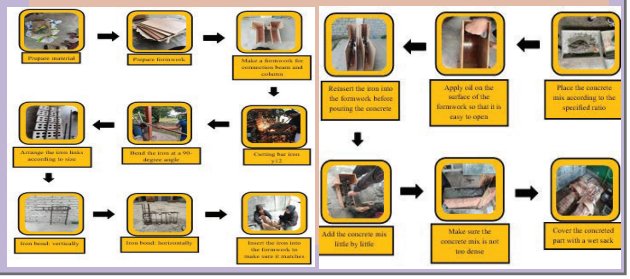
50% Rubber Ball + Alloy) is stronger than sample (with 50% this project can help the construction industry especially in further developing the use of unusual materials such as alloy and steel insert in the construction process. ber Ball) without alloy, where, the strength value is 9.6Mpa compared .The slab can reduce the concrete in the

center of the slab. High density rubber spheres replace the ineffective concrete in the slab's center, lowering deadweight and increasing floor efficiency.

METHODOLOGY



DIAGRAM/PICTURE



CONCLUSION

CONNECTION OF PRECAST IBS BUILDING FOR PROGRESSIVE COLLAPSE

Nubailah Abd Hamid, Nadiatul Husna Mohd Zoolhilmi, Ellin Elena Sulaiman, Nor Aily Abd Husin, Anis Shafiqah Rosli
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ABSTRACT

Earthquake can cause catastrophic failure and structural damaged by the earthquake, which also had a negative impact on the country's economy and resulted in many fatalities such as the 7.8-magnitude earthquake struck on February 6 in southern Turkey, close to Syria's northern border. and earthquake in Ranau in 1995. This motivated the researcher to introduce new connection of precast IBS building where stronger beam and columns connection and foundation is vital structure element should be stronger to encounter the earthquake hits so that the the building only shakes and does not collapse quickly. Corbel and steel insert used as fastener to the beam column connection to distribute the pressure from crushing. 3D Prototype model developed using the Revit and fabricated and will be experimentally investigated the structural performance.

Earthquake, beam to column, connection, corbel, base isolator

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

BACKGROUND

In this project we are going to improvise the previous model by senior and make comparison between our new researches. Due to earthquake in Turkey, we took the opportunity to improve the connection structural part of the building to make a stronger building structure and can endure the progressive collapse. The purpose of this product is to improve the joints in columns and beams with additional materials such as corbel and steel insert to reduce the cracked,collapse and structural damage to buildings due to earthquakes.

OBJECTIVE

To design structure model connection of beam to column using
To fabricate the prototype and improve the stronger bonding of beam to column
To test the strength of structure using compression concrete machine.

COMMERCIAL VALUE

The strength of a building can have significant commercial value in industrial development. Here are some example

Residential Building
Commercial buildings
Industrial Facilities

CONCLUSION

At the end of this research, the product of structural that we have made is expected to give the building a better performance during and post-earthquake. The alloy wires that wrapped around the column and beam are used to strengthen the structure during and post-earthquake. In addition, alloy wire can enhance the building structural performance by reducing the vibration and as well can improve energy efficiency. Adverb together with the rubber damper that is installed at the bottom of the column.

PROBLEM STATEMENT

Vibrations in the soil layer caused by an earthquake can cause damage or even the destruction of buildings, whether they are above ground or underground. he size of the earthquake, its proximity to the epicenter, the strength or lack of existing building construction, and the size of the damage are all factors.
The movement in the soil layer brought on by earthquake waves can cause homes or buildings to sway, weakening the construction of the building or its frames and even causing part or all the structure to collapse.
Earthquakes strike suddenly and without warning. Building that have joints with poorly confined concrete and make the building collapse easily.
Poor quality building materials can be the cause of the building structure collapsing.

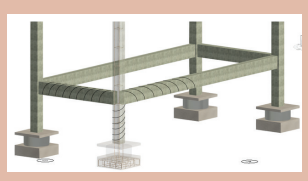
INNOVATION HIGHLIGHT

The connection between the column-slab-beam, the applicability and effectiveness This is to create a better connection design structure and as the replacement of the basic materials that are usually used for the construction. The purpose of this project is to find out whether the materials used are suitable to delay the collapse and corrosion of a building caused by an earthquake

METHODOLOGY

Will be testing the built prototype by using the UTM (Universal Testing Machine) to test the column and beam endurance to the maximum level.
Trial on the shaking table

DIAGRAM/PICTURE



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Filling Pothole With Phosphate Ceramic

Nila D/O Karikalan[1], Yugashini D/O Ramanathan[2], Dinesh S/O Armugam[3]

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Madam Nora Binti Ismail

Abstract.

Development of potholes on Malaysia's roads and streets is a very common phenomenon. Potholes are one of the public's main local concerns, as they are highly visible defects. Many perceive that the quality of local roads may be deteriorating, with potholes being one of the main causes. Therefore, it is a need to carry out timely inspection and maintenance of potholes to avoid inconvenience to road users. Congested roads, high traffic, and pothole problems are major concerns for any modern city planning. Since roads indirectly contribute to the economic growth of the country it is extremely essential that the roads are well laid out and strong. Because a CBPC contains ingredients that would inactivate microbes, the researchers thought this could be a good way to kill pathogens and end up with a material that could be safely applied to roads. "In the first step of making a CBPC, we mix the water with mono potassium phosphate, magnesium oxide and borax which form an alkaline grit slurry that prevents the proliferation of pathogens. Conventional asphalt patch contains bitumen, a sticky, black residue left over after petroleum distillation. The conventional patch contains polycyclic aromatic hydrocarbons (known as PAHs) that are a risk to human health. This patch formulated patch eliminates this environmental concern because its matrix is composed of magnesium oxides that are not toxic to people. So far, the researchers have analysed the performance in the lab, showing it has a higher stability and flow comparable to asphalt pavement, and they believe its longevity will be superior to that of asphalt-based patches. The group has filed a patent for CBPC based on these initial findings. In the meantime, they are working on adding a green. The team is currently working on demonstration-scale experiments to site test CBPC on an operational roadway with regular traffic. If necessary, they will explore additives to further improve the mechanical properties and durability of the new material.

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RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

SMART AQUAPONIC USING RAIN HARVEZTING FILTER

Background

In aquaponics, plants are grown in the grow bed, and fish are placed in the fish tank. The fish tank's water containing fish waste is fed to the grow bed, where billions of naturally occurring beneficial bacteria break the ammonia down into nitrites and nitrates. Plants absorb these nitrates, and other nutrients to help them grow. In return, the plants clean and filter the water. The clean and oxygenated water then recirculates back to the fish tank, where the cycle will begin again.

Problem Statement

The lack of infrastructure and tecnology related to animal breeding is also a constraint for the local community to be directly involved in fish farming activities in ponds

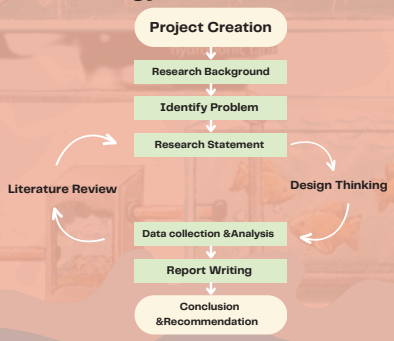
Commercial Value

- Farmers' market
- Specialty grocers
- Restaurant
- Direct -to-consumer sales

Objective

- To determine effectiveness of aquaculture systems
- To produce healthy livestock to facilitate breeders
- To increase knowledge & income in fish farming for community

Methodology



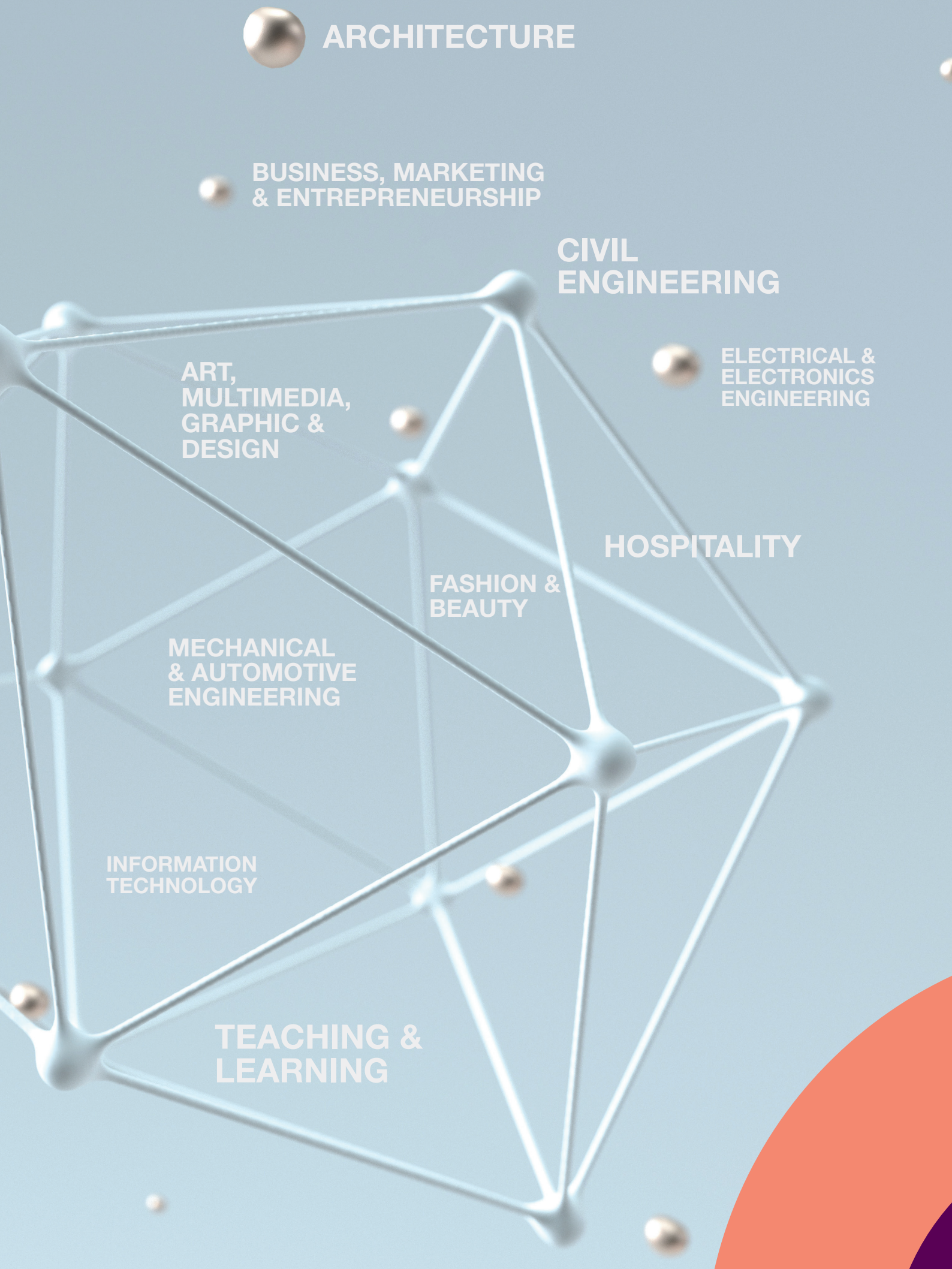
Innovation Highlight

- A pipeline that channels rainwater to be filtered.
- Grow plants as a sustainable and organic food source.
- There is no wastage of water because the circular process is used in this project.
- Automatic feeder for fish used make it easier for them to leave for a few days.

Conclusion

To sum up, we can study the problems faced by farmers and fish farmers. We can see how important system innovation products are this aquaponics. Therefore, with our innovative products, can add passion in each for farming and fish farming activities which can save time. In addition, advantages farming fish, we can use the area, space or abandoned container that we can get reused and bring good profits. Hopefully this product will work help users to facilitate farming and fish farming activities.

Diagram / picture Project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ENGINEERING
ELECTRICAL &
ELECTRONICS
ENGINEERING
ART,
MULTIMEDIA,
GRAPHIC &
DESIGN
HOSPITALITY
FASHION &
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TECHNOLOGY
TEACHING &
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MECHANICAL & AUTOMOTIVE ENGINEERING

Category

02

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Regional Educators, Students Product's Exhibition

HUMAN DETECTING SYSTEM DURING LANDSLIDE

Ragunathan A/L Jayaraman[1,*], Haemabarathi A/P Ramachandran[2], Samrat Naidu A/L Mokana Krishnan[3], Yugendarr A/L Muniyan[4] and Ugenthiran A/L Chandran[5].

[1]Politeknik Port Dickson, KM 14, Jalan Pantai, 71050 Si Rusa,Negeri Sembilan, MALAYSIA

Abstract.

The development of a Human Detecting System During Landslide is invented to make the operation of finding landslide victims easier for the authorities. This system is equipped 2 main type of sensors which is the microwave radar and MLX90614 non-contact infrared temperature sensor. Basically, the device will detect the temperature of the surface of the soil through the MLX90614 non-contact infrared temperature sensor and will detect the presence of human bodies using the microwave radar sensor by emitting microwaves and then detecting the reflections of those microwaves off from victims in their vicinity. We aim to make this product work as it would lessen the burden of the rescue officers and would enable them to find the victims in a short period of time which we can then necessitate them of the required treatment as soon as possible. In conclusion, this system can be very efficient and helpful, since it does not need much manpower to locate landslide victims

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RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

TITLE: HUMAN DETECTING SYSTEM DURING LANDSLIDE

SUPERVISOR: RAGUNATHAN A/L JAYARAMAN

LEADER: HAEMABARATHI A/P RAMACHANDRAN

MEMBERS:
1. HAEMABARATHI A/P RAMACHANDRAN
2. SAMRAT NAIDU A/L MOKANA KRISHNAN
3. YUGENDARR A/L MUNIYAN
4. UGENTHIRAN A/L CHANDRAN

INSTITUTION NAME: POLITEKNIK PORT DICKSON

PROBLEM STATEMENT

'Malaysia landslide: At least 21 campers dead and more missing'.-BBC
During landslides, the authorities usually struggle to locate all victims of the landslide. Till today, K9 dogs are being utilised to find all victims which consumes a lot of time which is very pivotal at that moment.

OBJECTIVE

1. To design a device to detect human during landslide.
2. To construct a system using MLX90614 non-contact infrared temperature sensor and microwave radar sensor.

COMMERCIAL VALUE

- Fire and Rescue Department
- Police officers
- Citizens who live in high risk landslide locations

CONCLUSION

To conclude, The main innitiative for us to make a product like this is to lower the number of dead and missing victims and to find the victims of landslide quicker and get them the needed treatment in that critical moment.

BACKGROUND

For the past decade the landslide cases in Malaysia have been increasing gradually. Although this is a huge problem, there hasn't been any product made to aid the authorities during the search of the injured victims. Till today authorities have been using K9 dogs to help them find the victims. Besides, other products that can penetrate beneath the ground, don't have a suitable design to be used for landslide and they cost a lot more than our detection system. We aim to make this product work as it will reduce the burden of rescue officers and would enable them to find the victims in a short period of time.

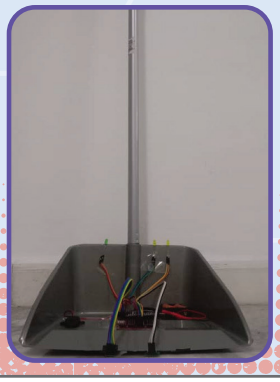
INNOVATION HIGHLIGHT

- Uses temperature and movement to detect victims.
- Detection range is between 1-7 meters perpendicularly.
- Lightweight and easy to handle.
- Uses minimal and cheap components.
- Overall cheap cost compared to other detection devices in market.

METHODOLOGY

Arduino software: Arduino Nano
Sensors used: MLX90614 non-contact infrared temperature sensor and microwave radar sensor.
Programming software: Arduino IDE
Programming language: C++
Materials used: PVC Pipe and Cake Base

PROTOTYPE



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Regional Educators, Students Product's Exhibition

E-SIGHT GLASSES

Ragunathan A/L Jayaraman[1,*], Srimuhunthan A/L Mahendran[2], Oumnath A/L Karunanithi[3] and Kuralamuthan A/L Rajendran[4]

[1]Politeknik Port Dickson, KM 14, Jalan Pantai, 71050 Si Rusa,Negeri Sembilan, MALAYSIA

Abstract.

Developing a tool for the visually impaired people is not a recently emerged problem. But developing a computer aided tool is a still developing area. The aim of all these systems is to help the user in navigation without the help of a second person. There are several works using computer vision techniques. But there is no existing method that help to solve the all-basic needs of blind person. All existing systems are designed only for a specific purpose. In this project, we propose new method which combines the key aspects of some use full methods and added some extra capabilities for assisting the blind person. This new system may solve some of major problems of blind persons that are still existing. Also, we give a comparison and analysis of the current use full navigation methods

RESPEX 2023
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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

Title: E-Sight Glasses
Group members:- Srimuhunthan A/L Mahendran
- Oumnath A/L Karunanithi
- Kuralamuthan A/L Rajendran
Supervisor Name: Encik Ragunathan A/L Jayaraman
Institution Name: Politeknik Port Dickson

ABSTRACT

This project aims to develop a computer-aided tool for visually impaired individuals, addressing the limitations of existing systems that cater to specific needs. By combining key aspects of different methods and introducing additional capabilities, the proposed system aims to solve major problems faced by the blind. The synopsis also mentions a comparison and analysis of current navigation methods.

INTRODUCTION

The project "e-Sight Glasses" aims to assist visually impaired individuals of all ages by introducing innovative technology that enables them to read written text. These glasses utilize scanning and audio conversion technology to convert typed text into audible text alongside face recognition.

PROBLEM STATEMENT

- Blind people has problem in recognizing people in public.
- They could not observe or recognize any obstacles ahead.
- They cannot see or read sign boards.

OBJECTIVE

- To produce a device for the blind person community that can be used for face recognition, detecting obstacles and also interpreting written signboards through a speaker.

- To upgrade the device using an ultrasonic sensor to detect obstacles, an emic 2- text to speech sensor to interpret signboards with printed text on it, and ESP 32 cam for other people's face recognition.

COMMERCIAL VALUE

Total cost for materials and components: RM 600
Total cost for assembly and programming : RM 100
Total cost for commercial value: RM 700

METHODOLOGY

Microprocessor: raspberry PI 3+
Sensors: Ultrasonic sensors
Camera: PI Camera
Programming Software: Yolo
Materials used: ABS Plastic

DIAGRAM/PICTURE

CONCLUSION

To conclude, the main initiative for us is to make a product such as this to help the visually impaired community for them to be mobile and being able to walk and travel on their own. Moreover, accidents among the visually impaired will be decreased if this product is in use.

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Regional Educators, Students Product's Exhibition

AIRCRAFT EMPENNAGE TRAINING KIT (AETK)

Asnoramirul Danial Bin Ag Sarpuddin[1,*], Muhammd Haziq Muizzuddin N Nadri [2] ,Puteri Nur Aisyah Binti Megat Sapri[3] and Norlia Binti Ghazali[4].

[1]Politeknik Banting Selangor, Persiaran Ilmu, Jalan Sultan Abdul Samad , 42700, Banting, Selangor, MALAYSIA

Corresponding member : norlia@polibanting.edu.my

Abstract.

The idea behind our project is to create a teaching tool that will engage aviation students visually and physically. Aircraft Empennage Training Kit (AETK) is a new project innovation based on our problem statements researched. The first one is the aviation students have difficulty understanding how an aircraft empennage works through books or slides. Next, the students do not have clearly visualize how an aircraft's empennage works. The last one is new students in the aviation course tends to have a little basic knowledge of how a rudder and elevator works. From the problem statements, we found our three main objectives such as to design, develop, and demonstrate the fully functional electronic system of empennage that students can understand easily. This training kit uses Arduino UNO to program our code to make sure this training kit fully function when the user pushes the button of rudder and elevator. Rudder push buttons control the movement of left and right while elevator push buttons for pitch up and pitch down. We also provide the instruction how to use it. For the power sources, our product can use 12V batteries or an adapter that is connected to the Arduino UNO. Also, our product can easily move to anywhere since it is light weight, and we provide the tyres for smooth movement. As a result, users, especially lecturers, can use our product because it is easy and convenient to use anywhere, such as in class.

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

AIRCRAFT EMPENNAGE TRAINING KIT (AETK)

PN NORLIA BINTI GHAZALI
PROJECT SUPERVISOR

ASNORAMIRUL DANIAL BIN AG SARPUDDIN
PROJECT LEADER
MECHANICAL MECHANISM

MUHAMMAD HAZIQ MUIZZUDDIN N NADRI
DESIGN & STRUCTURE MECHANISM

PUTERI NUR AISYAH BINTI MEGAT SAPRI
ELECTRONIC & ELECTRICAL MECHANISM

BACKGROUND OF STUDY

The student in aviation faced difficulty on understand how the aircraft empennage system work through theoretical means

Simulation of the aircraft empennage system overcomes the problem

PROBLEM STATEMENTS

1. The aviation students have difficulty understanding how an aircraft tail works through books or slides
2. The aviation students do not have a clear visualization of how the tail of an aircraft works
3. New stunts in the aviation course generally tends to have little basic knowledge of how a rudder and elevator work

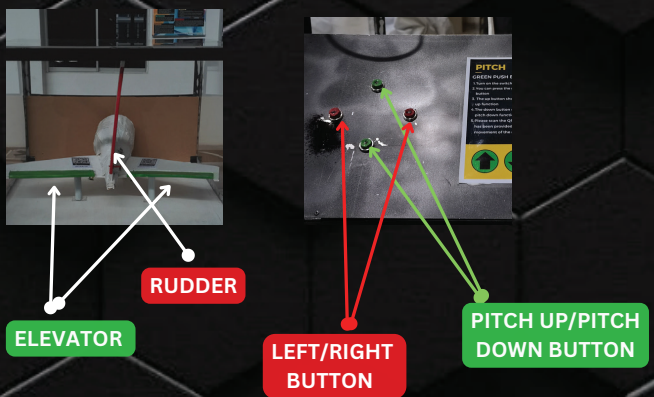
PROJECT DESCRIPTION

The Aircraft Empennage Training Kit (AETK) was created as an educational tool that helps aviation students learn the aircraft's tail systems such as elevator for up and down and rudder for right and left, which involves visual and tactile learning.

PRODUCT OBJECTIVES

1. To design an electronic system within the Empennage Training Kit
2. To develop a fully functional electronic system for the Empennage Training Kit that students can understand easily
3. To demonstrate how does the electronic system works in the Empennage Training Kit

PROJECT APPLICATIONS



COMMERCIAL VALUES

Students can easily get information by scanning the code.

Portable and does not require much energy to use during PDP.

Has an easy to understand the function of the button.

REGISTRATION NUMBER:

LY2022W04984

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HYDRAULIC WHEELBARROW

Mohd Hafiz Hassan[1], Muhammad Irfan Qayyum Makhinaza [2], Muhammad Haiqal Mahadi[3], Muhammad Firdaus Ruzaini[4] and Sesatthiri Sanasi[5]

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Abstract.

The main objective of this project is to modify the wheelbarrow and add a hydraulic jack with the aim of making it easier to remove items from the filling container. The collection of data and information is obtained from the results of an online questionnaire. This Hydraulic Wheelbarrow can also help workers to start work especially in transporting and moving building materials. It can also lighten the work of removing material from the wheelbarrow because the hydraulic jack is driven using a power window motor that can rotate in two directions using only a switch. It is also possible to be improved and prototypes for mass production. For future development and improvement of the Hydraulic Wheelbarrow, light and strong material is expected to be available and applied to this innovation.

Keywords: wheelbarrow, hydraulic, worker, transporting, removing.

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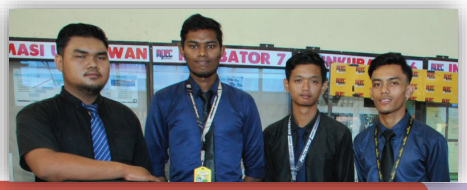
HYDRAULIC WHEELBARROW



MUHAMMAD IRFAN QAYYUM BIN MAKHINAZA
MUHAMMAD HAIQAL BIN MAHADI
MUHAMMAD FIRDAUS BIN RUZAINI
SESATTHIRI A/L SANASI

BACKGROUND

Hydraulic Wheelbarrow is an innovation project in terms of design, function and handling. In terms of handling, the wheelbarrow using 4 wheels for stability. The forklift concept is used to control the direction using the rear wheel. Power window motor is used to rotate the spiral hydraulic jack to go up or down using a switch. The electric power is obtained from a motorcycle battery that supplies 12v of electricity.

OBJECTIVE

For this project, there are three goals. The goals are:

1. To remove loads easier.
2. To reduce back pain for user after using wheelbarrow.
3. To stable it using 4 wheels

COMMERCIAL VALUE

Commercial value in agriculture and construction applications are:

1. User-friendly and easy to use.
2. Very comfortable and stable because it has 4 wheels.
3. It uses a simple operation, a hydraulic jack to lift the filling container.

CONCLUSION

The main objective of this project is to modify the wheelbarrow and add a hydraulic jack with the aim of making it easier to remove items from the filling container. Hydraulic Wheelbarrow can also help workers to start work especially in transporting and moving building materials. It can also lighten the work of removing material from the wheelbarrow because the hydraulic jack is driven using a power window motor that can rotate in two directions using only a switch. It is also possible to be improved and prototypes for mass production. For future development and improvement of the Hydraulic Wheelbarrow, light and strong material is expected to be available and applied to this innovation.

PROBLEM STATEMENT

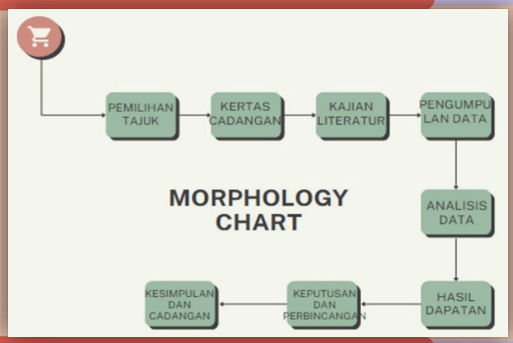
Problems that often arise during the process of moving and lifting;

1. Normal wheelbarrows are quite difficult to remove loads.
2. Back pain problem after using a regular wheelbarrow.
3. Normal wheelbarrows are less stable.

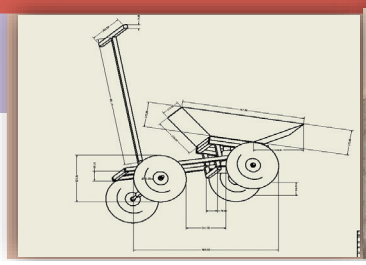
INNOVATION HIGHLIGHT

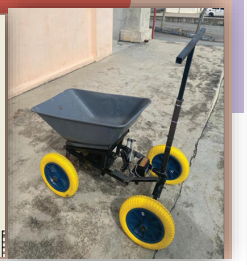
This project uses mechanical technology which could be operated by civilians and meets Safety Standards & Alerts, Eco-friendly & Energy saving and also easy integration with existing modules.

METHODOLOGY



DIAGRAM/PICTURE





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WHEEL NUT OPENER

Mohd Hafiz Hassan[1,*], Khairuddin Sapruddin[2], Mohamad Firdaus Rahmat[3], Muhammad Amirul Rossham[4] and Muhammad Hafiz Alimat[5]

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Abstract.

Significant problem in the automotive industry, car workshops and vehicle service centre for factory IMS, factory workers and car workshop workers are the problem of wheel nuts that always take time to loosen the nuts one by one and use a lot of man power. This product simplify and reduce the labour of factory workers and SMEs. The Wheel Nut Opener is used to loosen multiple nuts in a single use. The Wheel Nut Opener can be applicable in Automotive Industry and commercial cars users. The weight of the model can be reduced by using a lightweight material base plate. The fabrication of Wheel Nut Opener is completed by milling, welding and fitting processes. The Wheel Nut Opener successfully built and fully functional either tested manually using lever or by using impact wrench. From the results of analysis and experiments, the tool is possible to be improved and prototypes for mass production. For future development and improvement of the Wheel Nut Opener, light and strong material is expected to be available and applied to this innovation.

Keywords: wheel, nut, car, workshop, automotive.

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8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

WHEEL NUT OPENER

BACKGROUND

The focus of our project is a significant problem in the automotive industry, car workshops and vehicle service centre for factory IMS, factory workers and car workshop workers are the problem of wheel nuts that always take time to loosen the nuts one by one and use a lot of manpower. We created this product to simplify and reduce the labour of factory workers and SMEs.

OBJECTIVE

For this project, there are three goals. The goals are:

1. Save the time of opening the wheel nut.
2. Applying the same torque to each nut.
3. Can open four wheel nuts at a same time.

COMMERCIAL VALUE

Commercial value in automotive industries and applications are:

1. Portable
2. Easy storage
3. Easy to operate

CONCLUSION

The Wheel Nut Opener is used to loosen multiple nuts in a single use. The Wheel Nut Opener can be applicable in Automotive Industry and commercial cars users. The weight of the model can be reduced by using a lightweight material base plate. The fabrication of Wheel Nut Opener is completed by milling, welding and fitting processes. The Wheel Nut Opener successfully built and fully functional either tested manually using lever or by using impact wrench. From the results of analysis, the tool is possible to be improved and prototypes for mass production. For future development and improvement of the Wheel Nut Opener, light and strong material is expected to be available and applied to this innovation.

PROBLEM STATEMENT

The problem that often occurs when opening a wheel nut is:

1. A regular wheel nut opener takes a long time to loosen the wheel nut.
2. Usually for a regular wheel nut opener, torque applied is different for each nut.
3. A regular wheel nut opener loosen the wheel nut one by one.

INNOVATION HIGHLIGHT

This project uses mechanical technology which could be operated by mechanics or civilians using existing workshop tools. It is also could be used without an electric supply to ease user to use this product.

METHODOLOGY

A through plan is being carried out to actualize this project as ready to use solution with safety features to ensure that the project is finished in time and step by step process is followed

DIAGRAM/PICTURE

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ULTRA BLINDSPOT SENSOR 1.0 (UBS 1.0)

NURUL BATRISYIA BINTI SHAIFUDIN

MUHAMMAD AZIZ BIN MUHAMAD ALIM ANG ABDULLAH

MUHAMMAD HIDAYAT BIN ABDU HISHAM

MUHAMMAD DANIAL FIRDAUS BIN MOHD FAIRUZ

POLITEKNIK PORT DICKSON, NEGERI SEMBILAN

ABSTRAK

Projek ini diaplikasikan daripada pemerhatian berdasarkan kes kemalangan kenderaan berat mengenai titik buta. Objektif projek ini dihasilkan adalah untuk mengaplikasi sistem *ultra blindspot sensor 1*.0 pada kenderaan berat iaitu bas dan membantu pemandu kenderaan berat mengesan kehadiran kenderaan lain yang berada dalam kawasan titik buta. Tambahan lagi, terdapat beberapa skop kajian yang telah ditetapkan dalam projek ini iaitu, sistem *ultra blindspot sensor 1.0*. Penggunaan sistem *ultra blindspot sensor* hanya digunakan untuk kenderaan berat dan panjang iaitu bas. Sistem ini diaktifkan melalui pengesan ultrasonik dengan kehadiran kenderaan yang berjarak 1.5-meter untuk bahagian kiri dan kanan, manakala 1-meter untuk bahagian yang mengunakan komponen Arduino, pengesan ultrasonik, lampu led, bekalan kuasa. Kesemua ini ditetapkan bagi menyelesaikan beberapa masalah yang timbul dengan penggunaan kaedah sedia ada antaranya, Kesukaran pemandu kenderaan berat mengenal pasti kenderaan yang berdekatannya semasa memandu. Berdasarkan kajian literatur yang dijalankan Arduino Mega, penderia ultrasonik, wayar, bekalan kuasa 12V dan lampu LED adalah yang paling sesuai untuk projek ini. Manakala bagi proses pembentukkan komponen, kajian metodologi digunakan bagi merancang proses penghasilan projek dengan menggunakan carta alir sebagai panduan untuk perancangan penghasilan dan pengujian projek. Berdasarkan keputusan ini, hasil analisa dan perbincangan yang telah dijalankan, dapat dirumuskan bahawa ultra blindspot sensor ini telah mencapai objektif yang telah dibincangkan. Selain itu, alat ini juga terbukti mampu mengurangkan kemalangan kenderaan berat mengenai titik buta di jalan raya.

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RESPEX

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

ULTRA BLINDSPOT SENSOR 1.0 (UBS1.0)

LATAR BELAKANG

Projek ini diciptakan bagi pemandu bas supaya dapat membantu pemandu tersebut untuk mengetahui titik buta kenderaan di jalan raya. Projek Ultra Blindspot Sensor 1.0 (UBS 1.0) ini menggunakan sensor ultrasonik supaya dapat mengetahui jarak kenderaan yang berada dekat dengan bas tersebut.

OBJEKTIF

- Mengaplikasi sistem ultra blindspot sensor 1.0 pada kenderaan berat iaitu bas.
- Membantu pemandu kenderaan berat mengesan kehadiran kenderaan lain yang berada dalam kawasan titik buta.

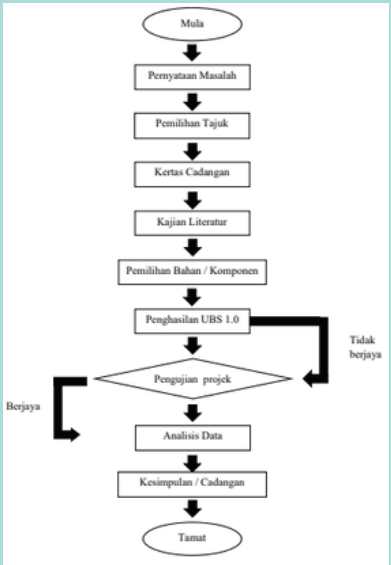
SOROTAN INOVASI

- Diaplikasi projek ini khas pada bas sahaja.

PENYATAAN MASALAH

- Kes kemalangan disebabkan titik buta yang tinggi.
- Kesukaran pemandu kenderaan berat mengetahui kenderaan berdekatan.

METHODOLOGI



KESIMPULAN

Oleh sebab itu projek ini telah mencapai objektif iaitu dapat menangani masalah dia atas jalan raya iaitu keberadaan kenderaan lain di kawasan titik buta. Pemilihan bahan telah dijalankan dengan teliti agar projek yang dihasilkan berkesan kepada pengguna. Selain itu, projek ini sesuai digunakan oleh bas kerana di Malaysia kenderaan semakin hari semakin bertambah. Maka dapat menghasilkan bas yang berteknologi tinggi pada era moden.

GAMBAR PROJEK

NILAI KOMERSIAL

- Hanya dapat dipakai pada bas supaya untuk mengetahui titik buta kenderaan lain di jalan raya.

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ROBOSOT RACE CHALLENGE 2.0

Haspiruddin[1*], Ahmad Daniel Tamingsari Bin Ramlan[2], Hariz Bin Sanyahmar[3], Muhammad Khairi Bin Shahmsul Amran[4] and Muhammad Affzan Akhtarullah Bin Nazaruddin[5]

[1]Politeknik Port Dickson, KM 14, Jalan Pantai, 71050 Si Rusa,Negeri Sembilan, MALAYSIA

Abstract.

One of the revolving factors in the world is, without doubt, Automation and robotics. This paper focuses on implementing a robot called Robosot Race Challenge 2.0 that is used in a competition called FIRA tournament in the category called Robosot. The problems are based on the interference of all the flaws that intricate the robot resulting in it not performing very well based on the competition before. In addition, lack of innovative views plays a big role on why it needs a proper modification. A race challenge robot will be modified based on the specification of the game and task needed to be executed.The main objective is to have a robot that can sense colour and to bring the object from one place to another place. The usage of Arduino and Roborealm as a program is the major key of actuating the robot and increasing the dominant working principle where these programming languages are mainly used to make the robot working based on the task given. The modifications we will make are based on major things that stood out as flaws, hence these will ease and increase the chance for us to win the next upcoming FIRA competition

POLITEKNIK MALAYSIA
PORT DICKSON

EN HASPIRUDDIN

AHMAD DANIEL TAMINGSARI BIN RAMLAN (06DEM20F2010)

HARIZ BIN SANYAHMAR (06DEM20F2015)

MUHAMMAD KHAIRI BIN SHAHMSUL AMRAN (06DEM20F2003)

MUHAMMAD AFFZAN AKHTARULLAH BIN NAZARUDDIN (06DEM20F2011)

ROBOSOT RACE CHALLENGE 2.0

ABSTRACT

One of the revolving factors in the world is, without doubt, Automation and robotics. This paper focuses on implementing a robot called Robosot Race Challenge 2.0 that is used in a competition called FIRA tournament in the category called Robosot. The problems are based on the interference of all the flaws that intricate the robot resulting in it not performing very well based on the competition before. In addition, lack of innovative views plays a big role on why it needs a proper modification. A race challenge robot will be modified based on the specification of the game and task needed to be executed.The main objective is to have a robot that can sense colour and to bring the object from one place to another place. The usage of Arduino and Roborealm as a program is the major key of actuating the robot and increasing the dominant working principle where these programming languages are mainly used to make the robot working based on the task given. The modifications we will make are based on major things that stood out as flaws, hence these will ease and increase the chance for us to win the next upcoming FIRA competition.

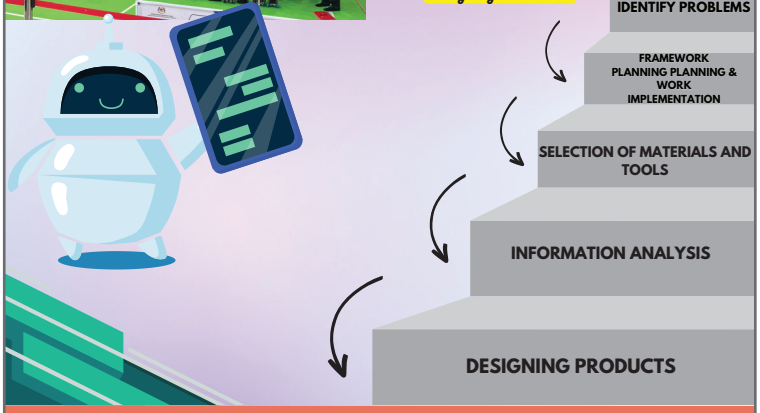
PROBLEM STATEMENT

- Battery cannot sustain for a long time to function throughout the whole tournament.
- Adding higher battery power will cause voltage increment which will lead to unstable output voltage.
- Spare battery cannot be added due to limited space.

OBJECTIVE

- To upgrade the battery so that it can supply more voltage on the robot and can hold from 10 minutes to 30 minutes.
- To add a regulator so that the voltage will constantly stay on 12v even bigger voltage than 12v is supplied.
- To improve design so that it has much space, and all components can fit.

DESIGNING PRODUCTS



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INDEPENDENT SHOE RACK KIT (ISRK)

Ts. Dr. Sharifah Aznee Binti Said Ali @ Syed Alitee[1*], Tee Wei Lun[2], Muhammad Amir Firdaus[3], Muhammad Amir Firdaus[4] And Arif Juwaide[5]

[1]Politeknik Port Dickson, KM 14, Jalan Pantai, 71050 Si Rusa,Negeri Sembilan, MALAYSIA

Abstract.

Independent Shoe Rack Kit (ISRK) merupakan satu projek yang berteraskan Alat Bantuan Mengajar (ABM) yang bakal ditempatkan di Program Pemulihan Dalam Komuniti (PDK) Telok Kemang bagi membantu pelatih pelatih yang bercirikan Orang Kelainan Upaya (OKU) dengan tujuan bagi mempertingkatkan lagi kemahiran motor halus. Motor kasar dan motor halus merupakan keseimbangan sifat yang perlu ada di dalam diri seseorang untuk menjayakan tugasan harian. Oleh hal yang sedemikian, hal ini tidak di dapat tercapai kerana wujudnya beberapa permasalahan di PDK Telok Kemang. Antara permasalahan yang menjadi pencetus utama bagi pembinaan projek ini adalah berikutan kekurangan fasiliti bagi menyampaikan kemahiran pengurusan diri dan kemahiran motor yang lebih mendalam bagi pelatih pelatih yang terdapat di PDK Telok Kemang. Objektif utama bagi projek ini adalah untuk merekabentuk sebuah ABM yang berbentuk rak kasut dilengkapi dengan ciri-ciri mekanikal seperti Soft Close Hinges, Limit Switch dan Skill Motor Board. Objektif kedua pula lebih menekankan kearah pembangunan modal insan yang berteraskan pemantapan motor halus dan motor kasar para pelatih di PDK Telok Kemang agar penggunaan projek ini dapat dimaksimumkan sebaik mungkin. Metodologi yang digunakan di dalam kajian ini lebih kearah temubual dan pemantauan bersama tenaga pengajar di PDK Teluk Kemang bagi mengenalpasti produk mahupun sistem yang dapat ditambah baik bagi memudahkan urusan kerja tenaga kerja di PDK Telok Kemang. Melalui pemantauan dan sesi percubaan produk ISRK di PDK Telok Kemang, data-data yang telah diperolehi telah membuktikan bahawasanya produk ini berjaya meningkatkan kemahiran motor halus dan motor kasar pelatih kelainan upaya yang mempunyai masalah pembelajaran seperti Learning Difficulty (LD), Down- Syndrom dan Austism sekaligus mengatasi masalah utama di PDK Telok Kemang iaitu kekurangan fasiliti yang berkesan. Kesimpulannya, ISRK merupakan produk yang mampu menjana motor halus dan kasar pelatih secara lebih berkesan dan produk ini mempu diketengahkan keperingkat lebih tinggi dengan penelitian yang lebih mendalam.

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SESI 2: 2022/2023

INDEPENDENT SHOE RACK KIT (ISRK)

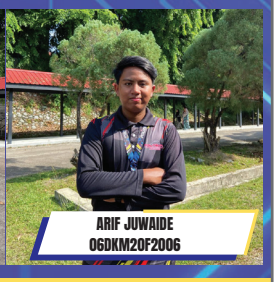

TEE WEI LUN
06DKM20F2014


MUHAMMAD AMIR FIRDAUS
06DKM20F2028

SUPERVISOR


Ts. Dr. SHARIFAH AZNEE BINTI SAID ALI @ SYED ALI


NURASHA ALEYA
06DKM20F2004


ARIF JUWAIDE
06DKM20F2006

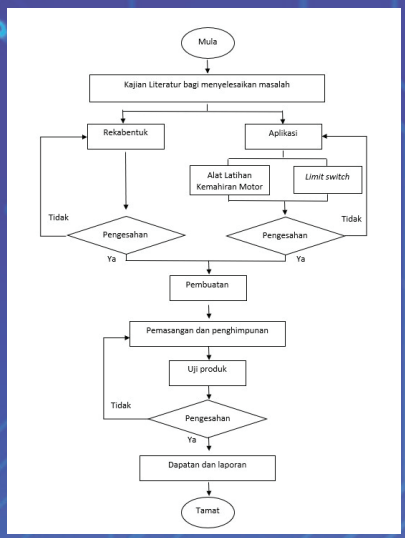
ABSTRAK

Projek ini dibina untuk merekabentuk sebuah Alat Bantuan Mengajar (ABM) yang menyampaikan kemahiran pengurusan diri dan kemahiran motor halus yang biasanya menjadi aktiviti pengukuhan di PDK Teluk Kemang.

OBJEKTIF

- Merekabentuk ABM berkonsepkan rak kasut .
- Menambahbaik rekaan ABM dengan menggunakan ciri mekanikal iaitu "limit switch".

METODOLOGI



PERBINCANGAN & KEPUTUSAN

- Perbincangan berkaitan merekabentuk projek yang dapat mempunyai konsep yang dapat menarik perhatian pelatih.
- Cadangan yang dipersetujui adalah dengan menambah lampu LED.

KEBAIKAN

- Sistem proses yang mudah bagi mencapai objektif utama produk.
- Sistem yang menekankan faktor ergonomik.

KELEMAHAN

- Produk berat
- Sistem dihidupkan secara manual.
- Kayu mudah reput setelah lama digunakan

KESIMPULAN

Secara keseluruhannya, projek ini telah mencapai objektif yang disasarkan iaitu menghasilkan ABM yang dapat membantu meningkatkan kemahiran pengurusan diri dan motor halus pelatih yang menghadapi masalah pembelajaran. Pemilihan jenis bahan dan komponen yang digunakan pada projek ISRK ini telah diteliti dan diambil kira daripada pelbagai aspek bagi menghasiilkan produk yang selamat untuk digunakan. Selain itu, ISRK juga telah ditambahbaik dengan menambah ciri mekanikal "limit switch" untuk merangsang penglihatan pelatih.

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MARAPI EVO 2

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Abstract

The development of automotive technology is one aspect that is a priority at this time because transportation is an inseparable part of human life. For this reason, many innovations have been developed to balance a more dynamic life. Innovations in the automotive sector generally aim to increase the efficiency of motorized vehicles while still considering safety and ergonomics. The prototype car is a future car design that has three wheels. This concept itself is called a narrow three-wheeled vehicle, which is one of the innovations in the automotive field to combine the advantages of motorcycles and cars. The concept of a narrow three- wheeled vehicle is to create a vehicle that can maneuver as agilely as a motorcycle but has a higher comfort and safety value like a car. The Marapi Evo 2 car is one of the innovative works made by a team of Politeknik Negeri Padang students. The components of the car chassis are made of hollow aluminum, and the body is made of fiber. The testing method used is to collect quantitative data, test it with Ansys software, and calculate the specific fuel consumption (SFC). The team conducted a stress analysis test, which is one of the structural testing tools in Solidworks and was carried out by applying the Finite Element Method (FEM) concept. The specifications of this vehicle are 712 mm in height, 664mm in track width, 0.65 in height ratio, and 2000mm in front and rear wheel clearance. The overall length of the vehicle is 3200 mm, the weight of the vehicle is 80 kg, and the total weight of the vehicle with the driver is 130 kg. From the test results obtained, the drag coefficient is 0.158, the rolling resistance is 19.11 N, and the vehicle speed is 8 m/s. Specific fuel consumption is 136 km/L. The Marapi Evo 2 car is expected to contribute to energy savings and Sustainable Development Goals (SDGs) Point9.

Keywords: Automotive, Energy efficiency, Marapi Evo 2, Safety, and ergonomics

RESPEX
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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

MARAPI EVO 2

NURUL IZZA
WIDIA RAHMADANI
AS'ADURROFIQ
MUHAMMAD IHSAN

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01 BACKGROUND

The development automotive technology is one aspect that is a priority at this time because transportation is an inseparable part of human life. For this reason, many innovations have been developed to balance a more dynamic life. Innovations in the automotive sector generally aim ti increase the efficiency of motorized vehicles while still considering safety and ergonomics. The prototype cas is a future cardesugn that has three wheels.

02 PROBLEM STATEMENT

The level of use of fossil energy is getting higher, so it is necessary to innovate in the field of transportation, such as by increasing fuel efficiency for vehicles that use dieselengines.

03 OBJECTIVE

Along with the increasing needs of the community for automotive technology, people tend to prefer cars that are fuel efficient, have a good level of safety, and are ergonomic, so the researchers designed a car formed by the Marapi team at Padang State Polytechnic named Car Marapi Evo 2, which utilizes a diesel engine to have high fuel efficiency.

04 INNOVATION HIGHLIGHT

This car is designed to have a very high level of security because it uses a dead man switch system, which will ensure the safety of the driver while driving. This system will prevent a short circuit, which can cause a fire in the engine. In addition, this car has a crumple zone made of carbon so that, in the event of a collision, the driver will remain safe inside. The aerodynamic design of the car makes it easier for it to maneuver. The efficiency produced by this car is 136 km/L.

05 COMMERCIAL VALUE

The Marapi Evo 2 is the future urban car, so there has been a lot of research on this car. Even some automotive manufacturers have begun production of this vehicle. This car is also suitable for use on narrow tracks. This car is targeted to be mass-produced and reach national and international markets.

06 METHODOLOGY

In designing the Marapi Evo 2 car, analysis using software is used so that the data obtained is more accurate. The testing method used is to collect quantitative data, test with Ansys software, and calculate the specific fuel consumption (SFC). The team conducted a stress analysis test which is one of the structural testing tools in Solidworks and was carried out by applying the Finite Element Method (FEM) concept.

07 CONCLUSION

In this article, the researcher describes the problem of the efficiency of a vehicle. This is certainly important because human life cannot be separated from the transportation sector. Currently, humans still make fossil energy as their main source of energy. In addition, public demand for vehicles that are agile and can maneuver safely is increasing. This is what made researchers create the Marapi Evo 2. This car develops a narrow three-wheel concept so that it can answer the community's need for a car that can maneuver agilely. The tests carried out to create this car were with Ansys software, SFC, and the Finite Element Method (FEM). For security systems using deadman switches and crumple zones. From the test results obtained, the drag coefficient is 0.158, the rolling resistance is 19.11 N, and the vehicle speed is 8 m/s. Specific fuel consumption is 136 km/L. This car is perfect for use in both rural and urban areas.

08 DIAGRAM/PICTURE

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PORTABLE OLD COCONUT PEELING TOOL

Suhaila Binti Mohd Sharif[1*], Noor Hafizul Fikri Bin Noor Azmi[2], Muhamad Haziq Haiqal Bin Maffik[3], Muuhammad Addin Iman Bin Salim[4] And Muhammad Arif Asyraf Bin Zulkefle[5]

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Abstract.

This PORTABLE OLD COCONUT PEELING TOOL is one of the mechanical coconut husk peeling tools which is an innovative tool to facilitate the peeling work and save time and energy for the user. This portable coconut peeler is an end-of-semester project carried out based on several problems when the peeling process can be solved. The idea for this portable coconut peeler was sparked when the problems arising from the traditional chop-type peeling tool used a lot of energy and quite a long time by the user. In addition, users with less experience and skills are exposed to danger when using this type of traditional peeler chop. This is because the upper part of the tool is quite sharp and allows the user to be seriously injured. After research in certain areas through boring questionnaires, users responded that this traditional coconut peeling tool required a lot of time and energy to operate it. This is the case, the mobile old coconut peeler project that we created can improve from the chop type coconut peeler, where it is more focused on saving energy and the long time taken by the chop type

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ALGAE CLEANER

Hauzaan Rafi Athallah[1], Muhammad Sani Fatra[1], Abdullah Radityo Ario Bagaskoro[1], Abiyyu Nugroho[1], and Nely Toding Bunga[1*] .

[1]Mechanical Engineering, Faculty of Engineering, Pancasila University, Jakarta, Indonesia

Abstract.

Water tanks play a crucial role in supplying and storing clean water for household needs, cleaning, irrigation, and many other purposes. These tanks can accumulate debris and other contaminants that may compromise the quality of the water over time. The process of cleaning a water tank is hard because usually, humans had to climb into the tank itself. Most of the reservoirs are made of plastic but there are other models that used stainless steel, and in a tropical country, the temperature can spike up to 40 degrees Celsius which is dangerous for people who are trying to clean the inside of the water tank. That's the main reason why we innovate and invent an Algae Cleaner that is designed to help people clean their water tanks. The materials we use are affordable and easy to source. It used both manpower and technology to operate this tool. Our model used a PVC pipe that is connected to a brush and a water pump that is linked to a hose for both draining and pumping out all the excess debris and dirty water. Our Algae Cleaner saved time, money, and effort compared to traditional manual cleaning methods. It reduced manual labor, minimize water wastage, and provided a more thorough cleaning process. The tests we did shows that the Algae Cleaner has functioned well through different scenarios. For a simulation, we used a bucket that is filled with water and shredded paper which turned out to be a success because our Algae Cleaner was able to suck out all the excess dirty water and separated the paper from the water. Additionally, a well-maintained water tank can prolong its lifespan, reducing the need for costly tank replacements. In conclusion, Our Algae Cleaner is an essential device for maintaining a clean and safe water supply. It is efficient due to its minimal effort and also reduces cost and water wastage.

Keywords: Water tanks, cleaning, maintaining.

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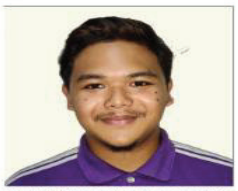
MURSYIDAH BINTI MESNI
06DKM20F2026


NICKSON NGELAI ANAK EDWARD
06DKM20F2018


PN. CHE AZLINA BINTI CHE NOROHOSENI


DANEAL FIKRI BIN ZULKEFLI
06DKM20F2016


MOHAMMAD DANIEL HAQIM BIN ABDUL RAHMAN
06DKM20F2020

BACKGROUND

I-box ini merupakan satu produk yang berfungsi seperti kotak kunci. Projek ini dipilih kerana kami merasakan bahawa kotak kunci ini boleh memudahkan urusan pengusaha homestay iaitu mereka tidak perlu untuk berinteraksi secara bersemuka dengan pelanggan mereka. Kotak kunci ini kami menggunakan sistem NFC sebagai sistem penguncian kotak kunci tersebut.

PROBLEM STATEMENT

i. Pengusaha yang tinggal jauh daripada *homestay* mereka
ii. Pengusaha yang tidak membazir masa menunggu penyewa
iii. Pengusaha yang tidak perlu bersemuka dengan penyewa

OBJECTIVE

i. Membangunkan sebuah kotak kunci untuk *homestay*.
ii. Menggunakan teknologi NFC pada kotak kunci.

INNOVATION HIGHLIGHT

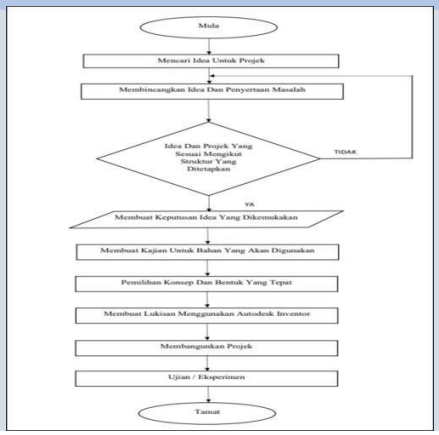
- Menginovasikan kotak kunci dengan menggunakan sistem NFC.
- Menggunakan sistem NFC sebagai kunci untuk membuka.

DIAGRAM/PICTURE

COMMERCIAL VALUE

- Pengusaha tidak perlu bersemuka dengan pelanggan.
- Pengusaha homestay tidak membazir waktu untuk menunggu pelanggan.

METHODOLOGY



CONCLUSION

Secara keseluruhannya, projek ini telah mencapai objektif iaitu membangunkan sebuah kotak kunci untuk homestay. Pemilihan bahan telah dijalankan dengan teliti agar projek yang dihasilkan berkesan kepada pengusaha. Seterusnya, projek ini juga dapat mencapai objektif yang kedua iaitu menggunakan sistem NFC sebagai sistem penguncian kotak kunci ini.

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
POLITEKNIK MALAYSIA PORT DICKSON
PERSATUAN TEKNOLOGI MALAYSIA

RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

STANDING AND SIT-DOWN CHAIR FOR DISABLED PERSON 3

BACKGROUND

Projek ini diinovasikan bagi melatih kanak-kanak yang menghidap Cerebral Palsy untuk mengasah motor kasar seperti berdiri dan duduk mengikut kemampuan mereka. Projek Standing and Sit-Down Chair for Disabled Person menggunakan pelbagai bahan dan objek supaya dapat memenuhi keperluan pesakit Cerebral Palsy. Selain itu, meja boleh laras juga disediakan supaya pelbagai aktiviti dapat dilakukan di atas meja tersebut untuk mengasah motor halus seperti bermain mainan sensory. Seterusnya, projek ini juga dapat meningkatkan keyakinan dan membolehkan mereka berdikari.

PROBLEM STATEMENTS

- Ruang dan pergerakan yang terhad.
- Kerusi yang digunakan tidak bersesuaian.

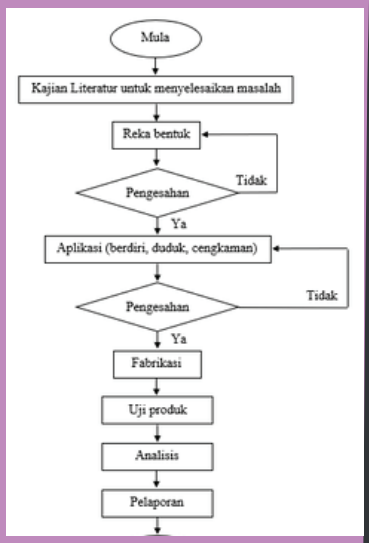
INNOVATION HIGHLIGHT

- Mereka bentuk kerusi berciri baharu untuk pesakit CP.
- Mereka bentuk kerusi yang selesa dan serbaguna.

OBJECTIVES

- Mereka bentuk kerusi serbaguna untuk membantu pesakit CP berdiri dan duduk serta melakukan aktiviti.
- Menaik taraf kerusi dengan menggunakan ciri-ciri dan alatan yang sesuai dengan keperluan pesakit CP.

METHODOLOGY



DIAGRAM

COMMERCIAL VALUES

- Boleh digunakan oleh pesakit serta dapat melatih pesakit untuk duduk dan berdiri.
- Menepati citarasa dan kehendak pengguna.

CONCLUSION

Berdasarkan pemerhatian, projek ini telah mencapai objektif iaitu mereka bentuk kerusi serbaguna untuk membantu pesakit CP berdiri dan duduk serta melakukan aktiviti. Pemilihan bahan telah dijalankan dengan teliti agar projek yang dihasilkan berkesan kepada pengguna. Selain itu, kerusi tersebut juga ditambah dengan ciri-ciri lain yang berseuaian terutamanya dari segi keselamatan iaitu dengan menambah tali keselamatan, memasang span lembut serta mempunyai kemudahan bahagian boleh laras pada dua bahagian iaitu ketinggian dan jarak meja antara kerusi.

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
POLITEKNIK MALAYSIA PORT DICKSON
PERSATUAN TEKNOLOGI MALAYSIA

RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

CARE KIT FOR BABY COT


AKMAL IMRAN (06DKM20F2029)


AFIQ (06DKM20F2037)


SHAHRUL (06DKM20F2027)


FIRDAUS (06DKM20F2031)

BACKGROUND

Projek ini bertujuan untuk membantu ibu bapa atau penjaga yang menghadapi masalah dalam penjagaan bayi. Projek ini akan berfungsi apabila mengesan apa-apa bunyi seperti bunyi tangisan bayi pada frekuensi yang ditetapkan. Apabila suara tangisan bayi dikesan oleh sensor bunyi sistem akan menghantar maklumat kepada apliskai Blynk untuk memberi notifikasi kepada pengguna. Begitu juga dengan sensor pergerakan, ianya akan berfungsi apabila terdapat pergerakan disekitar. Apbaila menerima notifikasi, pengguna boleh melihat keadaan di sekitar katil bayi dengan kamera yang disediakan

OBJECTIVE

- Menghasilkan sebuah sensor dalam penjagaan bayi
- Mengawasi keadaan bayi

COMMERCIAL VALUE

Sensor bunyi dan sensor pergerakan serta kamera pengawasan yang terdapat dalam projek Care Kit For Baby Cot ini mampu memberi nilai komersial yang tinggi. Hal ini adalah kerana setiap ibu bapa di dunia ini mempunyai bayi. Jadi, kebaranagkalian besar mereka memerlukan produk ini untuk mengawasi bayi mereka supaya keselamatan dan keselesaan anak mereka terjamin. Ditambah dengan system IoT pengguna boleh menerima notifikasi daripada telefon bimbit mereka.

CONCLUSION

Berdasarkan hasil akhir untuk kajian ini sebagai kumpulan yang melakukan projek ini, diharap projek ini dapat memberikan impak yang besar kepada semua ibu bapa diluar sana kerana projek ini berpotensi memberi keselamatan terhadap bayi dan memberikan kemudahan terhadap ibu bapa untuk memantau keselamatan anak-anak ketika berada berjauhan dengan kawasan anak-anak tersebut. Selain itu bukan sahaja memberikan keselamatan ia juga dapat memberikan keselesaan dan memudahkan ibubapa untuk memantau apa yang dilakukan oleh anak-anak kita sedang melakukan kerja.

PROBLEM STATEMENT

- Tidak tahu keadaan bayi ketika ditinggalkan di dalam rumah
- Tidak mendengar tangisan bayi ketika berjauhan dari bayi.

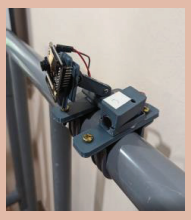
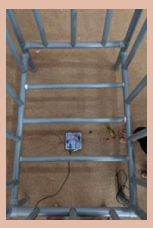
INNOVATION HIGHLIGHT

Projek ini menggunakan system Iot yang dilengkapkan dengan sensor bunyi. Sensor bunyi akan berfungsi apabila mengesan apa-apa bunyi seperti suara tangisan bayi pada frekuensi yang ditetapkan. Selain itu, menggunakan sensor pergerakan yang mengesan pergerakan apa apa objek. Apabila sensor bunyi dapat mengesan bunyi ia akan menghantar notifikasi kepada telefon pintar pengguna.

METHODOLOGY

Dari permulaan projek sehingga kesimpulannya, teknik dan aliran projek akan dibincangkan dalam bab ini. Setiap langkah diikuti dengan penilaian kemajuan penyelidik dan sebarang pembetulan kursus yang diperlukan. Perubahan arah ini membolehkan penilai menilai semula keputusan dan membuat sebarang pelarasan yang diperlukan untuk mencapai objektif yang ditetapkan. Sebagai contoh, beberapa Langkah pertama projek pembangunan perisian ditumpukan kepada fasa awal projek, yang kemudiannya dinilai dan diubah mengikut keperluan. Projek ini boleh menjadi lebih teguh dan maju dengan lebih cepat ke arah hasil akhir yang diharapkan.

DIAGRAM/PICTURE


KEMENTERIAN PENDIDIKAN TINGGI

RESPEX 8th REGIONAL EDUCATORS STUDENTS PRODUCT'S EXHIBITION 2023

Smart Egg Incubator

POLITEKNIK MALAYSIA PORT DICKSON

OBJEKTIF

- Menghasilkan sebuah mesin pengeraman telur automatik.
- Mengaplikasikan sistem IoT ke dalam mesin pengeraman telur.

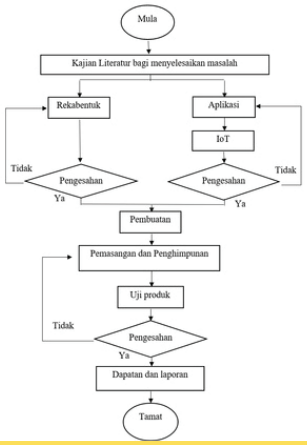
ABSTRAK

Inkubator telur ayam manual kurang cekap, oleh itu, inkubator automatik berdasarkan mikropengawal diperlukan untuk meningkatkan kecekapan. Proses membuat inkubator merangkumi beberapa peringkat, seperti pengiktirafan keperluan, analisis keperluan, reka bentuk sistem, reka bentuk perisian, pembuatan alat, dan ujian. Komponen yang digunakan termasuk NodeMCU, DHT22, paparan LCD dan motor volt untuk memacu rak. Inkubator ini lebih mudah digunakan dan dikawal secara automatik.

KEPUTUSAN DAN PERBINCANGAN

- Projek ini berjaya mencapai dua objektif utama yang telah ditetapkan dalam kajian ini. Pertama, mesin pengeraman telur berjaya dihasilkan dan proses pengeraman telur dapat ditetaskan dengan menggunakan konsep pengawalan suhu dan kelembapan untuk memastikan kelancaran proses tersebut. Kedua, sistem IoT berjaya diaplikasikan ke dalam mesin pengeraman telur, membolehkan kadar suhu dan kelembapan dilihat dari jauh melalui telefon pintar sahaja.
- Keputusan kami mencadangkan bahawa menggunakan inkubator telur pintar boleh meningkatkan kadar penetasan telur dengan ketara dan mengurangkan masa pengeraman. Ciri automasi dan pemantauan inkubator telur pintar mungkin menyumbang kepada penemuan ini dengan menyediakan persekitaran yang stabil dan konsisten untuk telur.

METODOLOGI

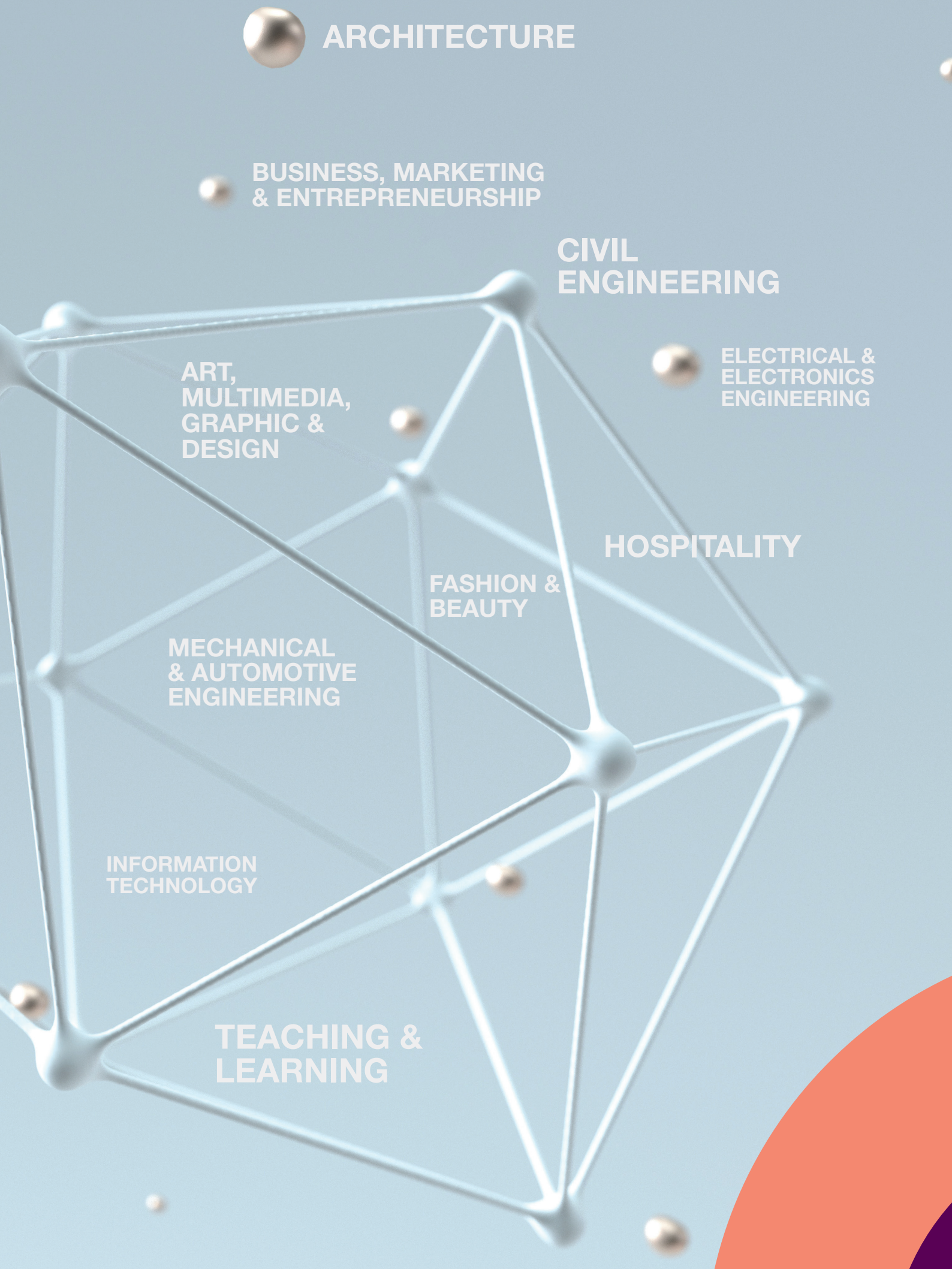


INTERNET OF THINGS

KEBAIKAN

1. Memudahkan dalam proses penetasan telur, karena secara automatik menjaga suhu, kelembaban, dan ventilasi yang diperlukan oleh telur untuk menetas.
2. Membolehkan pengguna memantau keadaan inkubator dan telur dalam masa nyata melalui aplikasi atau monitor yang disambungkan ke internet.

PRODUK


ARCHITECTURE
BUSINESS, MARKETING
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ART,
MULTIMEDIA,
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TEACHING &
LEARNING

ELECTRICAL & ELECTRONICS ENGINEERING

Category

03

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

SMART WATERING SYSTEM FOR HOME PLANTS & GARDEN

Alizawati binti Mat Zim[1], Muhammad Faris bin Mohd Fahmi[2]

[1,2] Politeknik Port Dickson, Negeri Sembilan, MALAYSIA

(E-mail: Aliza.amz@gmail.com, farismfahmi@gmail.com)

Abstract.

Smart Watering System for Home Plants and Garden is a cutting-edge plant care solution that allows users to remotely control plant watering tasks and monitor important plant health indicators such as soil moisture, environment temperature and humidity. The system is also equipped with a plant growing light for indoor plants that need extra light, which makes it suitable for use in any home or garden environment. The system is designed to be user-friendly and can be accessed through the Blynk platform using a mobile phone with an active internet connection. Users can automate watering tasks and growing light operation using the platform's built-in timer, or they can rely on the system's automatic monitoring of soil moisture levels to ensure that plants receive the optimal amount of water. The Smart Watering System is particularly well-suited for busy gardeners who have limited time to care for their plants or who are frequently away from home. By reducing water waste and providing optimal growing conditions, the system can help plants thrive even when their owners are not able to provide daily attention. The system was developed using advanced hardware and software components, including sensors such as soil moisture sensor, temperature and humidity sensor for monitoring plant environment and its soil condition, and was designed to be easily set up and operated without hassle. The project represents an innovative application of Internet of Things (IoT) technology and has the potential to make plant care more accessible and efficient for people of all skill levels.

Keywords: *Smart Watering System, Plant care solution, IoT technology*

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

POLITEKNIK PORT DICKSON

Respex23-015

SMART WATERING SYSTEM FOR HOME PLANTS & GARDEN

SUPERVISOR : ALIZAWATI BINTI MAT ZIM
MEMBER : MUHAMMAD FARIS BIN MOHD FAHMI

BACKGROUND

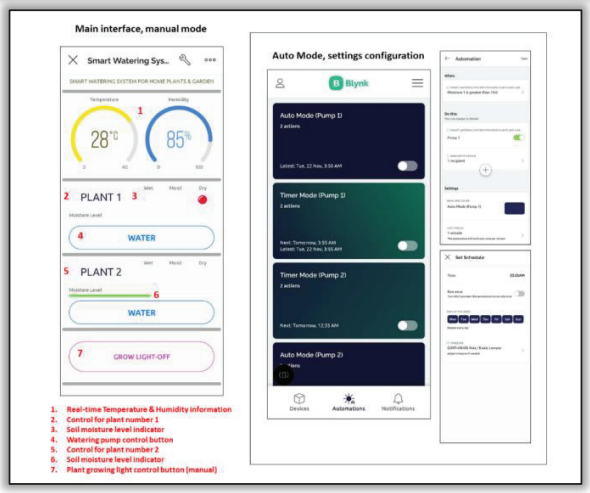
- Smart Watering System for Home Plants & Garden is created to enhance plant care.
- Allow remote control for watering tasks, real-time soil condition monitoring, as well as the temperature and humidity of the plant's surrounding using Blynk platform on mobile phone.
- Equipped with a plant growing light to provide additional light source where plants received limited sunlight.
- User have the flexibility to manually control watering process or enable automation of the system

OBJECTIVES

- To build smart watering system for plants based in home or garden that can be controlled and monitored remotely from a mobile phone using Blynk application with internet connection.
- To construct an automated plant watering system that offers two modes of operation: scheduled watering and soil moisture-based watering.
- Provide real-time information on the environmental conditions surrounding the plants, including temperature and humidity. This feature will enable users to stay informed about the current state of their plant's environment.
- Supply additional light source designed to provide adequate nutrition to plants positioned in areas with limited sunlight exposure

APPLICATION

- The system could be used in homes as this product is suitable to be used in areas with minimal sunlight.
- The watering task used an adequate amount of water from water supply, employing an efficient water usage.



PROBLEM STATEMENTS

- Limited time and access to consistent care of the plants
- Lack of sunlight exposure mainly for plants that are kept in areas with limited sunlight.
- Insufficient information on soil moisture and environmental like temperature and humidity that can impede optimal plant growth

INNOVATION HIGHLIGHT

- The Smart Watering System for Home Plants & Garden is designed to be user friendly from its hardware to the software aspects.
- Able to control watering task both manually and automatically from a press of a button
- Plant growing light can be operated when required.
- The control interface are made simple and easy to use.
- Suitable to be used for people of all skill levels.
- Less energy consumption.

METHODOLOGY

- The system used Arduino UNO as its processor.
- Input sensors are used such as soil moisture sensor and digital humidity and temperature sensor (DHT22).
- ESP8266 Wifi Module is used to allow internet connectivity of the system that communicates with Blynk database.
- DC Water pumps are used to operate the watering task.
- An LED plant growing light is used to maintain light exposure when limited sunlight is available.
- An active internet connection is required on both the system and the user (mobile phone).

CONCLUSION

- Smart Watering System for Home Plants & Garden is proven to allow its user to remotely control watering task and light control while monitor the environment's condition like temperature and humidity in real-time.
- Designed to help gardeners that had faced difficulties in keeping care of their plants due to commitments.
- Plant can be placed anywhere with the system as the plant growing light will help supply additional light source to the plants when necessary.

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

TIZZBOX V1

Rozanita Binti Baharudin[1,*], Megat Muhammed Faiz Bin Ismail [2] and Muhammad Iqbal Firdausy Bin Zaini [3]

[1,2,3] Jabatan Kejuruteraan Elektrik, Politeknik Port Dickson, Malaysia

* rozanita@polipd.edu.my

Abstract.

Excessive use of tissue without control can cause waste and pollution especially in public places. From the issue of tissue wastage has given the idea to design a project to solve this problem which has been named 'Tizzbox V1'. Generally, 'Tizzbox V1' aims to reduce the usage of toilet tissue by controlling the pull of tissue roll out with a delay time 10 seconds between the first tissue and the next.'Tizzbox V1' incorporates an infrared sensor to detect the user's hand and making it more convenient and hygienic to use during the current COVID-19 pandemic. 'Tizzbox V1' includes a notification system that sends a notification to worker using telegram apps when the tissue level is low and workers will be able to check the status of the tissue simply by using mobile phone. This feature saves time for workers and ensures that 'Tizzbox V1' is always stocked with enough tissue. Overall, this project aims to promote more sustainable and hygienic use of toilet tissue while improving the efficiency of maintenance tasks. 'Tizzbox V1' was developed by using ESP 32 as microcontroller, servo motor as a gate and hold the tissue , DC motor as actuator and infrared sensor to detect user's hand for tissue roll out.

Keywords: pollution, tissue roll out, Esp 32, notification systém, servo motor

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RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

TEAM MEMBERS

ROZANITA BINTI BAHARUDIN
MEGAT MUHAMMED FAIZ BIN ISMAIL
MUHAMMAD IQBAL FIRDAUSY BIN ZAINI

BACKGROUND

'Tizzbox V1' aims to reduce toilet tissue usage by controlling roll-out with a 10-second delay, incorporating an infrared sensor for hygienic use, and a notification system for workers to check and refill tissue level. The project promotes sustainable and hygienic use of toilet tissue while improving maintenance efficiency.

OBJECTIVE

- Assess potential for reducing tissue waste and promoting eco-friendliness.
- Build tissue dispenser with 10-second delay, infrared sensor, and notification signal.
- Develop coding for notifying responsible person.

PROBLEM STATEMENT

- Overuse of toilet paper creates garbage pollution.
- Running out of toilet paper due to lack of monitoring.
- Overuse of toilet paper leads to high financial cost.

COMMERCIAL VALUE

- Cost savings by reducing wasteful use.
- Improved efficiency by reducing manual checks.
- Better hygiene practices and enhanced customer satisfaction.
- Competitive advantage through unique and innovative solution.

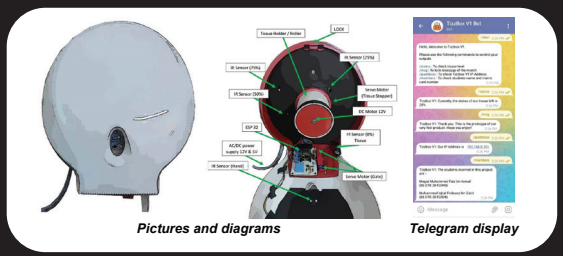
INNOVATION HIGHLIGHT

- 10-second delay promotes sustainability.
- Infrared sensor adds convenience and hygiene.
- Notification system improves maintenance efficiency and stock management.

METHODOLOGY

- Research & Design: Identify tech, Design dispenser.
- Prototyping & Testing: Build prototypes, gather feedback.
- Development & Coding: Code delay mechanism, integrate sensor.
- Evaluation & Documentation: Assess impact, document findings.

DIAGRAM/PICTURE



Pictures and diagrams *Telegram display*

CONCLUSION

TIZZBOX V1 achieved its goals flawlessly. Using an infrared sensor, it automatically dispenses tissue upon touch, improving efficiency. The 10-second delay reduces excessive tissue production, fulfilling the aim of saving manufacturing resources.

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

WARNING WAKEUP SHOCK SYSTEM

Loqman Hakim Mohd Saleh, Ahmad Naqib Abdul Samad, Ts. Dr Norhanani Abd Rahman
Politeknik Port Dickson

ABSTRACT

Waking up early in the morning is a difficult routine for teenagers, especially students. Based on surveys and interviews with university students, it was found that most of them have problems waking up early in the morning. This is due to the habit of those who like to sleep late at night because of doing assignments, group discussions and some of them spend time with games. The way that is often used to wake up early is setting the alarm clock. However, this method has no effect for them to wake up immediately. Impact of this, students late to go to class. Following this, the proposed of Warning Wakeup Shock System was created to address the problem. The approach used by designed an alarm clock system that combined an alarm with lights and fans. Once the time has been set to wake up at a certain time, the buzzer will sound loudly. The lights will turn on and the fan will turn off automatically. To stop the alarm sound, the user needs to place a fingerprint to turn off the system. This is different from the alarm clock on a watch or mobile phone which is easy to stop. After that, an SMS will be sent to the monitoring person to inform the user that has woken up. If the user does not place a fingerprint, the alarm will continue to ring. Therefore, no SMS will be sent which give signal the monitoring person to wake up the user. As a result, the test that was done on three users, it had a positive effect in helping them wake up early and go to class in the morning. The benefits of this project will benefit students in higher education institutions who live in dorm or rented houses. In the future, the project can be improved to give more impact to the user, such as by including vibration, compact size and implementing the IOT system.

KEMENTERIAN PENDIDIKAN TINGGI
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RESPEX 2023

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

Warning WAKEUP SHOCK SYSTEM

PRODUCT ID: RESPEX23-028

Supervisor:
Ts. Dr. NORHANANI ABD RAHMAN

Inventor:
LOQMAN HAKIM MOHD SALEH
AHMAD NAQIB ABDUL SAMAD

INSTITUTION: POLITEKNIK PORT DICKSON

BACKGROUND

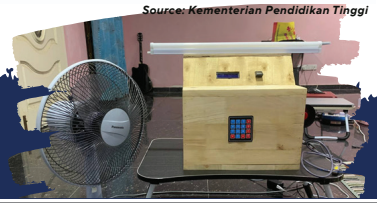
- Alarm clock, lamp, and fan combined into a single system.
- Loud alarm sound upon reaching the set wake-up time.
- Automatic activation of the lamp and deactivation of the fan.
- Fingerprint authentication required to disable the alarm.
- SMS notification sent to a monitoring person upon user waking up.
- Continuous alarm ringing if fingerprint is not placed.
- SMS alert to monitoring person if user fails to wake up within 3 to 5 minutes.

PROBLEM STATEMENT

- Waking up early in the morning is a challenge for teenagers, particularly students, who tend to stay up late at night due to assignments, group discussions, and gaming.
- Setting an alarm clock is a common method to wake up early, but it often fails to have an immediate effect.
- As a result, students frequently arrive late to class.

COMMERCIAL VALUES

1. 2-3% of students in each of University student or High school.
2. 18–25-year-olds who struggle with waking up late and how it affects their careers.
3. Parents who have children who find it difficult to wake up early in the morning.



OBJECTIVE

1. To develop warning wake-up shock system circuit, which control the light, fan, buzzer, LCD display and SMS notification by Arduino Uno.
2. To analyze the circuit that control the system
3. To monitor of the user's status by sending information via SMS to others who have been tasked with assisting in waking them up.

INNOVATION HIGHLIGHT

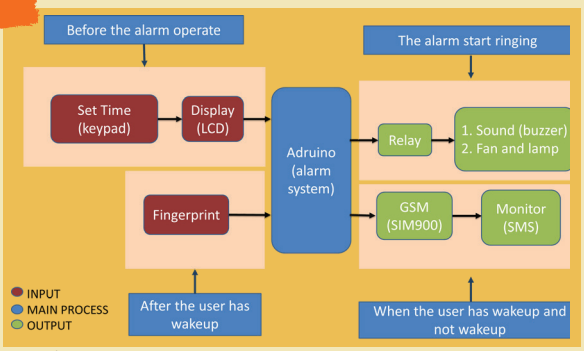
- Products multiple function and outputs
- Easy handling.
- Operating costs saving.
- Eco-friendly product.
- Less maintenance.
- Time saving.
- Technological improvement.

DESIGN SOLUTIONS

Three sections:

Input:
- Keypad: set the alarm & LCD display a time.
- Fingerprint - after the alarm triggered, user need to enroll the fingerprint to stop the alarm.

Main Process:
Arduino system: receive the signal from the alarm and send the programmed to output.



Output:

Wakeup Scenario:
Alarm is set using a keypad, signaling Arduino. Microcontroller activates light, deactivates fan, and sounds loud buzzer. Alarm stops with user's fingerprint.

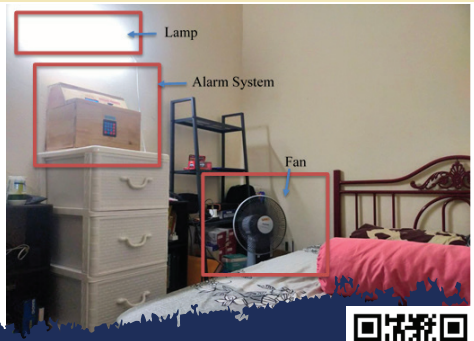
No Wakeup Scenario:
Alarm persists without fingerprint. Arduino signals IOT (GSM module - SIM900). SMS sent to monitor person.

CONCLUSIONS

The wake-up shock system aids users, especially students with irregular sleep schedules, in waking up. It has potential to improve health by mitigating issues like microsleep, stroke, and sleep deprivation resulting from excessive work.

RECEIVED AWARD

GOLD AWARD
3rd International Creative and Innovative Product Exhibition, ICrIPE 2023
THIRD PLACED
Electrical Student Innovation Exhibition, EsltEX 2022, JKE PoliPD



WARNING WAKEUP SHOCK SYSTEM
PRODUCT ID: RESPEX23-028

Scan Here: Watch Video
Project Operation

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

WIFI CONTROLLED DIGITAL LED LAVA LAMP FOR AUTISTIC CHILDREN

Nur Anis Najihaa Binti Norlizam[1,*], Lai Hing Liang[2] and Ong Seng Keong[3]

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Abstract.

Autism is associated with acuity to sensitive input, making sensitive load more likely. With attention deficiency hyperactivity complaint (ADHD), sensitive information competes for your brain's attention. This can contribute to symptoms of sensitive load. Atypical responses to the sensitive terrain are frequently reported in autistic individualities, with a high degree of variability across the sensitive modalities. These sensitive differences have been shown to promote grueling behaviors and torture in autistic individualities and are prophetic of other functions including motor, social, and cognitive capacities. sensitive issues can be a significant challenge for people with autism. numerous people with autism show certain actions when they're passing a sensitive issue similar as increased movement, similar as jumping, spinning or crashing into effects; increased stimming, similar as hand flopping, making repetitious noises or rocking back and forth. This project entails researching a system that can give an autistic children multi-sensory input that allows the austistic children or caregiver to control the system. This system is portable and runs on power. This project make use of lava lights to help the children with autism to have a sense of calmness especially when too much stimulant posed onto the austistic children. This is because the ambient lighting handed by the lava beacon can help produce a sense of calmness and safety for the existent, especially when external stimulants come inviting. This can lead to a drop in sensitive problems and gets issues for the existent, making it a useful tool for caregivers to use. also, lava lights has been set up to ameliorate mood, farther emphasizing its implicit benefits for individualities with autism. Overall, the use of lava lights can be a simple yet effective way to support individualities with sensitive and behavioral challenges.

Keywords: lava lamp, austism, blynk, sound sensor, wifi controller

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INSTITUTION NAME : POLITEKNIK PORT DICKSON

PRODUCT ID : 874

PRODUCT NAME :WIFI CONTROLLED DIGITAL LED LAVA LAMP FOR AUTISTIC CHILDREN


NUR ANIS NAJIHAA BINTI NORLIZAM (06DTK20F2001)


LAI HING LIANG (06DTK20F2015)

BACKGROUND

Autism and ADHD can lead to being sensitive to certain things, which can cause discomfort. Autistic individuals may have varying responses to these sensitivities, which can affect their behavior and abilities. Sensitive issues can be challenging for people with autism, leading to actions like increased movement and stimming.

PROBLEM STATEMENT

Autism affects communication, socialization, and behavior. Autistic children may struggle to express themselves, leading to frustration. They may experience anxiety and feel overwhelmed. Providing multi-sensory input helps them develop and cope with challenges.

OBJECTIVE

1. To research the system that can give an autistic children multi-sensory input.
2. To develop a multi-sensory system for autistic children.
3. To create a program that can control multi-sensory for autistic child.

INNOVATION HIGHLIGHT

- The lava lamp purposely designed to added multi-sensory device for autistic child. The lamp show the color by sound that they make.
- It used the IoT concept that fulfills the requirement of IR 4.0 nowadays to monitored remotely and continuously through mobile application.

COMMERCIAL VALUE

The lava lamp has a big potential for commercialization because it can be used to give a good mood and stimulate the sensory issue for autistic child. It is important for parents or caregiver that has autistic child.

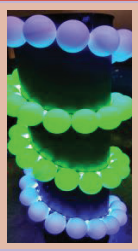
METHODOLOGY

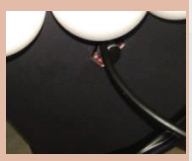
It is start with WIFI connected by mobile hotspot trough NODEMCU ESP8266 for make the Blynk application online and turn on the led strip. If the Blynk offline, it mean the WIFI not connected and the led strip will not turn on. Led strip will turn on and become static light with one color when the WIFI is connect. When the Blynk application has online, we can monitor the sound level of the sound sensor. If the sound sensor detected, it will make the led strip become a running light with colorful color. When the sound sensor not detected, the led strip will be the same pattern as before which is static light with one color

CONCLUSION

This project requires cheap or low cost to build and implement in the possible scope. It is suitable to implement for autistic children and sensory sensitivity user. In Malaysia , that approximately 9000 children in Malaysia are born with autism every year .We have studied that our product is affordable to buy even they are form B40 family.

DIAGRAM/PICTURE





(Sound sensor)

(Wi-fi Controlled Lava Lamp Control Panel)

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SMART CLASSROOM WITH DOORLOCK

Nur Fansyurina binti Yusri, Aziim bin Razuan, Rosmilawati binti Ab Rahman

Abstract

Smart Classroom with Door lock one of system that every school classroom should have to make systematic classroom. Based on research there are many cases about losing key of classroom and missing of attendance. As a result, we develop smart classroom with many functions such as door lock, counting attendance and auto switch lamp. The component that we use in our project are Arduino UNO will be our main controller that will control our project, IR sensor module will detect people who enter or exit the classroom and for the door lock we use ESP8266 and Blynk app as the key. Based on the test result of the circuit and the whole system it will show how objective and the scope of project achieved. This system still has flaws with certain limitation. Overall, this system can be implemented successfully and beneficial for educational institute.

SMART CLASSROOM WITH DOORLOCK

Dr. Rosmilawati Binti Ab Rahman
Nur Fansyurina Binti Yusri
Aziim Bin Razuan

BACKGROUND

The project background for this project is to design and develop smart classroom system with door lock system. The new system that adds up in this project is the door lock system can open and lock door using Wi-Fi and receive input from ESP8266 then using Blynk app to lock or open the door. This project can be used in the classroom to open and lock the door also can detect when student present to switch on lamp automatically. This project is equipped with Arduino Uno, Infrared sensor, and ESP8266.

OBJECTIVE

- To design smart classroom with doorlock that can switch on and off lamp automatically.
- To facilitate the process of locking and unlocking the classroom door.
- To monitor student attendance using IR sensor and LCD that will show display of amount of student

COMMERCIAL VALUE

- The automatic light feature can help save energy and reduce the time it takes to physically turn off and on the light.
- The Blynk app connects with the IoT system to allow for easy attendance tracking, improving the accuracy of records and reducing the time it takes to take attendance

CONCLUSION

In a nutshell, the smart classroom with Doorlock system is the robust way to handle a forgetful attitude and attendance problem. Using the concept of detection motion of people and IoT to unlock and lock the door, this project orimarily focuses on sensor and IoT. The size of prototype of class that we build is 297mm X 420mm. Every work in order to make this project complete is successfully achieve, thus we also achieve the objective of this project that we want. The gentle computing method is the method that we use to make it more robust and more orderly controlled.

PROBLEM STATEMENT

- Wastage of electricity because of forgetting to turn off electricity such as lamp after everyone leave the classroom.
- The classroom key that missing or forget to bring.
- Student cheating on attendance when they are late or did not attend class.

INNOVATION HIGHLIGHT

This project is an IoT based device using WiFi. This project using 2 IR to sense the motion of the student and it will count the student when they are entering classroom. The distance for this sensor to detect is roughly 1.25cm. Another thing is, this project use ESP8266 and Arduino as microcontrollers

METHODOLOGY

This project will use two sensor, first sensor (A) will sense the of the student and the second sensor (B) will count the student enter the class. When there motion detected the LCD will show the amount of student in the class. At the same time when the LCD show number of people even if there only one person the light will turn on automatically. Other than that, the door of classroom can open or lock without key in case lecturer or teacher forget to bring the key they can open the classroom using Blynk app. This project also uses ESP8266 to connect to door.

DIAGRAM/PICTURE

Mohd Amirudin Bin Ismail, Mohd Norhazree Bin Easa
Politeknik Port Dickson

ABSTRACT

This project's main goal is to find a solution to issues that the small "Malaysian Ice Cream" business is currently experiencing. They used to make ice cream using a traditional method, which caused problems most often when making the ice cream. As a result, the goal of this project is to address their issues by building an "Ice Cream Pump Machine with Arduino Using Solar Power.". This device can consistently and automatically produce 'Malaysian Ice Cream,' measure the ideal temperature for the ice cream base, and then signal when that temperature has been reached so that the filling process can begin. This device runs on solar power. After a month of use by one of the sellers, this machine speeds up the process of cooling the ice cream base from 75°C to 37°C, taking only 40 to 50 minutes as opposed to two hours using the conventional method. Additionally, it produces one serving of "Malaysian Ice Cream" in 20 to 30 seconds as opposed to 50 to 60 seconds by the conventional means. In addition, this machine can produce up to 150 to 160 pieces of "Malaysian Ice Cream" in four hours, as opposed to the traditional method's capacity of only 80 to 90 pieces. As a result, this machine will boost "Malaysian Ice Cream's" production rate, thereby contributing to an increase in the small company's revenue. In the future, it might work in conjunction with a device that ties ice cream plastic containers automatically.

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BACKGROUND

'Malaysian Ice Cream' is a food product that is delicious, cheap, and easy to prepare. The hot weather in Malaysia allows the ice cream to be eaten throughout the year. This ice cream food is popular among the public, especially among students in primary and secondary schools.
As the popularity of 'Malaysian Ice Cream' over the past few years has increased, many housewives and working people have made it a source of additional income by selling the ice cream on a small scale, either on a full-time or part-time basis. Something interesting about this business is that the process of making it is done at home.

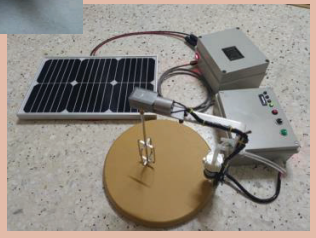
OBJECTIVE

1. To design an equipment automatic filling liquid ice cream base using solar power.
2. To monitor temperature liquid ice cream base before filling into the ice cream plastic.
3. To construct software and embed it into a microcontroller to control the sensor, actuator, and monitor.

COMMERCIAL VALUE

This product will help 'Malaysian Ice Cream' sellers in Malaysia to produce a more effective, higher quality, lesser time consuming, and lesser human resources ice cream that can be enjoyed by whole Malaysia, with an eco-friendly machine. Apart from that, it will also boost their economy and income status.

DIAGRAM/PICTURE



PROBLEM STATEMENT

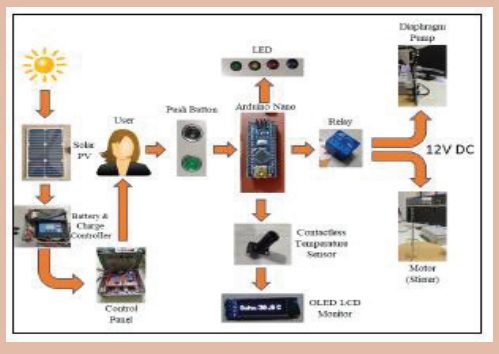
Four 'Malaysian Ice Cream' sellers that used identical traditional methods to prepare the ice cream have been interviewed. They run a small-scale 'Malaysian Ice Cream' business for one to five years. The business runs at home. Throughout their business, they encountered the following problems;

1. The cooked ice cream base takes a long time to cool before being filled into ice cream plastic.
2. Each ice cream plastic should be measured with a ruler and marked first to determine the level of ice cream to be filled into it to make each ice cream equal in volume.
3. Ice cream base spilled out when poured from a large pot into a jug and spilled when filled into ice cream plastic using a jug.
4. A lot of equipment is needed to produce ice cream, which is time and money-consuming.

INNOVATION HIGHLIGHT

- It can automatically fill the liquid ice cream base according to the pre-set time duration to make 130 ml into ice cream plastic with minimum error possible.
- It can read and show the exact temperature of the ice cream base on the monitor.
- The stirrer moves in a circular motion at 210 rpm, so that the liquid ice cream base cools quickly and well-blended before being filled into the ice cream plastic.

METHODOLOGY



CONCLUSION

In a nutshell, this machine can produce 'Malaysian Ice Cream' more effectively by having an automatic filling ice-cream base function at the optimum temperature by using solar power. This eventually will help and boost small-scale business ice-cream sellers, not only in Malaysia but hopefully worldwide. On the other hand, one of the most benefits of this machine is that it is more eco-friendly because it mainly uses solar as the energy source, instead of using conventional energy like other machines.

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POULTRY FEEDING AND LIGHTING SYSTEM USING ESP8266 NODE MCU

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Abstract.

Chicken feed is food for farm chickens, including chickens, ducks, geese and other domestic birds. Before the 20th century, poultry were mostly raised on common farms and foraged for most of their diet, eating insects, grain spilled by cows, horses and vegetation around the farm. Farming and breeding become an important sector in agriculture industry. Poultry industry has increases due high demand in this healthy white meat food. The large scale of chicken coop is needed to cater for number of chicken and constant lighting is necessary for rapid growth of chickens. This situation need more manpower to feed all chickens in coop regularly and at the same time farmer can also avoid wastage of electricity. We interviewed Mr. Othman, a chicken farmer, also an entrepreneur Small Medium Industry (SME) and has been raising chickens for 4 years. Mr. Othman informed that chickens need to be fed 3 times a day and also need sufficient light so that these chickens can grow healthily. This project has 3 identified objectives which is able to develop a Chicken Feeding System Using ESP8266 for farmers to control feed feeders. Also, build a Chicken Lighting System program using LDR sensors in the coop to control lighting and improve the Chicken Feeding System using the Blynk App. Research methodology and techniques plan the collection and analysis of data to produce evidence that can support the study. Methodology describes how a problem is investigated and why certain methods and techniques are used. In conclusion, agriculture and breeding is an important sector in the agricultural industry. It is suitable for implementation and can help entrepreneur SMEs. This system will help reduce workload. There are many ways to feed chickens. This system successfully developed and implemented if all rules are followed.

Keywords: Poultry Feeding, Lighting, Wifi Controller, Blynk

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POULTRY FEEDING AND LIGHTING SYSTEM USING ESP8266 NODE MCU

SUPERVISOR NAME : PN. AZLINA BINTI KHAIRI
NUR AIN SHAHIRAH BINTI MUSTAPA (06DTK20F2011)
AMIRAH ATIKAH BINTI AHMAD (06DTK20F2037)

BACKGROUND

Poultry feed is food for farm poultry, including chickens, ducks, geese and other domestic birds. Before the twentieth century, poultry were mostly kept on general farms, and foraged for much of their feed, eating insects, and plants around the farm. Current nutrition techniques emphasize the quantity of feed, and the nutritional requirements of the feed, depend on the weight and age of the poultry, their rate of growth, their rate of egg production, the weather (cold or wet weather causes higher energy expenditure), and the amount of nutrition the poultry obtain from foraging

PROBLEM STATEMENT

Farming and breeding become an important sector in agriculture industry. Poultry industry has increases due high demand in this healthy white meat food. The large scale of chicken coop is needed to cater for number of chicken and constant lighting is necessary for rapid growth of chickens. This situation needed more manpower to feed all chickens in coop regularly and at the same time farmer can also avoid wastage of electricity.

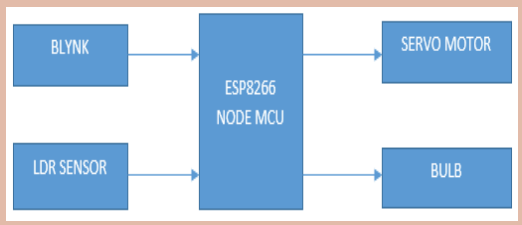
OBJECTIVE

To produce this project, 3 objectives have been identified namely:
i. To develop Poultry Feeding System Using ESP8266 for farmer to control food feeder.
ii. To build Poultry Lighting System program using LDR sensor in the coop to control the lighting.
iii. To enhance Poultry Feeding System by using Blynk Application.

INNOVATION HIGHLIGHT

The benefit of this project is that by automatically feeding the chickens using blynk apps, farmers do not need to spend time and energy to manually feed the chickens every day. A bulb also will turn ON automatically when the LDR sensor detect low levels of light outside

METHODOLOGY



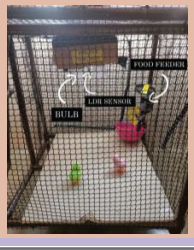
COMMERCIAL VALUE

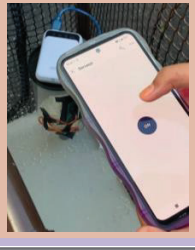
This system is made at a good and reasonable price. Projects like this can help farmers/entrepreneur in Small Medium Industries (SME).

CONCLUSION

In conclusion, agriculture and breeding are important sectors in the agricultural industry. Large-scale chicken coops are required to accommodate larger numbers of chickens and continuous lighting is required for rapid growth of chickens. These systems require cheap and low cost to build and implement in the scope possible. It is suitable for implementation and can help entrepreneur SMEs.

DIAGRAM/PICTURE





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GAS LEAKAGE WITH AUTOMATIC VENTILATION SYSTEM

Muhammad Haikal Iqbal Bin Mazlan, Muhammad Akmal Adham Bin Abdul Hamid, Dr Rosmilawati Binti Ab Rahman

ABSTRACT

Safety precautions are crucial to preventing any hazard. This is because danger will arise if these safety controls are not appropriately regulated. One instance of a risk associated with this project is a house fire brought on by combustible lpg gas. The project created a practical and secure electronic approach to avoid this issue. The development of a project that uses the MQ-6 gas sensor and Arduino to find LPG gas leaks is one of the goals of this project. Small and medium-sized industrial regions are the main focus of this project. Because the user was ignorant of the gas leak, this fire occurred. This is one of the driving forces behind the creation of the MQ-6 gas sensor application project. Additionally, there are some other benefits of using this project.

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GAS LEAKAGE WITH AUTOMATIC VENTILATION SYSTEM

Dr.Rosmilawati Binti Ab Rahman
Muhammad Haikal Iqbal Bin Mazlan
Muhammad Akmal Adham Bin Abdul Hamid

BACKGROUND

Our project's emphasis is on SMEs, or small and medium-sized factories. The workers' main concerns are the emergency procedures after a gas leak, the burdening of them regarding the occurrence, the detection time in which their region has a gas leak, and the least sensitive to a small low gas leak. Therefore, the goal of this research is to propose a design that can recognise damaged areas automatically. Particularly, gas appliances with high LPG sensitivity have been employed. A security technology used in the home as well as security for the future is the LPG gas leak detector with alert. This technology has been built on novel applications and creative concepts. Creating a gas leak detector detecting gas leaks, notably LPG in the kitchen, is one of the goals of this project.

PROBLEM STATEMENT

LPG gas, which includes butane and propane, is fundamentally tasteless, colourless,heavier than air, and lighter than water. In the event of a small low leak, more LPG gas is difficult to detect due to this characteristic. In order to make it easier to identify gas leaks, a specific chemical is applied to the LPG component that completely reacts with it. When a gas leak occurs, there are numerous emergency protocols that must be performed. Therefore, if not done carefully, this technique will take a lot of me and raise the risk of an explosion.

OBJECTIVE

For this project, there are three goals. A few of the goals are:
1. Create a prototype gas leak detector with an alert, LCD display and outflow fan.
2. Develop a gas leak detector, especially for LPG in the kitchen.
3. LPG gas leak detection using an Arduino microcontroller and MQ-6 gas sensor.

INNOVATION HIGHLIGHT

This project uses the MQ6 sensor which can detect gas leaks that has high sensitivity to Propone, Butane and LPG, also response to Natural gas. The sensor could be used to detect different combustible gas, especially Methane.

COMMERCIAL VALUE

A gas leakage detection and automatic ventilation system can have significant commercial value in various industries and applications. Here are a few examples:
1.Residential Buildings
2.Commercial buildings
3.Industrial Facilities
4.Laboratories and Research Facilities
5.Underground Parking Lots

METHODOLOGY

From the commencement of the project until its conclusion, the techniques and project flow will be covered in this chapter. Each sprint is followed by an evaluation of the researcher's progress and any necessary course corrections. These changes in direction enable the researcher to Reevaluate the ultimate result and make any adjustments necessary to achieve the established objective. For instance, the first several sprints of a software development project are devoted to the project's early phases, which are subsequently evaluated and altered as necessary. The project can be more robust and advance more quickly towards the intended final result thanks to this procedure

CONCLUSION

In this article, we demonstrate the issue of LPG leakage, which leads to several fatalities and extensive property damage. As a result, a device that can detect leaks and alert nearby people has been created.The project's system operates when gas is present the MQ-6 gas sensor can identify a gas leak and transmit an output signal to the Arduino system. A LCD that indicates the status of the gas leak level and determines whether or not there is a leak, as well as an alarm that alerts users to gas leaks, are the two characteristics of this lpg gas leak detection system.This experiment demonstrates how a well-built prototype can lower the risk of fire in residential buildings while also save resident lives. Because users can learn about LPG gas leaks early on, before a fire starts, this LPG Leak Detector With Alarm can offer advantages and have a good impact from the angle of its use. The system includes easily accessible, inexpensive components, which lowers the system's overall cost. More levels can be added to the system by using more sophisticated sensors, CPUs, and hardware components.

DIAGRAM/PICTURE

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SMART ASSIGNMENT SUBMISSION BOX

Sivaraj s/o s Krishna Moorthy[1], Harihaaran s/o Sukumaran[2] and
Pn. Suziyana Binti Yaacob[3]

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Abstract.

Nowdays, lectures are requesting the students to sent their assignment as hardcopy and meanwhile some of the lectures have to attend meeting or some other cases that creates a hard situation for students to meet the lecturer and sent their assignment. Although, we came up with an idea which is Smart Assignment Submission Box. However, this project idea is came up with the colaboration of pigeon hole and smart mailbox. So, the lecturer have to set a timing for the assignment submission and the within time period the student have to sent their assignment by scan their matric card for student identification. The identification is succesful that the student is registered will be allow to send their assignment by the hole that controlled by the door which connected with servo motor. One the student identification has been successful, the data of the student will be recorded at google excel sheet and also will display on blynk app. Once the required amount of assignment has been achieved, the lecturer can take it out by another door that have a manual lock. Rfid reader will read the data of students, and esp8266 will connect to blynk app to alert the admin. Our project can makes sure the student's assignment will be much more safety without being stolen compares to the tradisional pigeon hole system.

Keywords: Assignments safety , time management and saving, student identification.

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SIVARAJ S/O S KRISHNA MOORTHY (06DEP20F2011)
HARIHAARAN S/O SUKUMARAN (06DEP20F2024)
SUPERVISOR: PN.SUZIYANA BINTI YAACOB

BACKGROUND

The smart assignment submission box for program of study is developed to address the issue that lecturers encounter when they are unable to control/monitor students in submitting assignments on time. Submission box works in the same way that a letter or message for a specific individual is placed in their letterbox. The procedure for verifying a letter in Smart assignment submission box has not been updated till now, and most individuals are still accessing the smart assignment submission box manually.

PROBLEM STATEMENT

Nowadays , most of lectures gives a lot of assignment to their students Some lecturer requesting hardcopy of that assignment should be submitted. Hardcopy is only way for students to recognize their mistakes by referring that . Sometimes student try to meet the lecturer to handover the hardcopy but their lecturer might be attend the meeting on that time . Sometimes Lectures must particularly wait for students to generally finish their assignments before collecting them . Lectures must particularly provide students assignments in hardcopy to all of the locations they mostly are visiting in a basically major way.

OBJECTIVE

- To design the smart assignment submission box for university / college application Blynk App and ESP8266 Microcontroller .
- To control each component in the circuit , we utilize the ESP 8266 microcontroller to communicate instructions and Implement them in the action .
- To build a circuit that can gather and store a student ' s name and ID number .
- To develop notification that will alert lecturer via BLYNK APP regarding on time submission and late submission .

INNOVATION HIGHLIGHT

- Creative Problem - Solving
- Less energy and time
- Internet of Things (IOT)
- Technology Design and Programming

METHODOLOGY

A smart assignment drop box is a small compartment where students can fill out their assignments. It is also known as an automatic box that functions as an IoT system to store assignments submitted by students and is commonly used in educational institutes for communication between students and lecturers. Documents are placed in a smart drop box for a lecturer to collect.

COMMERCIAL VALUE

Smart assignment submission box has a depend in market for educational purpose especially for students and lecturers. Usage of smart assignment submission box save the time and energy of students and lecturers during this modern era globalization.

CONCLUSION

The project was chosen to create in order to make the lecture and students' work considerably easier and to save time and energy. It is essential for all students and lecturers. Assignments submitted by students will be safe and wouldn't be misplaced. Lecturers will get notify easily after the assignment has been sent. By placing the Smart Assignment Dropbox outside of the lecturer office, it will ease the students sending the assignments while it would not disturb the lecturer.

DIAGRAM/PICTURE

PORTABLE SOLAR BARBEQUE

[1]Prettish Nair A/L Raveendran, [2]Haziq Hazim Sharil San, [3]Zainab Musri

Politeknik Port Dickson

Abstract

Modern grills have advanced significantly compared to traditional ones. Traditional grills were limited in effectiveness, particularly during rainy seasons, and relied on charcoal nd fixed locations. In contrast, Portable solar barbeque use solar energy for cooking, making them eco-friendly. They capture sunlight with solar panels and convert it to electricity, reducing dependence on non-renewable resources.To control these grills, MOSFETs and Node MCU are utilized. MOSFETs serve as currentdrivers,regulatingtheflowofelectricityto the heating elements for precise temperature control. Node MCU, a development board with WiFi capabilities, acts as the central control device. It allows users to monitor and adjust temperature settings and cooking timers remotely using smartphones or other connected devices.This combination of renewable energy, MOSFETs, and Node MCU creates a sophisticatedanduser-friendlygrilling experience.OSFETsensureoptimal grilling perfor mance, while Node MCU provides convenient wireless control options. Overall, these advancements integrate modern technology with sustainable practices, offering efficie nt and environmentally conscious grilling.

PORTABLE SOLAR BARBEQUE

PRETTISH NAIR A/L RAVEENDRAN
HAZIQ HAZIM SHARIL SAN
ZAINAB MUSRI

BACKGROUND

The Portable Solar Barbecue is a compact and sustainable cooking solution that uses solar energy, eliminating the need for non-renewable fuels and reducing pollution. It is designed for outdoor activities and offers convenient and eco-friendly grilling.

PROBLEM STATEMENT

Camping is a popular activity, but traditional grilling methods have drawbacks. Uneven cooking and open burning contribute to air pollution and increased carbon dioxide emissions.

OBJECTIVE

Designing a solar-powered barbecue set as an alternative to charcoal grills. It incorporates an infrared sensor, programmable timer, and mobile phone control for sustainable grilling.

INNOVATION HIGHLIGHT

The Portable Solar Barbecue is an eco-friendly that utilizes renewable solar energy. It features advanced temperature control, remote monitoring via mobile devices, With its innovative features, it is the perfect choice for eco-conscious outdoor cooking

COMMERCIAL VALUE

A well-designed and marketed portable solar barbecue holds strong commercial potential by meeting the demand for convenient and eco-friendly outdoor cooking solutions.

METHODOLOGY

The project developed a practical barbecue grill system with temperature control and mobile phone monitoring. It integrated hardware and software elements to create a functional and user-friendly system.

CONCLUSION

The Portable Solar Barbecue is a sustainable product powered by solar energy. It offers monitoring options and ensures even cooking, specifically for chicken patties. This project successfully designed an eco-friendly solution for outdoor cooking.

DIAGRAM/PICTURE

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MACHINE OVERHEAT DETECTION WITH ALERT

Arif firdaus b juwahir[1], Muhammad Hilmi b Kamarudin[2] and Suziyana binti Yaacob[3]

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Abstract.

Projek ini digunakan untuk mengesan suhu peranti yang terlalu panas. Dalam sistem ini kami menggunakan sensor digital bagi digunakan untuk mengesan suhu dan selepas mengesan suhu ia menghantar isyarat ke arah mikropengawal yang dilampirkan dalam projek ini. Pengawal mikro yang dilampirkan dalam ini, mengira data dan kemudian memindahkan bacaan suhu untuk bacaan ini dipaparkan pada skrin LCD. Sistem ini terdiri daripada butang tekan yang berbeza. Butang ini adalah digunakan untuk menetapkan suhu sama ada ditetapkan tinggi atau rendah. Apabila kami menetapkan butang, ia membolehkan pengguna melakukan kenaikan atau melakukan penurunan suhu keseluruhan sistem. Dalam projek ini kita boleh menggunakan 12-volt transformer yang digunakan untuk membekalkankuasa kepada sistem.
Seterusnya kita gunakan buzzer dalam sistem ini yang menghasilkan bunyi bip apabila melebihi had suhu tertentu yang diberikan kepada sistem. Projek ini amat berfaedah terutamanya digunakan bagi mengesan suhu peranti atau mesin untuk mengambil beberapa tindakan sekiranya mesin ituterlampau panas. Memandangkan kita boleh menjadikan projek ini sebagai projek tahun akhir Jadi saya akan menerangkan radas yang diperlukan dalam projek ini. Dalam projek mesin pengesan suhu telalu panas , kami menggunakan mikropengawal, paparan LCD, perintang, penderia suhu , LED pengatur voltan, butang tekan diod manakala pengubah yang membekalkan 12 volt juga digunakan di dalamnya. Oleh kerana Arduino UNO R3 digunakan dalam projek ini kami menggunakan software Arduino IDE untuk projek ini di dalamnya yang kita gunakan bahasa pengaturcaraan .

Keywords: Keselamatan pengguna ,Mengesan suhu haba tinggi , kegunaan gadget dan mesin

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BACKGROUND

Projek ini bertujuan untuk mengesan suhu peranti yang terlalu panas. Sistem ini menggunakan *sensor* digital untuk mengukur suhu dan mengirimkan isyarat ke mikropengawal yang dipasang dalam projek ini. Mikropengawal mengolah data suhu dan menampilkan bacaan suhu pada skrin LCD. Sistem ini juga dilengkapi dengan butang tekan yang dapat digunakan untuk menetapkan suhu tinggi atau rendah. Butang pada mesin tersebut digunakan untuk pengguna meningkatkan atau menurunkan suhu system secara keseluruhan. Projek ini menggunakan 12 volt *transformer* sebagai sumber daya untuk system.

PROBLEM STATEMENT

1. Ramai pengguna mengalami masalah mesin dan gajet cepat panas yang disebabkan oleh sikap pengguna sendiri yang menggunakannya dengan terlalu lama.
2. Pengguna mesin atau gajet tidak mengetahui keadaan mesin tersebut sama ada keadaan mesin atau gajet itu masih boleh digunakan secara berterusan lagi atau tidak.Dengan ini ia dapat memanjangkan lagi jangka hayat gajet dan mesin tersebut.
3. Pengguna gajet atau mesin juga tidak tahu bacaan suhu mesin tersebut sama ada suhu mesin itu berada di dalam kawalan ataupun tidak. Oleh sebab itu, keselamatan para pekerja dalam menggunakan mesin dan gajet tersebut tidak terjamin.

OBJECTIVE

1. Membina litar mesin pengesan suhu tinggi bagi mengesan suhu peranti dan memberi bacaan suhu menggunakan LCD display .
2. Membangunkan sistem bagi memberi amaran kepada pengguna melalui penggerajika peranti berada dalam keadaan terlalu panas.
3. Projek ini menggunakan arduino UNO sebagai mikropengawal untuk mengawalsemua komponen yang digunakan .

INNOVATION HIGHLIGHT

1. Sistem ini berfungsi untuk mengesan suhu peranti atau mesin yang berada dalam keadaan terlalu panas (over heat).
2. Mesin ini dapat menetapkan suhu sama ada dalam keadaan tinggi atau rendah.
3. Mesin dilengkapi dengan amaran bunyi melalui buzzer.
4. Mesin ini juga dilengkapi dengan paparan LCD yang menunjukkan suhu yang dikesan.
5. Terdapat lampu LED yang akan menyala jika peranti berada dalam keadaan terlalu panas.

COMMERCIAL VALUE

1. Mesin ini berpotensi untuk meraih pasaran yang tinggi disebabkan oleh kelengkapannya yang boleh menetapkan had suhu yang diingini sama ada tinggi atau rendah oleh para pengguna sendiri.
2. Produk ini juga penting untuk semua para pengguna gajet atau mesin-mesin besar yang sering digunakan dalam kehidupan seharian mereka kerana ia dapat menjamin jangka hayat mesin dan gajet tersebut dan tidak lupa juga untuk nyawa para penggunanya sekali.

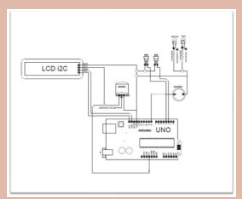
METHODOLOGY

Untuk mengesan suhu peranti atau mesin dan memberi amaran kepada pengguna melalui (buzzer) penggera jika peranti berada dalam keadaan terlalu panas. Sensor suhu ini boleh dipasang di tempat-tempat strategik di dalam peranti untuk mengukur suhu secara berkesan. Ia juga membantu dalam memberi amaran kepada pengguna supaya pengguna peka terhadap keadaan mesin yang digunakan itu.

CONCLUSION

Penggunaan komputer riba atau mesin yang kerap membuatkan sesebuah peranti tersebut menjadi terlalu panas . Oleh itu dengan adanya mesin pengesan suhu tinggi ianya amat berguna bagi pengguna agar dapat memberi amaran dengan bunyi buzzer sekiranya sesebuah peranti atau mesin tersebut berada dalam keadaan terlalu panas. Tidak dinafikan juga bahawa dengan adanya projek ini dapat menjaga sesebuah peranti atau mesin daripada mudah rosak . Projek ini akan berjalan lancar dan boleh dilaksanakan sekiranya semua peraturan dipatuhi .Semua pengetahuan dan pencarian fakta mesti dilakukan dalam tempoh 12 minggu yang ditetapkan untuk menghalang projek ini daripada terganggu. Jika projek ini berjaya dibangunkan, ia akan menjadi sebuah mesin pengesan suhu haba tinggi dengan amaran yang mudah dibawa kemana-mana sahaja kerana saiznya yang mudah alih . Oleh itu, saya berharap projek ini dapat memberi impak yang baik kepada pengguna.

DIAGRAM/PICTURE



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SAFETY ACCESS SYSTEM FOR INDOOR PLAYGROUND

Ain Nur Najihah binti Anuar[1], Miza Rasyidah Binti Mohd Rizal [2] and Nurfarhanah binti Omar[3]

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Abstract.

Currently, there is no simple system in place to verify the parents or caregivers of children in an indoor playground. When parents leave their children to go somewhere, they are concerned about their children's safety in the indoor playground. Sometimes, parents leave their children in indoor playground to go buy groceries or go shopping. Because of this, children that left alone in the indoor playground isn't guaranteed their safety. Parents and caregivers are concerned that their children will be taken away by someone they don't know. Besides that, staff are unable to identify the children's true parents or caregivers. This shows disadvantages in indoor playground since staff or workers in the indoor playground can't remember every child caretaker. So, this is why parents and caregivers are concerned about the safety of their children in indoor playground centres. This project is about system database to records registration of parents' fingerprints and phone number. This fingerprints scanner can save parents details. So that, it can ensure only parents or authorized caretakers can enter and leave with a child. As a result, when parents leave their child, they do not need to be concerned about children playing at the indoor playground.

Keywords: children safety, indoor playground, fingerprints scanners,

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SAFETY ACCESS SYSTEM FOR INDOOR PLAYGROUND

AIN NUR NAJIHAH BINTI ANUAR
MIZA RASYIDAH BINTI MOHD RIZAL
NURFARHANAH BINTI OMAR

BACKGROUND

- We find that parents would need a system that could assure their children safety when they leave their children in the indoor playground.
- Our technology installed in indoor playground centers ensures that only parents or authorized caretakers can enter and leave with a child.
- We also use servo motor to control the entrance into the indoor playground centers.

PROBLEM STATEMENT

- Currently, there is no simple system in place to verify the parents or caregivers of children in an indoor playground.
- Sometimes, parents leave their children in the playground to go buy groceries or shopping. When parents leave their children, they are concerned about their children's safety in the indoor playground.
- Children that left alone in the indoor playground isn't guaranteed their safety. Parents and caregivers are concerned that their children will be taken away by someone they don't know.

OBJECTIVE

- To build an Arduino Uno circuit that can detect the fingerprint scanner and store the data from the circuit.
- To construct the circuit to run the fingerprint scanner that can register and verify fingerprint.
- To build a circuit that can control the servo motor to control the gate into the indoor playground.

INNOVATION HIGHLIGHT

- This safety access system are easy and simple device that purposely designed to improve the safety of children that go to the indoor playground.
- The use of fingerprint scanner can easily verify the identity of the parents or authorized carers that are permitted to enter and exit the place with a kid.

COMMERCIAL VALUE

- It is important to identify the real parent of the children and safety access system are the simplest system to use for that matter.
- This product can be beneficial for other facilities that involves children such as child care center or kinder garden.

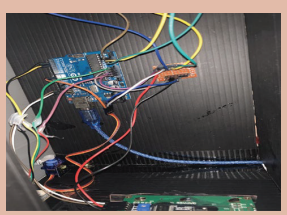
METHODOLOGY

The design controller is using closed-loop system with Arduino as the main controller, by using Arduino for the process and fingerprint sensor and push button for input with LCD and Servo Motor for output.

CONCLUSION

In conclusion, our device are purposely to protect children in the indoor playground and to give comfort to the parents who send their children into the indoor playground without worrying about their child safety.

DIAGRAM/PICTURE



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SOLAR WASHING MACHINE

Muhammad Eihsan Bin Shamsul[1], Muhamad Alif Hafezee Bin Norizan[2] , Nor Hafis Sulaiman Bin Suratman[3], Jevon Chin[4] and Zarulrizam Bin Ab Jalil[5*]

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Abstract.

Solar Photovoltaic Technology is a technology use the solar energy or know as sunlight to generate electricity. Solar cells also known as photovoltaic cells will converts sunlight directly into electricity. Solar is well known as an alternative source of renewable energy therefore there is high demand in market. In order to fulfill these demand, there are many solar farm that was built in Malaysia. The uses of solar tools is important and it is one of the contributing factor to make the solar technology. Conventional washing machine that use Alternative Current(AC) only can be used at place or area that have AC supply. However, rural area that do not any AC supply unable to use this type of washing machine. Hence, the idea of this project Solar Washing Machine comes in mind. With this invention, it will benefit to all users without the concern of electricity supply. Without AC supply, users still able to use this washing machine since it only requires the power of sun. To build this Solar Washing Machine, solar component that was used can be easily found at hardware stores. This Solar Washing Machine use 100 Watt with renewable energy. Principles of solar energy and DC motor was implemented to create the washing machine. Solar panel will generate the energy and the energy is store in battery. The charge controller is used to regulate the flow of electricity from photovoltaic generator to the battery. Charge controller will regulate the voltage and current in order to prevent overcharging and also over discharging of the battery. From this project outcome. It is proven that the electricity use solar, only can be generated during the day with the presence of sunlight. Since solar panel unable to store any electricity therefore battery is used as a tool to store the electricity. Solar was used in this project as alternative source of electricity.

Keywords: solar, electricity, DC motor, energy, battery

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MUHAMMAD EIHSAN BIN SHAMSUL


MUHAMAD ALIF HAFEZEE BIN NORIZAN


NOR HAFIS SULAIMAN BIN SURATMAN


JEVON BIN CHIN


EN ZARULRIZAM BIN AB JALIL

BACKGROUND

1. Menggunakan konsep tenaga solar khususnya kepada pengguna bagi membantu dalam menjimatkan penggunaan bekalan kuasa
2. Teknologi solar digunakan sebagai komponen utama bagi menjana kuasa
3. Motor pula digunakan sebagai tenaga mekanikal bagi mengerakkan mesin basuh dalam mencuci pakaian

PROBLEM STATEMENT

1. Mesin basuh konvensial tidak dapat digunakan di beberapa tempat seperti di kawasan yang tiada bekalan Grid
2. Ketiadaan bekalan kuasa juga merupakan suatu faktor yang selalu dihadapi oleh mesin basuh konvensial
3. Mesin masuh konvensial juga bukanlah mesin basuh yang mudah alih

OBJECTIVE

Membangunkan projek Solar Washing Machine sistem 100W yang menggunakan teknologi solar sebagai sumber kuasa

INNOVATION HIGHLIGHT

1. Projek Solar Washing Machine ini menggunakan teknologi solar fotovoltan
2. Bertujuan untuk digunakan di kawasan luar bandar yang tiada bekalan grid

COMMERCIAL VALUE

Sesuai digunakan di kawasan luar bandar (perkampungan orang asli) yang tiada bekalan elektrik gridv

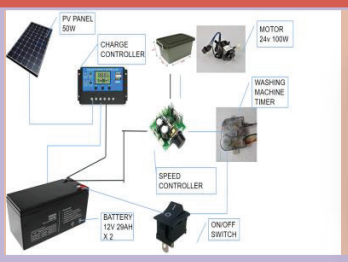
METHODOLOGY

Proses yang terlibat di dalam projek *Solar Washing Machine* iaitu dari segi reka bentuk sistem, pemilihan bahan, pemasangan dan pengujian

CONCLUSION

- Hasil daripada pengujian dijalankan tempoh penggunaan adalah 5 hingga 6 jam dan tempoh pengecasan mengambil masa 12 jam (sekiranya bateri dalam SOC 0%)
- Projek ini dapat membantu pengguna yang jauh dari bekalan elektrik grid untuk menggunakan mesin basuh menggunakan tenaga solar.

DIAGRAM/PICTURE



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AGROCULTURE WITH SMART WIRELESS LED

Saiful Hakimi Bin Mehat, Abdul Azim Bin Mohammad, DR. Rosmilawati Binti Ab Rahman.

Abstract

The Internet of Things (IoT) allows things to be detected and controlled remotely through existing network infrastructure, allowing for more direct integration between the real world and computer-based systems, resulting in increased efficiency, accuracy, and economic advantage. As water resources grow increasingly scarce and contaminated, it is critical to irrigate more effectively ino rder to maximize water consumption promote a green environment. Thispr oject describes a smart Houseplant and Monitoring system that analyses and tra cks environmental parameters in order to assist plants in thriving. The sensors coll ect and evaluate data regarding changing weather and soil moisture levels befo re sending timely notifications to LCD display. Agriculture with smart LED is a s mart Houseplant and Monitoring system that records and analyses envir onmental parameters, allowing plants to thrive. The Garden Sensors collect and e valuate data regarding changing weather and soil moisture levels before sendin g timely notifications to the user's Android phone. The system also contain s a device application that runs on various devices that may be used to monitor plant conditions at the user's workplace. It constantly monitors the situation and notifies the user of any developments that necessitate urgent action. It combines the Device, Node MCU, and Arduino to work together to meet the s ystem's objectives.

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AGROCULTURE WITH SMART WIRELESS LED

SAIFUL HAKIMI BIN MEHAT
ABDUL AZIM BIN MOHAMMAD
DR. ROSMILAWATI BINTI AB RAHMAN(SV)

BACKGROUND

The Light-emitting diode (LED) technology is paving the way to increase crop production efficiency with electric lamps. Users can select specific wavelengths to elicit targeted photomorphogenic, biochemical, or physiological plants responses. In addition, LEDs can help control the seasonality of flowering plants to accurately schedule uniform flowering based on predetermined market dates. Research has shown that the monochromatic nature of LEDs can help prevent physiological disorders that are common in indoor environments,

PROBLEM STATEMENT

-For the problem statement that I discovered, the absence of a system which helps client to monitor soil moisture. Water is an important factor in plant development.
-Soil moisture sensors are very useful in determining water levels, greatly simplifying user efforts and reducing costs.
-As it can be seen, without keeping moisture levels stable the situation can turn unfavourable both ways. This is why soil moisture sensors for agriculture are indispensable farming tools.

OBJECTIVE

i.To design lighting that can be controlled by using software connected to Bluetooth system.
ii. To create system for lights so that lights can be adjusted.
iii. To build a remote control by using the android apps.
iv. To create notifications, to notice users about lighting status.
v.To design lamps that can save energy consumption and increase energy efficiency.

INNOVATION HIGHLIGHT

-LED is used for the lightening in the indoor application, which acts as artificial light for the crops instead of natural daylight.
-Agricultural LED supports and improves plant growth by illuminating artificial lightning.
-In the agricultural industry, the use of Agricultural LED is the modern technology for farming as it has low-cost installation and low-cost solutions for customers.

COMMERCIAL VALUE

-The agriculture smart led has a big potential for commercialization because it can be used for farmer to make produce fresher plants.
-This leads to higher-quality produce that meets market demands. Compared to conventional lighting systems, smart LED systems are more energy-efficient.

METHODOLOGY

A very thorough plan is being carried out to actualize this Project as a ready-to-use solution with security features. To ensure that the Project is finished in the allotted time, a step-by-step process is followed. For encoding and processing inputs and outputs, this technique use an Arduino Uno. Use the to control the LED lamp.

CONCLUSION

The core ideas that were supposed to be implemented in the project, such as an indoor plant monitoring system that included different activities such as understanding the plant's health, watering the plant, and inspecting the plant's health, were effectively carried out. This method decreases human labour, reduces job burden, and saves time. We've put the system through its paces and watched the outcomes with bated breath. To develop the system, all of the hardware components were combined. Each module's operation has been well thought out, and it has been arranged in such a manner that it contributes to the system's best results. As a result, a functioning project has been effectively created and implemented, yielding the expected results.

DIAGRAM/PICTURE

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WIFI CONTROL ELECTRICAL APPLIANCE HOME

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Abstract.

The project name is "Wifi Control Electrical Appliances Home".This is the solution for users who always forget to turn off electrical appliances at home.An internet based home automation system focuses on controlling home electronic devices whether you are inside or outside your home.Wifi Control Electrical Home Appliances gives an individual the ability to control things around the home.Wifi control Electrical Home Appliance is a device or instrument designed to perform a specific function,especially an electrical device,such as a refrigator,for household use. The study's context is that the system is designed to prevent this unwanted incident from occurring. Human judgement is reduced to a bare minimum by automation, but it is not completely eliminated. Remote control of household equipment via the internet from anywhere in the world and at any time is now a reality. Assume the user can monitor the status of the equipment from his office desk and decides to take control by tuning his TV to his favourite channel, turning on the cooling system, say the air conditioner, and turning on or off some of the lights. When this user returns home, he or she will find a very comfortable and lovely home. Recent technological advances, such as the use of radio frequency technology.

Keywords: wifi control, electrical appliances, safety, remote control

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BACKGROUND

Wifi Control Electrical Home Appliances An internet based home automation system focuses on controlling home electronic devices whether you are inside or outside your home. Wifi Control Electrical Home Appliances gives an individual the ability to control things around the home.Wifi control Electrical Home Appliance is a device or instrument designed to perform a specific function,especially an electrical device,such as a lamp,for household use

PROBLEM STATEMENT

1.Some people leave all of their household appliances unmonitored and uncontrolled.

2. Some devices, if not correctly controlled, it will consume a lot of energy, resulting in additional electricity costs.

3.Users can monitor and control the electric home apliances by using Apps.

OBJECTIVE

i. To create an automatic time control device utilising the Arduino system, which can create timers for electronic devices.
ii. To construct the 'system controller' to govern the time of usage of electronic equipment such as fans, lights, and televisions.
iii. To develop a flexible internet-based wireless home automation system

INNOVATION HIGHLIGHT

This project purposely designed to make it simpler for users to control electrical equipment at home, Particularly those that are located in broad spaces without a switch. This device just makes use of the WIFI and Internet connections it has. Users can direct the electrical appliance by simply downloading the app from the Google Play store.

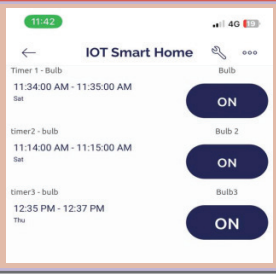
COMMERCIAL VALUE

- Potential to commercialization because it deliver real advantages, improves your quality of life, frees up time, increases security, helps you save money, and conserves energy and also simplify your life.
- It is designed to save on energy .Consider a smart store to manage automatic shutdown for electronic devices such as lights and even fans.

METHODOLOGY

Wifi Control Electrical Home Appliances is the automatic control of electronic devices in your home. These devices are connected to the Internet, which allows them to be controlled remotely. With Wifi Control Electric Home Appliances, devices can trigger each other so you don't need to control them manually and can control them only through the app called Blynk Apps

DIAGRAM/PICTURE



CONCLUSION

The inference that can be drawn from this is that people with huge homes are interested in this technology. They can operate household electrical gadgets more easily and in accordance with modern technology. Additionally, the significance of installing this model is considered when determining whether or not it should be included in their living area

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INTELLIGENT DOOR LOCK

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Abstract.

Intelligent Door Lock is a smart security project that allows users to remotely control their door locks using a mobile application. The project uses an ESP32 processor to connect to the Blynk app, which is an IoT platform that enables users to control their devices remotely via the internet. The project also includes a servo motor that is connected to the door lock mechanism, which can be unlocked or locked based on the user's command through the mobile application. The LCD display is used to provide feedback to the user, displaying whether the door is locked or unlocked. The ESP32 processor is a powerful microcontroller that provides a wide range of features and capabilities. It has built-in Wi-Fi and Bluetooth connectivity, making it easy to connect to the internet and communicate with other devices. The servo motor is used to control the door lock mechanism, which is connected to the ESP32 processor through a GPIO pin. The Blynk app provides a user-friendly interface for the user to remotely control the door lock. The app allows the user to set up a password or use biometric authentication, such as fingerprint scanning or facial recognition, to authenticate access to the door lock. The app can also provide notifications to the user when the door is unlocked or locked, adding an extra layer of security. Overall, Intelligent Door Lock is a cost-effective and efficient way to enhance security system while providing users with a convenient and easy-to-use mobile application to remotely control their door locks.

Keywords: Wireless key, IOT, ESP32

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

INTELLIGENT DOOR LOCK

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BACKGROUND

Access to DK6:
- Physical key
- Time waste
- T&L interrupted

PROBLEM STATEMENT

Physical key:
- placed far apart
- forgot to return

OBJECTIVE

- Reduce losing key
- Easy to access DK6
- Reduce the risk key from return

INNOVATION HIGHLIGHT

- ESP32
- Application to mobile phone

COMMERCIAL VALUE

- Several key locks system e.g. safe box
- Homestay access

METHODOLOGY

- Application in cell phone
- Wi-Fi connection
- Password entry

CONCLUSION

- Can be applied in DK6
- Save time
- T&L can be more focus

PICTURE

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PELEKAT ALTERNATIF BANTUAN UNTUK ORANG KURANG UPAYA PENGLIHATAN

Muhamad Syahid bin Hairozaman[1] Meor Muhammad Syazwan bin Mohd Faizal[2], and Nurfarhanah binti Omar[3]

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Abstrak

Golongan kurang upaya penglihatan sering mengalami kesukaran untuk bergerak dari suatu tempat ke tempat yang lain. Kadangkala, mereka juga perlu bergantung kepada orang lain untuk mengesan sebarang halangan. Ini kerana, orang kurang upaya penglihatan tidak dapat mengenali halangan dengan mudah ketika berjalan sekiranya hanya menggunakan tongkat biasa. Oleh itu, pelekat alternatif ini dihasilkan untuk membantu mereka mengesan halangan dengan lebih mudah ketika berjalan. Pelekat alternatif ini, akan digunakan bersama tongkat mereka yang sedia ada. Sekiranya berlaku kecemasan, ianya akan membantu mereka untuk bergerak dengan lebih mudah. Pelekat alternatif ini dibina bersama pengesan *ultrasonic* dengan kemampuan untuk mengesan halangan sejauh 50cm. Ianya juga dibina bersama motor yang akan memberi impak gegaran dan juga *buzzer* kepada pengguna.

Keywords: orang kurang upaya penglihatan, keselamatan, pengesan *ultrasonik*

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

PELEKAT ALTERNATIF BANTUAN UNTUK ORANG KURANG UPAYA PENGLIHATAN

MUHAMAD SYAHID BIN HAIROZAMAN
MEOR MUHAMMAD SYAZWAN BIN MOHD FAIZAL
NURFARHANAH BINTI OMAR

BACKGROUND

- Pada 2010, Jabatan Kebajikan Masyarakat menganggarkan mempunyai kira-kira 64,000 orang kurang upaya penglihatan berdaftar di Malaysia dan ia dipercayai jumlah itu meningkat dua kali ganda lebih tinggi menjelang 2023.
- Alat yang biasa digunakan oleh orang kurang upaya penglihatan ialah tongkat, ranting kayu, dan lain lain
- Orang kurang upaya penglihatan sedaya upaya menggunakan tongkat untuk mengesan kehadiran objek atau halangan yang berada di sekeliling laluan mereka.
- Namun, dengan menggunakan kaedah ini, orang kurang upaya penglihatan hanya dapat mengesan objek yang terdekat dengan mereka.

PROBLEM STATEMENT

- Golongan kurang upaya penglihatan sering mengalami kesukaran untuk bergerak dari suatu tempat ke tempat.
- Mereka juga sering bergantung kepada orang lain untuk memerlukan sebarang bantuan.
- orang kurang upaya penglihatan tidak dapat mengenali halangan dengan mudah ketika hanya menggunakan tongkat biasa.

OBJECTIVE

- Membina litar sensor ultrasonik untuk mengesan objek yang menghalang pergerakan bagi golongan orang kurang upaya penglihatan.
- Membina program arduino untuk diaplikasikan kepada sarung tangan bagi golongan orang kurang upaya pengihatan.
- Menghasilkan sepasang sarung tangan yang boleh membantu golongan kurang upaya penglihatan.

INNOVATION HIGHLIGHT

- Memberi keyakinan dengan penambahan projekini
- lebih mudah dan meringankan beban untukdibawa ke mana-mana.

COMMERCIAL VALUE

- Dijual dengan harga yang lebih murah dan berpatutan.
- Sesuai dibeli untuk menjamin keselamatan kepada golongan kurang upaya penglihatan.

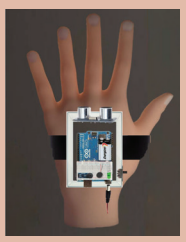
METHODOLOGY

Kajian terhadap alat pembantu orang buta telah dilakukan oleh ramai orang bagi membantu mengurangkan keupayaan terhad orang buta. Sarung tangan bantuan untuk orang buta adalah alat yang boleh membantu orang cacat penglihatan untuk memudahkan pergerakan dan melakukan aktiviti harian tanpa terlalu bergantung kepada orang lain. Sarung tangan dengan integrasi sensor ultrasonik HC-SR04, mikropengawal Arduino UNO akan membantu orang buta untuk memudahkan pergerakan dan memberi amaran kepada pengguna jika terdapat halangan di hadapan mereka dalam julat 30cm hingga 50cm.

CONCLUSION

Pelekat alternetif bantuan untuk orang kurang upaya penglihatan telah dibangunkan seperti yang kita lihat tiada inisiatif untuk orang buta untuk membuat mereka berasa selamat apabila mereka berjalan di luar tanpa penjaga. Kebanyakan orang buta bergantung pada tongkat untuk menyelesaikan tugas harian mereka. Projek ini menggunakan Penderia Ultrasonik untuk mengukur jarak dan Motor penggetar dengan mengeluarkan amaran getaran. Julat telah ditetapkan untuk pengukuran jarak sengaja ditetapkan pada 0 - 50 cm. Dalam julat ini, sensor akan mengesan halangan dan menjana isyarat getaran untuk memberi amaran kepada pengguna. Dengan bantuan daripada sarung tangan ini pengguna boleh mengetahui dengan tepat halangan yang berada dihadapan.

DIAGRAM/PICTURE



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BIKE BURGLAR ALARM SYSTEM

SHAZRIL DANISH B. SHAHRUL HIHAM[1], MOHAMMAD SHAFIQ DANIEL[2] & AZILAH BINTI ASRI[3]

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Abstract.

The absence of a robust security system contributes to the prevalence of motorcycle theft cases. To address this issue, a unique system has been developed that utilizes a remote control feature as an effective anti-theft mechanism. By demonstrating the feasibility of adding various safety features to motorcycles, this project highlights the potential for enhancing motorcycle security. Motorcycle theft is a significant concern in Malaysia, particularly in public and private parking areas. Motorcycle users are highly anxious about leaving their motorcycles unattended, even for short periods, due to the vulnerability of easily accessed ignition systems using duplicate keys.The project employs a 'CORE' (Controller of Remote Equipment) circuit to transmit digital coded infrared light pulses. Its primary objective is to enhance motorcycle security by constructing an alarm circuit that incorporates 'Volumetric Sensors.' These sensors detect any attempts at theft, such as vibrations caused by tampering with the motorcycle handle. The study focuses on a Modenas Kriss MR2 motorcycle and investigates the interaction between the remote control key and the sensor on the motorcycle. An Infrared Sensor, positioned 5 meters away from the key, receives signals from the Arduino when prompted by the code entered on the remote control device. Additionally, a Volumetric Sensor is implemented to detect vibrations and trigger the buzzer to emit audible sounds within a certain range.The project encompasses the design, block diagram, and flowchart of the system, illustrating its operation. The project hardware includes the necessary components and the prototype development and estimated project cost are discussed. In conclusion, this project significantly contributes to motorcycle safety by providing enhanced security measures. It addresses common issues like lost or rusty keys and high theft rates. Additionally, it enables keyless motorcycle activation through the remote control device, along with the ability to control the power and activate or deactivate the volumetric sensor. This project serves as evidence that diverse safety features can be integrated into motorcycles.

Keywords : Motorcyle Safety, Alarm Alert, and Keyless.

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

BIKE BURGLAR ALARM SYSTEM

SHAZRIL DANISH BIN SHAHRUL(F2010)
M.SHAFIQ DANIEL(F2022)

BACKGROUND

- The theft of motorcycles often occurs due to the absence of a robust security system.
- The system created now will assist motorcycle users in ensuring the safety of their motorcycles by maintaining a balanced position.
- The uniqueness of this system lies in its remote control feature, which serves as an effective anti-theft mechanism. By undertaking this project, it clearly demonstrates that various safety features can be added to motorcycles.

PROBLEM STATEMENT

- Motorcycle theft cases in Malaysia are prevalent, especially in public and private parking areas.
- Motorcycle users are highly concerned about leaving their motorcycles unattended for extended periods of time, even momentarily.
- Motorcycle ignition systems are easily accessed by using duplicate keys.

OBJECTIVE

- This project will be constructed using the 'CORE' (Controller of Remote Equipment) circuit to transmit digital coded infrared light pulses.
- The project aims to enhance motorcycle security and prevent theft by constructing and adding an alarm circuit that utilizes 'Volumetric Sensors' to the circuit.

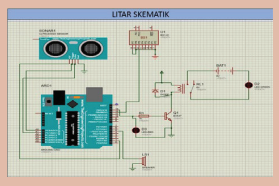
INNOVATION HIGHLIGHT

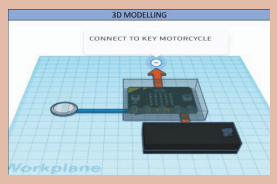
1. The 'BIKE BURGLAR ALARM SYSTEM' is constructed using four elements:
   - Remote Control Device
   - Volumetric Sensor (Alarm Alert)
   - CORE (Controller of Remote Equipment)
   - Motorcycle
2. By pressing the button on the remote control device, the alarm system can be activated or deactivated, as well as the motorcycle engine.

COMMERCIAL VALUE

- It can be used for various types of motorcycles that have an electric starter. It features efficient safety characteristics to prevent motorcycle theft.
- The product has a user-friendly design that is easy to install and use on motorcycles. It also has high resistance to water and strong impacts.

METHODOLOGY





DIAGRAM/PICTURE

CONCLUSION

In conclusion, it can be seen that this project will contribute positively to motorcycle safety and assist many motorcycle users in maintaining a higher level of security by monitoring their motorcycles at all times. Additionally, with the successful implementation of this project, it can address various recurring issues such as lost keys, rusty keys, and high motorcycle theft rates in Malaysia. Furthermore, as a result of this project, motorcycles can be started without the need for physical keys, relying solely on the remote control device. Moreover, the remote control device can also open and close the electrical circuit to control the motorcycle's power on or off and activate or deactivate the volumetric sensor. Lastly, this project has demonstrated that various safety features can be added to motorcycles.

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PULSE RATE MONITORING SYSTEM

NURUL AMILIN BINTI HASHIM[1], NURSYAFIKAH BINTI KHAIRUDIN[2] & AZILAH BINTI ASRI[3]

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[2]Politeknik Port Dickson, Malaysia

[3]Politeknik Port Dickson, Malaysia

Abstract.

The electronic pulse oximeter and heart rate sensor, which are used in this project to measure speed and pulse count and also to monitor oxygen level, are used in the healthcare industry. We must fundamentally monitor our body temperature, pulse rate and blood pressure to maintain our health. There are two ways to monitor pulse rate either using the Pulse Sensor or manually checking the pulse on the wrist or neck are both options. In this project, the user's wrist and hand are used to detect the pulse with the pulse sensor. As a result, the Pulse Rate Monitoring System aims to assist users in determining whether their pulse rate is "normal" or "not normal" and to provide solutions to their issues. The pulse rate measurement and the user's "normal" or "not normal" conditions will be displayed in the output on the computer's web page. A regular pulse rate check will also make the community more aware of its own health. Lastly, because people can check on their own and save a lot of time, it reduces the burden on hospitals. Adults have a normal pulse rate of 60 to 100 beats per minute; children have a pulse rate of 70 to 100 beats per minute; and athletes have a pulse rate of 40 beats per minute. They only need to go to the hospital if their pulse is not in a normal state, such as if it is too fast or too slow. If the pulse is abnormal, it is very likely that the person has a dangerous disease and needs to go to the hospital for further examination.

Keyword : Pulse rate, Oximeter, and Monitoring System.

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

PULSE RATE MONITORING SYSTEM

PRODUCT ID: Respex23-088

NURUL AMILIN BINTI HASHIM, NURSYAFIKAH BINTI KHAIRUDIN, AZILAH BINTI ASRI

BACKGROUND

A pulse rate monitoring system is a device or system that measures the heart rate or pulse rate of an individual. This system is commonly used in medical settings to monitor the heart rate of patients, but it is also used in fitness and wellness applications

OBJECTIVE

•To generate an electronic devices that can read a user's pulse rate from the tip of their finger by employing pulse rate sensor to determine their heart rate blood oxygen level.
•To establish a GSM Module for send the SMS after read the pulse.

COMMERCIAL VALUE

These systems can provide continuous heart rate monitoring for seniors, ensuring their safety and well-being. Caregivers or family members can receive SMS alerts if there are any significant changes in the pulse rate, allowing for immediate attention or medical intervention. This market segment is expanding rapidly due to the aging population and the increasing demand for remote monitoring solutions.

CONCLUSION

This project requires a cost that affordable to build and affordable for everyone to have. It is very suitable for implementation at workplace, home, school, and university. In this project has developed a pulse rate monitoring system. It can help people easier to check pulse at home or at work and more convenience to check it on their own anytime. They will be able to check on their own and at any time. This can also ease the burden of the hospitals due to people can check on their own and can save a lot of time.

PROBLEM STATEMENT

•People are unaware of their state of health and may be careless about the health.
•Sometimes people overlook the scheduled appointment for a hospital examination, unusually for elderly patients.
• Increasing number of people suffering from serious diseases such as heart problems, blood pressure , and other dangerous health problems regardless of age whether young or old so, we need one system for self check at home.

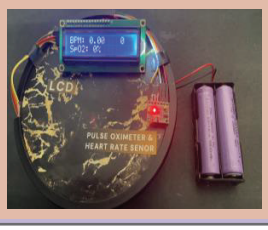
INNOVATION HIGHLIGHT

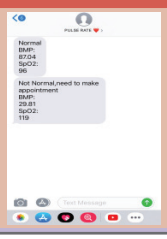
•SMS Alerts: The system can be programmed to send SMS to make user more alert about their condition.
•User-Friendly Interface: The system can have a user-friendly interface, making it easy for individuals to interact with and understand their pulse rate readings.

METHODOLOGY

- Research and Analysis: Research the market to identify existing pulse rate monitoring systems. Explore commercial devices, wearable fitness trackers, medical-grade monitors, and other relevant products. Analyze their features, functionality, accuracy, ease of use, and user feedback. Identify the strengths and weaknesses of these solutions.

DIAGRAM/PICTURE





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SOLAR MOBILE PHONE CHARGER

ANIS INTAN ZURIYANI BINTI ARNUAR[1] , NUR SYUHADA BINTI MOHD HADI[2] & AZILAH BINTI ASRI[3]

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[2]Politeknik Port Dickson, Malaysia

[3]Politeknik Port Dickson, Malaysia

Abstract.

Solar Mobile Phone Charger enable you to charge cell phones directly with the sun. Solar panels designed to convert the sun's energy into electric current. By using solar mobile phone charger, up to 3 phone can be charge at the same time. The solar panel has an output of 80W/12V and the battery has a capacity of 12V/2A. All kinds of phones can be charged by the solar phone charger, but a minimum of two phones is required. The IOT implementation allow to control solar mobile phone charger using the Blynk apps. In this project we use solar panel for storing energy and convert sun's energy to electrical current. Also, ESP8266 for IOT implementation, so that charging time can be remote by using Blynk apps. Then, transmitter and receiver circuit for charger to operate in AC voltage. Solar Mobile Phone Charger project suitable for outdoor activity and rural areas with no electricity or limited charging capacity if using power bank or socket wall because only one device per socket can be charge. Solar Mobile Phone Charger also can be used for charging 3 phone at the same time. Finally, Solar Mobile Phone Charger is becoming a very appreciated idea. because it uses clean and unlimited source. Other than that, mobile phone can be charged anywhere without the need of any electric outlet using solar mobile phone charger. Solar mobile phone charger can be simply performed by using Blynk apps.

Keywords: Solar, mobile phone charger and blynk apps.

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COMMERCIAL VALUE

These systems can provide continuous heart rate monitoring for seniors, ensuring their safety and well-being. Caregivers or family members can receive SMS alerts if there are any significant changes in the pulse rate, allowing for immediate attention or medical intervention. This market segment is expanding rapidly due to the aging population and the increasing demand for remote monitoring solutions.

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This project requires a cost that affordable to build and affordable for everyone to have. It is very suitable for implementation at workplace, home, school, and university. In this project has developed a pulse rate monitoring system. It can help people easier to check pulse at home or at work and more convenience to check it on their own anytime. They will be able to check on their own and at any time. This can also ease the burden of the hospitals due to people can check on their own and can save a lot of time.

PROBLEM STATEMENT

•People are unaware of their state of health and may be careless about the health.
•Sometimes people overlook the scheduled appointment for a hospital examination, unusually for elderly patients.
• Increasing number of people suffering from serious diseases such as heart problems, blood pressure , and other dangerous health problems regardless of age whether young or old so, we need one system for self check at home.

INNOVATION HIGHLIGHT

•SMS Alerts: The system can be programmed to send SMS to make user more alert about their condition.
•User-Friendly Interface: The system can have a user-friendly interface, making it easy for individuals to interact with and understand their pulse rate readings.

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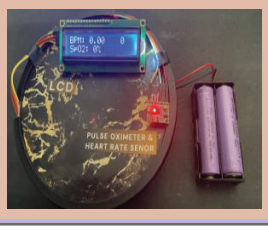
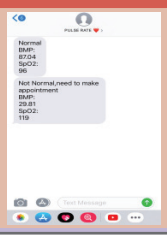
DIAGRAM/PICTURE





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Regional Educators, Students Product's Exhibition

HYDROPONIC SYSTEM FOR PLANT

ALIF HAZIM BIN NOR SHAFIZAL SAKHUAN[1], NURUL HASANAH BINTI HAFIDZUDDIN[2] & AZILAH BINTI ASRI[3]

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Abstract.

Hydroponic system for plant is a system that make planting become more easy and hassle-free. Hydroponic is the most easiest way for growing a plant. Most planter prefer hydroponic for growing their plant. Hydroponic wick system is an efficent way for planting. It can produce a great quality of plant and it doesn't need a large space. Also, hydroponic system is suitable for any beginner that start planting plant. There are 3 problem statement about hydroponic system for plant. First, most people lack of knowledge about the hydroponic wick system. Most people recognise soil planting which is growing plant in a soil. Second, people doesn't know the suitable water level for plant, pH water and moisture of the plant. Most people that new to hydroponic system, over fill the water in tank and doesn't know how to keep maintain the pH of water that suitable for the plant.Third, most people is busy with their daily live but their want monitor the condition of the plant. There are 4 objective about hydroponic system for plant. First, to construct a water level circuit by using water level sensor into the tank for plant and for keep the plant health. Second, to construct a pH water in the tank for water balance by using pH level sensor on liquid pH acid and alkaline into the main water tank. Third, to construct a water level sensor for maintain the suitable water level for the plant. Fourth, to give notification to the user when there is a trigger using Blynkk application. The scope of this project is limited to three pots of grape plant. This project enable automatic monitoring for hydroponic with level sensor and water level. This system using grape plant and pH need is around 5.5 – 6.5. The main controller for this system is using ESP32 Wi-fi to control input and output for this system.

Keywords : hydroponic, water level, pH, Blynkk

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BACKGROUND

Hydroponic System is a way to grow plants using formulated, nutrient-rich instead of soil. The hydroponic System for plant is an automated Control System in condition to detect pH water, Humidity of plant and water level in the tank to alert if water in the tank decrease by using Blynk Application for user to monitor the hydroponic system and give notification to the user when the sensor have trigger. The plant for this system is uses plant grape. Plant grape need 8 litre a day and pH need in the between 5.5-6.5 for keep hydrate and growing healthy.

PROBLEM STATEMENT

People lack of knowledge about pH water level, water level in the tank and humidity of grape plant.
People busy with their daily live but want to keep in track about plant growing up and healthy

OBJECTIVE

To construct a water level circuit by using ultrasonic senso into the tank for plant and for keep the plant health.
. To construct a pH water in the tank for water balance by using pH level sensor on liguid pH acid and alkaline into the main water tank.
To construct a soil moisture sensor for keep plant humidity and get enough water for a day and growing healthy.
To give notification to the user when trigger issue at hydroponic System of the plant by using Blynk Application

INNOVATION HIGHLIGHT

The Blynk application is used to control the sensor-equipped hydroponic system.Three important technologies can be employed to increase the efficacy and precision of a hydroponic plant growing system: a soil moisture sensor, a pH sensor, and a water level sensor.With real-time monitoring of soil moisture and pH levels, growth conditions may be precisely controlled and readjusted.By automating the supply of nutrients, you may raise the system's efficiency and make sure the plants get the right amount of nutrients.

COMMERCIAL VALUE

It also can be used for other kind of plant that suitable for hydroponic system

It also can be use for soil system.

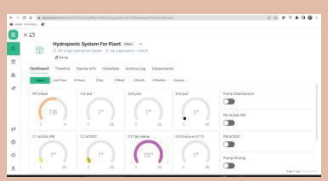
METHODOLOGY

Allow user to monitor and Control various parameters such as water level, Humidity and nutrients pH water in real-time, optimizing growing plant grape conditions by using Blynk Application.
Convenient for user:
Efficient use of space, eco-friendly and more accessible for user to using this system of Hydroponic system for plant.

CONCLUSION

This project aims to provide convenience for busy individuals who can't devote time to plant care. Hydroponic systems offer versatility, suitable for various environments like gardens, farms, and cities. They can be customized to meet specific plant needs, fostering healthy growth and higher yields. Moreover, hydroponics is eco-friendly, requiring less fertilizer and pesticides.

DIAGRAM/PICTURE



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SMART GARDEN BY USING IOT CONTROLLER

Hashim, Muhammad Hazmi[1,*], Kaharudin, Muhammad Solehudin [2] and Hasan, Amilia @ Emil[3]

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*Corresponding member

Abstract.

Third National Agriculture Policy (NAP3) have five objectives. One of the objectives is to increase productivity and competitiveness of the agricultural sector. Innovation in technology is one of the methods to archive this objective. Smart garden by using IOT controller is an idea to advance our traditional system to a smart automated system for supplying water in home gardening or small nursery. The system consists of three sub-system such as sensor, controller and water pump. The sensor of the system is a soil moisture sensor. NodeMCU is a controller system. It will collect the data from sensor and transmit to a Blynk through in built Wi-Fi. The water pump is automatically turn on and off. The sensor will detected soil wetness, humidity and temperature of the plant. Therefore, Smartphone will display the data and notify the user as the soil moisture level goes down below the set point. The water will enable to flow through the water pump when percent of the humidity is 80% then automatically stop when percent of the humidity is 79%. This product can provide some choices for the customers who need monitoring and controlling their water usage in agricultural sector.

Keywords: smart garden, IOT system, soil moisture sensor, NodeMCU, Blynk

Participants Name: [1]MUHAMMAD SOLEHUDIN BIN KAHARUDIN
[2]MUHAMMAD HAZMI BIN HASHIM

SV: PUAN AMILIA@EMIL BINTI HASAN **Product ID: Respex23-120**

BACKGROUND

Smart garden is a product that is designed to irrigate water on plants to get enough water and provide appropriate soil moisture. Smart Garden is controlled and monitored using apps by smartphone. This product are very useful for nursery and domestic.

OBJECTIVE

- To build a systematic planting system IOT monitored on web or application.
- Designing a water consuming control system by using a microcontroller on an Node MCU
- Establish a soil moisture monitoring system using Moisture Sensor (soil moisture limit on the plant.

COMMERCIAL VALUE

This product is useful and easy to use for nursery who have small garden in the yard. Smart garden can monitor manually and automatically watering the plants in yard by using smartphones.

CONCLUSION

In conclusion, this project has achieved the objective it wanted to do to help nurseries that have small plants. This system is also widely used by nurseries in foreign countries because it provides many benefits to them and can improve the quality of the plants they produce.

PROBLEM STATEMENT

- Watering cans or garden hoses are used by the nurse manually water the plants in their backyard utilising irrigation methods.
- Healthy plants require a balanced water supply and the right amount of soil moisture.
- The nursery faces a time consuming issue with homework and forgets about the produce, which results in the plants being idle and not receiving enough water to survive.

INNOVATION HIGHLIGHT

- The SGI device purposely designed to help domestic user to detect soil moisture of:
  i. Status Pump
  ii. Soil Sensor
  iii. Temperature
  iv. Humidity

METHODOLOGY

To make it more systematic, the design and programming system must be created properly so that it is organized and runs with the NodeMCU program, for example, before being used on the machine. Then tools and components must be installed correctly.

DIAGRAM/PICTURE

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HEALING ROOFTOP

Nur Farhayu Farwiza Binti Zainudin[1]
Ahmad Azharruddin Bin Zainee[1]
Mohd Hafiz Bin Abu Chek[1]
[1]Jabatan Kejuruteraan Elektrik, Politeknik Port Dickson
Email: farhayuzainudin0302@gmail.com

This healing rooftop is a home cooling device that works during the summer and stores water in the rainy season. This healing rooftop is built on the roof of the house so that the water stored below can rise to the roof of the house and cool the house using the rainwater that has been stored inside provided barrels or other water sources. With this healing rooftop it can help reduce the heat in the house and provide comfort to the residents in the house. The way this rooftop healing works is that the temperature sensor will detect the temperature on the roof of the house, and when the temperature reaches 26–31 Celsius, it will signal the water pump, which will pump the water up to the roof of the house, where it will go through the pipe that has been drilled above. the roof, then the water will come out of the holes that have been punched, and it will go down to the rain gutter. Then the air that is in the rain gutter will go back down into the water tank that is below. This process will keep repeating until the roof reaches the set or normal temperature.

Key word: Cooling Device, Reduce The Heat

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TEAM MEMBER : NUR FARHAYU FARWIZA BINTI ZAINUDIN
: AHMAD AZHARUDDIN BIN ZAINEE
: ENCIK MOHD HAFIZ BIN ABU CHEK

BACKGROUND

- This healing rooftop is a home cooling device that works during the summer and stores water in the rainy season. This healing rooftop is built on the roof of the house so that the water stored below can rise to the roof of the house and cool the house using the rainwater that has been stored inside provided barrels or other water sources. With this healing rooftop it can help reduce the heat in the house and provide comfort to the residents in the house

PROBLEM STATEMENTS

- Uncertain weather, such as hot and continuous.
- The cost of buying or installing an air conditioner is expensive.
- High electricity consumption for air conditioning.
- The cost of repairing air conditioners is expensive

OBJECTIVES

- To reduce the heat rate in a house.
- To save on monthly expenses.
- To reduce excessive electricity consumption.
- To save maintenance costs.

INNOVATION HIGHLIGHTS

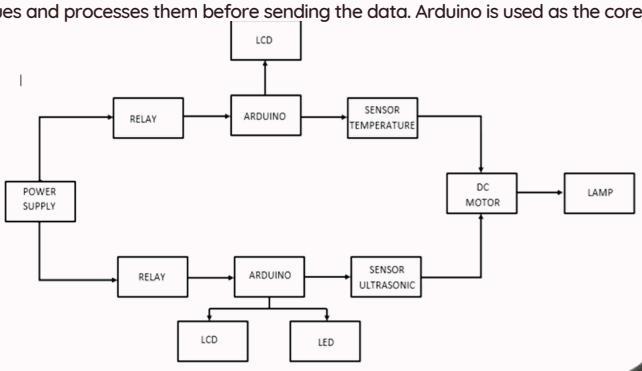
- Can cool the rooftop of the house more easily because HEALING ROOFTOP works automatically.
- The items using in HEALING ROOFTOP are easily installed and cheap.
- Rooftop heating is more economical in terms of electricity consumption compared to home conditioners that are already on the Malaysian market.
- This project is very important for people who are less able to buy their own air conditioning.

COMMERCIAL VALUES

- This HEALING ROOFTOP has a great potential to be commercialized because it can be used to cool the house at a cheaper cost, therefore providing comfort to users who use it.
- It also important for people who are less able to buy air conditioners

METHODOLOGY

- I have discussed the concept of rooftop healing. The overall block diagram of the proposed method is explained. Each component of the system is carefully explained. In this proposed block diagram, several sensors are connected to the core controller. The core controller accesses the sensor values and processes them before sending the data. Arduino is used as the core controller.



CONCLUSION

- In short, we researched this information from the internet and concluded that we can improve our system based on the subtopics we found. We can improve this cooling system by following some examples of how the home cooling system works based on the information we discovered. Then, with this study, we can also produce the first eco-friendly home cooler in Malaysia.

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SMART FOOD CONTAINER ULTRAVIOLET REHEATABLE

ABDUL HAZIM AZRI BIN ZAINOL[1]

ARIF RIDHWAN BIN ABD RAHMAN[2]

Abstract

This paper presents an innovative design of a prototype food container that involves both hardware and software development. This project is designed an effective food container is able to maintain the food warm and to protect food from pests like flies and rats. Smart food container uses an Arduino mega 2560 to produce an automated function. The main parts of this project consist of chassis, 1 sensor which are temperature sensor DHT11 microcontroller,1 ultraviolet lamp and 1 hot bulb as an outputs. This is to ensure the warming process operates more efficiently and effectively. The algorithm is developed and implemented with Arduino Mega 2560. It is really practical for human, especially working woman to make their life simpler. This project helps people to keep their food warm and it can avoid the food from easily spoil. The performance of this project was validated with the simulation circuit using Proteus 6 Lite, and the results and findings from conducting experiments on the prototype. The bulbs are activated by the AC plug and sensor DHT11 use to detected the temperature and will automatically off the output when the maximum temperature has been reached. This project uses 240V 100W bulb as a heating element. It can be improvised by replacing bulbs with thermistor coil. The thermistor coil can produce more heat energy because of the material of the coil, for example in the oven. We also improved this project by using an ultraviolet lamp that works by producing ultraviolet light which can kill bacteria and viruses that are on the surface of food, food equipment, and the surrounding environment. In the food industry, the use of UV lamps is very important to maintain the safety and cleanliness of the food produced. Problem that Most of mothers or housewives in Malaysia face problems in handling food at home due to their busyness at work. The main problem that caused the emergence of this idea was most of mothers or housewives in Malaysia face problems in handling food at home due to their busyness at work. So stored food will lose their heat when left with a long period of time. Its causing food at home that has been cooked to spoil easily when being stored. Therefore, our objectives is to design and build a heating container to get food that is always hot. So, simultaneously with that germs will be killed while stored in the food container. And lastly this can prevent food from spoiling. In conclusion, throughout the production of the project, all important milestones were achieved without problems and all objectives were met. Therefore, we believe that our products are very beneficial to working housewives and we hope that every home should have this product as a convenience for them. Lastly we are satisfied with the overall performance of the system we have created

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

Product Name: SMART FOOD CONTAINER ULTRAVIOLET REHEATABLE

Participants name : Abdul Hazim Azri Bin Zainol (06DET20F2018)
Arif Ridhwan Bin Abd Rahman (06DET20F2026)
SV:EN.Zaiham Bin Hamzah
Product ID : Respex23-131

BACKGROUND

This paper presents an innovative design of a prototype food container that involves both hardware and software development. This project is designed an effective food container is able to maintain the food warm and to protect food from pests like flies and rats. Smart food container uses an Arduino mega 2560 to produce an automated function.

OBJECTIVE

I. To design and build a heating container to get food that is always hot.
II. Germs will be killed while stored in the food container.
III. Can prevent food from spoiling.

COMMERCIAL VALUE

- Easy to use from a distance
- Its very useful for someone who have a busy schedule.
- Interesting and innovative design.

CONCLUSION

In conclusion, throughout the production of the project, all important milestones were achieved without problems and all objectives were met. Therefore, we believe that our products are very beneficial to working housewives and we hope that every home should have this product as a convenience for them.

PROBLEM STATEMENT

- Most of mothers or housewives in Malaysia face problems in handling food at home due to their busyness at work.
- Stored food will lose their heat when left with a long period of time.
-Causing food at home that has been cooked to spoil easily when being stored.

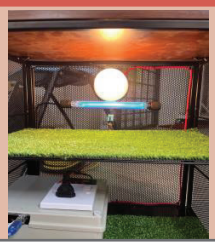
INNOVATION HIGHLIGHT

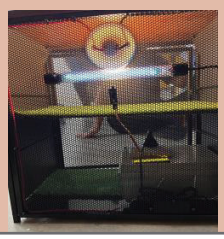
-when it has reached the maximum heat temperature the sensor on the lamp will automatically turn off.
-Ultraviolet lamps are also able to prevent germs.

METHODOLOGY

This project presents the design, construction, development and control of an automatic temperature controller system that applies to the Smart food container.The idea is based on the problem that happen in humanlife nowadays by improving the traditional TudungSaji.

DIAGRAM/PICTURE





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SMART TOOLBOX WITH SOLAR SYSTEM

Nur Syazana Binti Osman[1,*], Sara Batrisyia Binti Nazri Faizal [2]

[1]Nur Syazana Binti Osman, Malaysia

[2]Sara Batrisyia Binti Nazri Faizal, Malaysia

Abstract.

The Smart Toolbox with Solar System was an innovative device that addressed the limitations of traditional tool kits by providing efficient charging and backup power through the integration of solar energy. It utilized solar panels for charging, ensuring uninterrupted productivity in power outages or remote areas. it only need 1 hours 45 minutes to fully charged one battery that used 7.2Ah using 50Watt solar panel. The device featured a user-friendly Blynk application that allowed users to monitor power levels in real-time, preventing unexpected downtime caused by depleted batteries. The objectives of the project included developing a solar-powered charging system, integrating the Blynk application for power monitoring, ensuring portability and durability, optimizing energy efficiency, and promoting sustainability through the use of renewable energy sources. The design solutions incorporated solar panel integration, a battery backup feature, Blynk application integration, a user-friendly interface with an LED display, and a portable and durable construction. For user's benefit and as the output of this system, a 240V socket outlet and 5V of USB port attached to the toolbox. The innovation of the Smart Toolbox with Solar System lay in its ability to provide sustainable and efficient charging, maximize solar power utilization, and deliver real-time power information through the Blynk application. The commercial value of the device included cost savings for users through solar power utilization, promotion of eco-friendly and sustainability, and versatility for various working conditions and applications.

Keywords: Renewable Energy Resources,Solar Power Panel, Charging Device

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

Product Name: SMART TOOLBOX WITH SOLAR SYSTEM

Participants Name: Nur Syazana Binti Osman (06DET20F2006)
Sara Batrisyia Binti Nazri Faizal (06DET20F2008)
SV: Encik Mohd Zaiham Bin Hamzah

Product ID: Respex23-132

BACKGROUND

Smart Toolbox with Solar System is an innovative device that charges your toolkits while also providing backup power. It stores electricity using a solar panel and comes with a Blynk app that allows you to check the power metre. Users will not have to worry about running out of battery juice when they need it the most with this device.

OBJECTIVE

- Enable real-time power monitoring through a user-friendly Blynk application
- Optimize energy efficiency to maximize solar power utilization
- Promote sustainability by using renewable energy sources

COMMERCIAL VALUE

- Promotion of eco-friendliness and sustainability, aligning with environmentally conscious user values
- Versatility for users to utilize in various working conditions and applications

CONCLUSION

The device featured a user- friendly Blynk application that allowed users to monitor power levels in real-time, preventing unexpected downtime caused by depleted batteries. The innovation of the Smart Toolbox with Solar System lay in its ability to provide sustainable and efficient charging, maximize solar power utilization, and deliver real- time power information through the Blynk application..

PROBLEM STATEMENT

- Traditional toolkits are useless without a reliable power source in power outages or remote areas.
- this project provides a solution by using solar power to charge the toolkit and provide backup power.
- The Blynk app allows users to monitor their power levels to prevent unexpected downtime due to a dead battery.

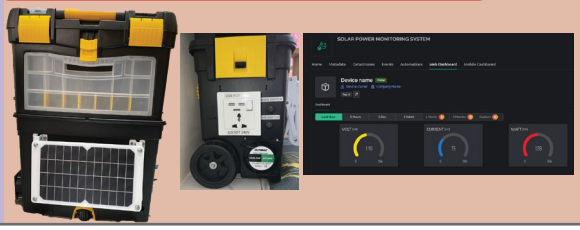
INNOVATION HIGHLIGHT

- The design features solar panel integration, a battery backup option, and energy management abilities to maximise the use of solar power.
- monitor toolkit power use and deliver real-time information to users using the Blynk application integration.

METHODOLOGY

The Smart Toolbox with Solar System is more convenient and user-friendly thanks to the integration of the Blynk application. It is cost savings for users through the use of solar power and uninterrupted use during power outages

DIAGRAM/PICTURE



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SERVER ROOM MONITORING SYSTEM

Muhammad Azrul bin Adnan[1,*], Muhammad Hazeem bin Amirul Azam [2] and Noraziah binti Abu Bakar[3]

[1]Jabatan Kejuruteraan Elektrik, Politeknik Port Dickson

azrula852@gmail.com

Abstract.

This server room monitoring system (SRMS) project was developed because of today's technology that use the Internet of Things (ioT), which means using the Blynk application can monitor the server room remotely through a smartphone. A good temperature condition for server room is 21 c to 23 c and humidity for server room 40% to 60%. The reason the server room is not in good condition is because there is no good ventilation system in the server room which will cause the temperature in the server room to rise. High humidity will cause problems in the server room such as short circuits and mold growth. The cause of the problem of high or low temperature and humidity is because there is no system that can remotely monitor the server room. The development of a project that uses MQ-2, DHT 11 and ESP32 DevKit V1 gas sensors as the main components to avoid high temperature, relatively low humidity and avoid server room fire is one of the goals of this project. The use of buzzers and indication lamps is used as an alarm system in the server room so that the server room caretaker is more alert about the state of the server room. The fan is used as a server room cooling system in case of high temperature and will release heat until the server room returns to a normal level. The Blynk application on the smartphone is also used to monitor the server room remotely and will notify the smartphone if the temperature and humidity in the server room is high or low. This project can benefit the server room caretaker to monitor the server room remotely and the equipment in the server room will be safe. The results of the server room monitoring system project using the Blynk application through the developed smartphone have achieved as planned.

Keywords: Server room, monitoring system, temperature condition, ventilation system, Bylnk apps

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

SERVER ROOM MONITORING SYSTEM

Team members :
Muhammad Hazeem Bin Amirul Azam
Muhammad Azrul Bin Adnan
Noraziah Binti Abu Bakar (SV)

BACKGROUND

- Server room is a sort of room where server computer installation, whether they are for single, network, principal device are located.
- The relative humidity limits 40% - 60% RH. The dew point limit : 5.5 15 CDP.
- Poor performance in the server room is equipment failure and data loss, it is caused by the temperature in the room being too hot because the server room cannot be warm before or after operation.
- The guidelines were presented in the 2016 ASHRAE data center power equipment thermal guidelines and best practice. The temperature limits: 18 -27c.

OBJECTIVE

- To monitor temperature, humidity and gas level via Smartphone Blynk app and LCD Display.
- To design control of heat on server room to remove heat using exhaust fan.
- To analyze temperature and humidity.

COMMERCIAL VALUE

- This project can monitor the temperature, humidity, and gas if have any leakage or temperature and humidity rise. It also send a notification to user using the Blynk app.

CONCLUSION

- The project outcome has achieved the objective to monitor temperature, humidity and gas level via Smartphone Blynk app and LCD Display.
- Server room monitoring system can give notification on the Blynk app in the smartphone.
- This project can benefit the server room caretaker to monitor the server room remotely and the equipment in the server room will be safe.

PROBLEM STATEMENT

- Server room be in a hot state during or after operating long period of time. This is because there is no good ventilation system in this server room.
- High humidity causes server room problem such as rust, corrosion, short circuiting, and even fungus growth.
- Temperature and humidity condition cannot be monitored for a long period of time because they use humans to monitor the server room.

INNOVATION HIGHLIGHT

- This project use temperatures and humidity sensor for detect temperature and humidity level. Also have Lamp Indictor for safety user.

METHODOLOGY

This project is divided into two parts which is the hardware and the software design.

- SOFTWARE 1.Arduino IDE 1.8.10
  2.Android Apps (BLYNK)
- HARDWARE
  1.ESP32 DevKIT V1
  2.MQ-2 GAS & SMOKE
  3.LCD DISPLAY 1602
  4.FAN
  5. DHT11
  6. LAMP INDICATOR
  7. BUZZER

B

DIAGRAM/PICTURE

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WATER TANK LEVEL MONITORING SYSTEM USING BLYNK APPLICATION

Muhammad Danish Addin Bin Mohd Faiz[1,*], Muhammad Nabil Ashraf Bin Ahmad [2] and Norashida Binti Ismail[3]

[1]Electrical Engineering Department,Politeknik Port Dickson, Malaysia

[2]Electrical Engineering Department, Politeknik Port Dickson, Malaysia

[3]Electrical Engineering Department, Politeknik Port Dickson, Malaysia

Abstract

Recently, there have been frequent water supply interruptions in residential homes. This may be due to dam closure works or water reservoir system maintenance. If the closure of the water supply is notified by giving a notice, then it is most likely not to cause problems to the user because they can well prepared. However, if the water supply is shut off suddenly or without notice, then it is very difficult for the residents especially in residential area and even more difficult if the number of households is large. Usually people who live in residential area do not keep enough supply of clean water due to limited space. The Water Tank Level Monitoring System using Blynk Application was developed to help users monitor the water level in the tank that is high on the roof in order to be careful and alert with water usage where this system detects the water level using ultrasonic sensor at three positions which are high, medium and low. The position of the water level can be monitored through the Blynk Application. If the water is in medium and low level, the buzzer will sound in different tone as a reminder to the user. The LCD is also used to display the water level in the water tank.

Keywords: water tank, monitoring, Blynk Application

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

POLITEKNIK PORT DICKSON
PRODUCT ID: **Respex23-134**
PRDUCT NAME: **WATER TANK LEVEL MONITORING SYSTEM USING BLYNK APPLICATION**

1. **MUHAMMAD NABIL ASHRAF BIN AHMAD**
2. **MUHAMMAD DANISH ADDIN BIN MOHD FAIZ**
3. **NORASHIDA BINTI ISMAIL**

BACKGROUND

The Water Tank Level Monitoring System using Blynk Application was developed to help users monitor the water level in the tank that is high on the roof in order to be careful and alert with water usage where this system detects the water level using ultrasonic sensor at three positions which are high, medium and low.

PROBLEM STATEMENT

1. When there is no water supply at home, users did not know the water level in the water storage tank at their home.
2. Need a system to monitor the water level in the tank and notify user to avoid water wasting and alert them.
3. This system uses sensors to alert user when the water tank is full or empty. We can monitor the water according to levels which are low, medium and high.

OBJECTIVE

1. To design a water level circuit which can detect the water level in water tank in real time.
2. To develop a monitoring system using Blynk Applications to alert user when the water tank level is high, medium or low level.
3. To notify user their water tank level via smart phone.

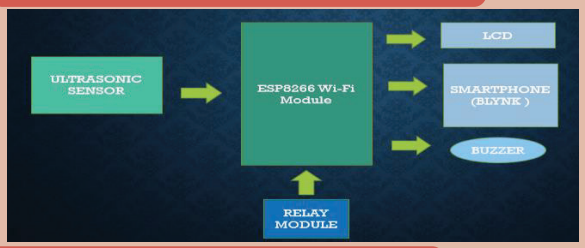
INNOVATION HIGHLIGHT

1. Easy for users to monitor the water level.
2. This system can reduce workload and save time for users.
3. The sensor used to monitor water level is ultrasonic sensor.
4. buzzer will sound when detecting medium and low water level

COMMERCIAL VALUE

1. This system has a big potential for commercialization because can monitor the water level in the tank when there is no water at home
2. This system is specially for home users.
3. Very important for use in the upcoming drought.

METHODOLOGY



CONCLUSION

This system will give a piece of information about the condition of the water level in the water tank. Accordingly, IOT empowers the water level the observational framework is completed using sections and alerts are sent to customers using Blynk application

DIAGRAM/PICTURE

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SMART SOLAR TRAINER

AKIF FARHAN BIN MOHD RIZAL

MUHAMMAD SYAIFUL AIMAN BIN RAZALY

Abstract

It can be said that every higher education institution makes use of the solar panel system tool to address real-world issues in the lab. Particularly those who pursue electrical engineering. Practical work cannot be carried out and cannot be fully completed without using this solar panel system tool. Nowadays, solar is an important resource because it is one of the renewable resources for modern technology that exists today. Therefore, the use of solar in the learning process in the subject of rehabilitation is limited because there are not many prototypes that can be produced well. trainer solar that is created using items that do not meet the standards, for example the use of ordinary cables, old batteries and structures that are not renewed, then the improvement for each component is very important. The improvement can overcome the problems of students when doing tests in finding accurate value readings and knowing how much value can be saved when charging and also used for lessons or maintainence subject. Technology also changes at all times, so using the online system to find value is more efficient compared to the old way of using a claim meter. The purpose of the renovation is to simplify the process of measuring the value and how long the solar trainer can last. measurements are carried out to determine whether the absorbed value for each panel is accurate. More exactly, the main goal of this study is to develop the various types of solar pv. Second, to measure the value of voltage and current. Third, use the charger controller to see how much battery value is stored. The solar trainer was repaired with the addition of ESP32 as an online system displayed on the blynk application to come out the value from meter and use of a charger controller as a tool to control the solar trainer which is worth 12v. The methodology, known as Value of Solar Methodology, takes into consideration the unique nature of solar PV generation in which systems produce electricity on peak, produce power at the location of use, do not require continuous fuel purchases, and have significant security and environmental advantages over fossil fuels. These characteristics generally increase the value of solar electricity as they allow utilities to avoid the costs of fuel, plant O&M, generation, reserve capacity, transmission, and distribution in their centralized assets.Value of Solar Methodology represents an opportunity for states and utilities across the country to begin to assess the benefits of distributed generation and better plan for energy investments that provide maximum benefits to society.

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

1) AKIF FARHAN BIN MOHD RIZAL (06DET20f2012)
2) MUHAMMAD SYAIFUL AIMAN BIN RAZALY (06DET20F2002)

BACKGROUND

It can be said that every higher education institution makes use of the solar panel system tool to address real-world issues in the lab. Particularly those who pursue electrical engineering.

PROBLEM STATEMENT

-Upgrade the smart solar trainer.
-Create an accurate reading
-Make a new installation
- updating the IOT system

OBJECTIVE

- To developed the various of solar
- to measure the actual value of current and voltage
- To design application from phone

INNOVATION HIGHLIGHT

- increase knowledge about savings based on solar
- An energy source that is easily renewable over time

METHODOLOGY

Methodology represents an opportunity for states and utilities across the country to begin to assess the benefits of distributed generation and better plan for energy investments that provide maximum benefits to society.

COMMERCIAL VALUE

it is also important for lecturers of higher education institutions to facilitate teaching their students easily

CONCLUSION

This trainer can give the students the opportunity to get to know a complete system. The purpose of it was built to carry out tests to measure the production of voltage and ammeter

DIAGRAM/PICTURE

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SMART SHOES RACK WITH ARDUINO UNO ATMEGA 328P

Tengku Muhammad Haikal Hakimi bin Tengku Shamsul Kamal[1,*], Noraziah binti Abu Bakar[2]

[1]Jabatan Kejuruteraan Elektrik, Politeknik Port Dickson

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Abstract.

Today in the market, There are many models of shoe racks that are suitable for home decoration. A shoe rack is a piece of furniture that allows and keeps all shoes organized and stored. One of the big advantages of a shoe rack is being able to store all the shoes and keep them from being scattered around the house. There are shoe cabinets with designs that are not very suitable and elegant to be placed in areas of the house such as the hall or the living room itself. This is because the shoe rack does not have a large enough space, this is more related to poor ventilation. In addition, shoe racks on the market also use materials that are not very suitable because the material used is wood that easily absorbs water, this indirectly causes a bad smell of mustiness and such materials will necessarily shorten the lifespan of shoe racks. .Therefore, the idea arose to create a smart shoe rack using arduino Uno Atmega328P to attract users to use a shoe rack that has been provided with various interesting functions that are much better than existing shoe racks where the shoe rack has an automatic control system equipped with Uv lamp, exhaust fan and fragrance, The function of the component is to reduce the reproduction of germs, reduce the bad smell in the shoe rack and can perfume the shoes and is controlled by Arduino uno Atmega328P. This shoe rack is also suitable for use at home, office and mosque. This will facilitate and convince users to wear shoes that do not smell and users will also look cleaner..

Keywords: Smart shoes rack, reduce germs, deodorize shoes, ventilation, arduino Uno

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POLITEKNIK MALAYSIA
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SMART SHOES RACK WITH ARDUINO UNO ATMEGA328P

Team members :
Tengku Muhammad Haikal Hakimi bin Tengku Shamsul Kamal
Noraziah Binti Abu Bakar (SV)

BACKGROUND

- A smart shoe rack using arduino Uno Atmega328P to attract users to use a shoe rack that has been provided with various interesting functions that are much better than existing shoe racks where the shoe rack has an automatic control system equipped with Uv lamp, exhaust fan and fragrance.
- The function of the component is to reduce the reproduction of germs, reduce the bad smell in the shoe rack and can perfume the shoes and is controlled by Arduino uno Atmega328P.
- This shoe rack is suitable for use at home, office and mosque. This will facilitate and convince users to wear shoes that do not smell and users will also look cleaner..

OBJECTIVE

- To build a smart shoes rack modification with uv light and exhaust fan.
- To build a smart shoes rack modification with uv light and exhaust fan.
- To create programming that can join all systems on the shoe rack

COMMERCIAL VALUE

- Using the existing shoe rack that has 3 layers to put more shoes. In addition to using small-sized components to save
- space in the shoe rack and arranging all components
- neatly and organized and placing the electric box outside the shoe rack.

CONCLUSION

- The project outcome has achieved the objective to where the shoe rack has an automatic control system equipped with Uv lamp, exhaust fan and fragrance.
- The function of the component is to reduce the reproduction of germs, reduce the bad smell in the shoe rack and can perfume the shoes and is controlled by Arduino uno Atmega328P.

PROBLEM STATEMENT

- The main problem in this project is, The shoe rack smells musty.
- The shoe rack does not have good ventilation and is exposed to the germs inside the shoes.
- In addition, the shoes will also smell musty and this will cause germs to multiply more easily.

INNOVATION HIGHLIGHT

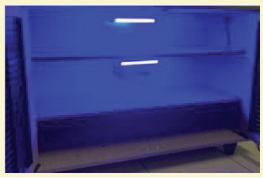
- add a uv lamp which is able to kill germs.
- Given good ventilation adapted to the exhaust fan.
- Special fragrance for fragrance and kill bacteria.

METHODOLOGY

This project is divided into two parts which is the hardware and the software design.are :

- SOFTWARE: Arduino Uno Atmega328P
- HARDWARE: When the door of the shoe rack is closed, the magnetic door will signal to the Arduino and it will respond with a predetermined function which firstly the UV lamp and the fan will operate within 10 minutes after which the aromatic aroma will operate for 10 seconds only.

DIAGRAM/PICTURE



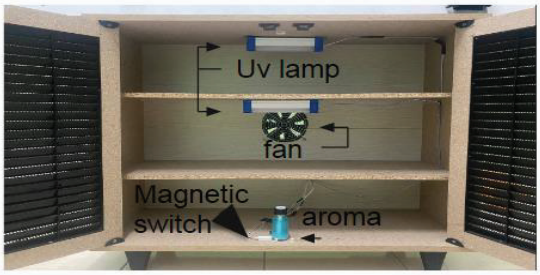


Figure 1.0 : SMART SHOES RACK WITH ARDUINO UNO ATMEGA 328P

SMART CLASSROOM USING IOT

KUMARASILAN A/L GUNASILAN
MOHD HAFIZ BIN ABU CHEK
Jabatan Kejuruteraan Elektrik, Politeknik Port Dickson
Email: kumarasilan12345@gmail.com

Smart classroom using Iot is a safe, networked and intelligent home control system integrated with automation control, network communication and Internet of things (IoT). The information collected will then be transmitted by the IoT gateway to the server on the Internet and users can monitor the operation of each subsystem of the Smart classroom using Iot after login. In this paper, a systematic framework of IoT based Smart classroom using Iot has been designed, to reduce the waste of money, smart lighting and classroom appliance control have been conducted and the system functions have also been tested. This project can control manually and by using smart phone.

Key word: control using Iot,reduce waste of money

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TEAM MEMBER : KUMARA SILAN A/L GUNASILAN (06DEQ20F2020)
: MOHD HAFIZ BIN ABU CHEK (SV)

BACKGROUND

Reduce the power consumption in classroom of Politeknik Port Dickson as human can make mistakes and forget to switch off the appliances when not in used

PROBLEM STATEMENT

There is a waste of electricity,Waste of money happens and lamps and fans burn quickly

OBJECTIVE

- To design control system using android phone.
- To measure electricity cost savings of the classroom
- To innovate the system with better improvement of manually and controlling with smartphone

INNOVATION HIGHLIGHT

Thls project is design to control the devices of classroom by using iot to raise the energy efficiency. By using software such as: -Blynk Iot version 1.9.0

METHODOLOGY

In this project that we know is to make sure the classroom devices works well. When we
click on button in the phone the devices in the classroom must works. The method we use is
using esp 32 to the coding and processing the input and output.

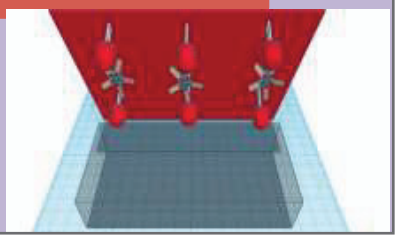
COMMERCIAL VALUE

Classroom that using this product can reduce cost of electricity bill. This project mainly use for classroom This project also can reduce the waste of human energy.

CONCLUSION

all the claaroom automation system techniques uses wireless technology.to provide easy to the lecturer or block keeper to control the classroom's appliances.

DIAGRAM/PICTURE



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HAND SENSOR BASED TOUCHLESS WASTE BIN

Kesavan a/l Vickneswaran[1], Harreswaren a/l Vickneswaran [2] and Nurfarhanah binti Omar[3]

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Abstract.

Things are becoming smarter as people become smarter. When the topic of smart cities comes up. Intelligent waste management is required. Garbage spilled out in andaround the dustbins is a common sight. The area around a poorly maintained trash can harbor disease-carrying insects such as mosquitoes, flies, bees, and driver ants. The environment surrounding a dustbin is also conducive to increasing the levelof pollution in the air. Dustbin air pollution can produce bacteria and viruses that cancause life-threatening diseases in humans. The idea of Hand Sensor Based TouchlessWaste Bin is for confined spaces like Office and Clinic. The Hand Sensor Based Touchless WasteBin thus thought is an improvement of normal dustbin by elevating it to be smart using sensors and logics. In the proposed system, ultrasonic sensors were placed overthe bins to detect the hand movement of users and IR sensor used to detect level of rubbish. The problem is that current garbage collection is inefficient, wastes time, and requires a substantial amount of human energy. When waste is overloaded, it createsan unsanitary environment for the surrounding environment and emits a foul odor, which can spread disease.

Keywords: waste bin**,** IR sensor, air pollution, waste management

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Solar Electric Stove for Campers

BACKGROUND

A solar electric stove, is a cooking appliance that utilizes sunlight to generate heat and cook food. It is an eco-friendly and sustainable alternative to traditional stoves that rely on fossil fuels or electricity. The basic concept of a solar electric stove involves concentrating sunlight onto a cooking vessel or surface to harness its energy for heating. The stove typically consists of reflective materials, insulation, and heat retention. There are different designs and variations of solar cookers, ranging from simple box cookers to parabolic or panel cookers.

PROBLEM STATEMENT

Health and Safety Risks: excessive usage of solid fuel and gas

Environmental Impact: unwanted heat rise and air pollution

Fuel Availability and Accessibility: works as important tool during emergency

OBJECTIVE

I. To investigate the temperature of solar electric stove when cooking foods.
II. To construct a solar electric stove which is easy to use for camper when camping because it has rechargeable battery
III. To develop a coding which helps to run our hardware

INNOVATION HIGHLIGHT

1. Use of infrared sensor to detect temperature
2. LCD to display the current temperature and setting temperature
3. Able to adjust the setting temperature to our preference manually

COMMERCIAL VALUE

1. Provides clean and renewable energy solution for cooking, reducing reliance on fossil fuel and minimizing carbon emission
2. Helpful in rural areas where environmental friendly cooking alternative are desired

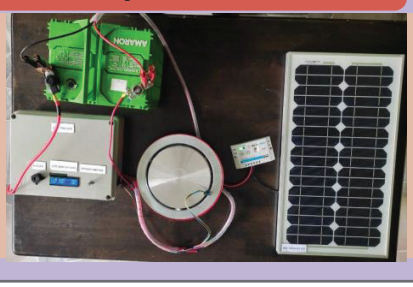
METHODOLOGY

I. Convert solar energy to electric energy into heat energy
II. Electrical heating element
III. Temperature control and safety features
iv. Construction and assembly

CONCLUSION

In conclusion, a solar electric stove is an excellent choice for campers who value convenience, sustainability, and portability. By harnessing the power of the sun, this stove provide a reliable cooking solution while minimizing environmental impact. Moreover the lcd, displays the current temperature and setting temperature to the user. Campers can cook their food by adjusting the temperature. Thus, offering the benefits of sustainability, portability, efficiency, and convenience. By utilizing renewable energy, campers and travelers can enjoy cooking their meals while minimizing their environmental impact and embracing a greener camping lifestyle.

DIAGRAM/PICTURE



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DEVELOPMENT OF ESP32-CAM AUTOFISH FEEDER FOR AQUACULTURE INDUSTRY

BACKGROUND

Auto fish feeder is a device that automatically feed the fish at a predetermined time. In a way, it is to control the fish feeding activity by using a fish feeder that combined the mechanical system and electrical system to form a device instead of manually feeding the fish by hand. Fish owners who are away for a long time will have trouble knowing the situation of the pond or aquarium. Thus, such device is very convenient. At the same time, the environment needs to be monitored. For this project, we will monitor the environment in term of food deliver. First, the device will consist of a ESP 32 Camera, servo motor, Lipo battery, custom PCB and USB Type-C TP4056. The device will feed the fish by dropping the food from the storage through a hole. The size of the hole is controlled by a piece of block connected to a motor. A timer is used to control the number of feeding time at an interval of time. With this, the user or the owner can be away from home with the device monitoring the aquarium condition.

PROBLEM STATEMENT

Many aquarists or fish owners of home-based aquariums lead hectic lives these days, particularly those who are gone on business or vacation. It's not always easy to stick to a regular eating schedule. However, for the fish to survive, they must be cared for on a regular basis. As a result, a device can take the position of the assistant. The device's system must be able to be controlled or altered by the user based on their demands and needs. As the term "automatic" implies, the equipment, or more specifically, the feeder, should be able to work without human supervision at least for a period of time. At the same time, the owners can monitor the fish throw the camera. there is an automatic fish feeder that feeds the fish according to a timer set by the operator. However, with concepts and mechanical controls via electronic systems are simple to implement to maximize the efficiency of these devices' performance. To ensure smooth operation, nutrition time, food amount, and the most up-to-date engineering characteristics are applied. Finally, this rationale may be able to solve the problem of an automatic fish feeder.

OBJECTIVE

For this project, there are three goals. A few of the goals are:

- To design and develop automatic fish feeder for indoor aquarium.
- To evaluate the performance of the developed mechanism using ESP32 camera.
- To design low cost an automatic smart fish feeder.

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INNOVATION HIGHLIGHT

This project uses the ESP 32 Cam sensor which comes with build in camera detect movement of fish. This microcontroller also come wtih build in wifi can allow the user to control the device wirelessly.

COMMERCIAL VALUE

An Automatic Fish feeder has a commercial value on both homes and agriculture industry.

- Aquaculture industry
- Food industry (fish breeding)
- Fish Breeder Aquarium

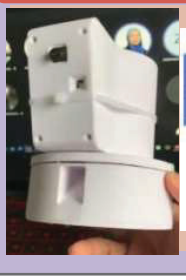
METHODOLOGY

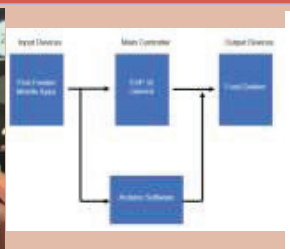
To ensure that the Project are able to finished in the allotted time, a step-by-step process is followed. This include choosing of the microcontroller which is the ESP32-Cam with build in Wifi. This project uses Arduino IDE for the programming and uses C++ for the coding.as for the feeding of the pallet. Servo motor was used as we can controller the rotatition thus controlling the amount of pallet that is dispense into livestock/ fish.

CONCLUSION

This project an Auto fish feeder device is project that adding the ESP32 camera for environment monitoring to the fish to monitor them when pet owner not around them. This project also have to consider balancing the optimum cost with it practical usage as, in terms of marketing, no customer will want to buy an overpriced product. This project also can contribute to aquaculture industry which is high demand food industry. This product can help to increase the food production in fish industry.

DIAGRAM/PICTURE





ARCHITECTURE

Category

04

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Regional Educators, Students Product's Exhibition

Spec Me!

Nor Rusli Abu Bakar[1,*], Muhammad Amjad Misman[1], Muhammad Hafiey Hakim Nor Azmi[1] and Muhammad Hariz Mohamed Narawi[1]

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Abstract.

Specifications in architecture refer to the description of construction details such as measurements, materials used, installation methods, finishes and others. Specification is prepared by the architect and becomes a reference for the consultants and contractors involved. For students, knowledge and understanding in specifications is very important. Here are some of the problems that students often face: Lack of knowledge about building materials, less clear about building construction and writing incomplete specifications. Innovation Spec Me! is developed to aid the students learning and to reduce the problems they face. Spec Me! will helps in explaining the building materials commonly used in the construction industry, briefly explain the construction of the building and explain the method of writing specifications in the field of architecture. QR codes are placed at strategic locations in BIM / CADD labs and architectural studios. Students scan the QR code and a short video of the specifications will play on the phone. Videos are linked on YouTube Shorts. It can also be browsed anytime and anywhere.

Keywords: Architecture, Specification, Drawing, Construction, Material

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ID No. : Respex23-002
Title : Spec Me!
Category : Architectural

1. Nor Rusli bin Abu Bakar
2. Muhammad Amjad bin Misman
3. Muhammad Hafiy Hakim bin Nor Azmi
4. Muhammad Hariz bin Mohamed Narawi
Kolej Komuniti Sabak Bernam

BACKGROUND

Spesifikasi dalam senibina merujuk kepada penerangan tentang perincian pembinaan seperti ukuran, bahan digunakan, cara pemasangan, kemasan dan lain-lain. Ianya disediakan oleh pihak arkitek dan menjadi rujukan kepada pihak konsultan dan kontraktor yang terlibat.

Bagi para pelajar, pengetahuan dan pemahaman dalam spesifikasi adalah sangat penting. Inovasi Spec Me! dibangunkan untuk membantu pembelajaran mereka.

PROBLEM STATEMENT

i. Kurang pengetahuan tentang bahan binaan.
ii. Kurang jelas tentang pembinaan bangunan.
iii.Menulis spesifikasi yang tidak lengkap.

INNOVATION HIGHLIGHT

i. Bercirikan Revolusi Industri Keempat (IR4.0).
ii. Mesra pengguna
iii.Boleh diakses di mana-mana dan pada bila-bila masa.

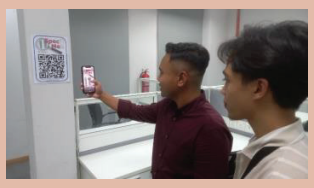
OBJECTIVE

Penghasilan produk inovasi ini adalah untuk:
i.menerangkan bahan-bahan pembinaan
ii.menjelaskan secara ringkas pembinaan bangunan
iii.menjelaskan kaedah penulisan spesifikasi

METHODOLOGY

1. Kod QR ditampal di lokasi strategik dalam makmal BIM/CADD dan studio senibina.

2. Pelajar imbas kod QR dan video pendek spesifikasi akan dipaparkan pada telefon.



3. Video dipautkan pada YouTube Shorts. Ianya juga boleh dilayari pada bila-bila masa dan di mana-mana sahaja.

COMMERCIAL VALUE

i. Boleh diakses oleh sesiapa sahaja dan ianya percuma.
ii. Ianya sesuai untuk institusi yang menawarkan program pembinaan / senibina.

DIAGRAM/PICTURE

Kod QR

YouTube Shorts

Telefon Pintar

CONCLUSION

Inovasi yang bermanfaat dan mesra pengguna.
Boleh digunakan oleh sesiapa sahaja, di mana dan bila-bila masa sahaja.

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MEASURED DRAWING OF SURAU BATU, REMBAU

Nik Nur Aida binti Nik Ahmad Kamal[1], Nurul Ain bint Mat Lazin[2],

Ahmad Zakwan bin Zulkephli[3], Nur Asyraf bin Abu Bakar[4]

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Abstract.

Mosques and surau are two types of buildings used as places of worship for Muslims. These two types of buildings have differences in terms of functionality and use, but basically they both have the same purpose, which is to provide a place for Muslims to worship and interact with fellow Muslims. The definition of a mosque is a building used as a place of worship for Muslims. Literally, the word "mosque" comes from the Arabic language which means "kneeling place", which refers to the activity of prostration (bowing) performed by Muslims during prayer. The definition of surau is a building used as a place of worship for Muslims. Surau is more specialized for religious and educational activities which commonly used for social and community activities. In the early days, surau was used as a place of study for the santri. However, as time went on, surau was developed into a place of study and worshipping God for Muslims population around the area. Surau Batu Undang Haji Sulong has been built in Jalan Tanah Datar, Ulu Gadong. Rembau, Negeri Sembilan. This surau was built in 1920 with the efforts of the late YAM Dato' Undang Lela Maharaja Haji Sulong bin Ambia, the 17th Undang Luak Rembau. This Surau Batu was used as a place of worship in the past. It also used to be a center for carrying out various activities for the residents of Ulu Gadong village at that time. The main goal of this measured drawing is to study deeply about this old surau in addition to know the construction structure along with the actual measurements of the design which has a unique appeal. The research methodology used is interviewing, measurement work and recording data at the study site, the charcoal method to capture motifs in the study building and obtaining other sources and information through written readings that can be found. The results of the architectural findings found at this stone shrine are influenced by Chinese architecture just like the mosques in Melaka, which are Hulu Mosque, Tengkera Mosque and Kg. Keling Mosque. It can be seen in the very unique roof design which a use of meru roof design. This clearly proves the influence of the carpentry of the Chinese community on the design of the Surau Batu due to the location of Melaka and Negeri Sembilan next to each other. The interesting decorative elements of this surau are also influenced by the Chinese government of the Ching Dynasty, which uses natural factors in the carvings, just like one of the oldest mosques in Malaysia, the Kg Hulu Melaka mosque.

Keywords: Surau Batu, Negeri Sembilan, Chinese Architecture, Muslims, Carvings.

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LEADER : NIK NUR AIDA BINTI NIK AHMAD KAMAL
PROJECT MEMBERS : NURUL AIN BINTI MAT LAZIN
AHMAD ZAKWAN BIN ZULKEPHLI
NUR ASYRAF BIN ABU BAKAR
INSTITUTION : POLITEKNIK PORT DICKSON (USM-KPM)

HEIR OF UNDANG LUAK REMBAU


HJ SULONG BIN AMBIA @ MEAH
(1905 - 1922)


ABDULLAH BIN HJ. DAHAN
(1922 - 1938)


HAJI IPAP BIN ABDULLAH
(1938 - 1962)


HAJI ADNAN BIN MA'AH
(1962 - 1998)


HAJI MUHAMAD SHARIP
BIN OTHMAN
(1998 - PRESENT)


TUANKU MUHRIZ IBNI
ALMARHUM TUANKU MUNAWIR
(YDP NEGERI SEMBILAN)

"SURAU BATU KG GADONG" WAS BUILT ON JALAN TANAH DATAR, ULU GADONG WHICH WAS BUILT IN 1920 ON THE EFFORTS OF THE LATE YAM DATO' UNDANG LELA MAHARAJA HJ SULONG BIN AMBIA @ MEAH. THIS RESEARCH BUILDING IS A SMALL MOSQUE THAT WAS USED AS A PLACE OF WORSHIP IN THE PAST. IN ADDITION, IT ALSO USED TO BE A CENTER FOR CARRYING OUT VARIOUS ACTIVITIES FOR THE RESIDENTS OF ULU GADONG VILLAGE AT THAT TIME. BASED ON DOCUMENTS STORED AT THE REMBAU DISTRICT LAND OFFICE, THIS MOSQUE IS PRIVATELY OWNED BECAUSE IT IS NOT REGISTERED AS WAQF PROPERTY AND THE SITE OF THIS SURAU IS NOT LISTED AS WAQF LAND.THEREFORE, ALL MATTERS CONCERNING THIS SURAU AT THE PRESENT TIME, MUST GO THROUGH THE HEIRS OF THE OWNER OF THIS MOSQUE. HOWEVER, THIS MOSQUE IS CONSIDERED TO BELONG TO ALL THE VILLAGERS. AND CAN BE SAID TO BE A PART OF LIFE IN GADONG VILLAGE.

THIS MOSQUE WAS BUILT BY LOCAL CHINESE ARTISANS AND THE CONSTRUCTION MATERIALS OF THIS MOSQUE WERE BROUGHT TO REMBAU USING THE TRAIN. THIS MOSQUE IS BETTER KNOWN AS "SURAU BATU" BY THE VILLAGERS BECAUSE OF THE MATERIALS ITS CONSTRUCTION IS MADE OF STONE, BECAUSE AT THAT TIME IT WAS VERY DIFFICULT TO FIND BUILDINGS, ESPECIALLY MOSQUES MADE OF STONE.

KEY PLAN

REMBAU, NEGERI SEMBILAN HAS A LONG HISTORY IN THE CONSTRUCTION OF MOSQUES AND SURAUS THAT USE TRADITIONAL MALAY ARCHITECTURAL STYLES THAT CAN BE RECOGNIZED FROM ELEMENTS SUCH AS STEEP SLOPING ROOFS, BEAUTIFUL WOOD CARVINGS, AND OPEN VERANDAHS. THE ARCHITECTURE OF MOSQUES AND SURAUS IN NEGERI SEMBILAN IS RECOGNIZED AS AN IMPORTANT CULTURAL HERITAGE FOR NEGERI SEMBILAN AND IS WELL MAINTAINED BY THE GOVERNMENT AND THE LOCAL COMMUNITY.


ARCHITECTURE STYLE

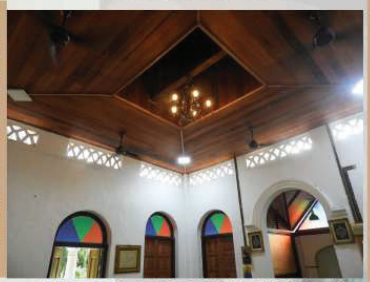
LOCATION PLAN

HISTORY OF OWNERSHIP OF SURAU BATU

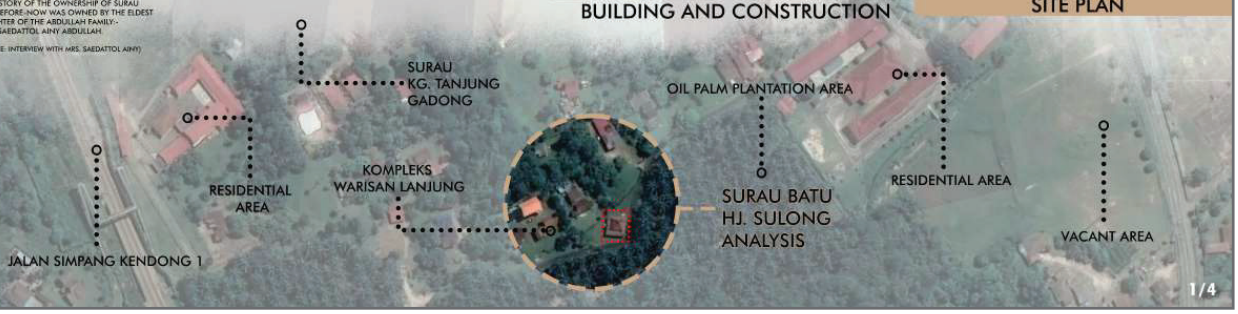
THE HISTORY OF THE OWNERSHIP OF SURAU BATU BEFORE-NOW WAS OWNED BY THE ELDEST DAUGHTER OF THE ABDULLAH FAMILY:- PUAN SAEDATTOL AINY ABDULLAH

(SOURCE: INTERVIEW WITH MRS. SAEDATTOL AINY)

THIS MOSQUE WAS BUILT BY LOCAL CHINESE ARTISANS AND THE CONSTRUCTION MATERIALS OF THIS MOSQUE WERE BROUGHT TO REMBAU USING THE TRAIN. FROM THE TRAIN STATION, THE MATERIALS WERE THEN TRANSPORTED BY OXCART TO THE CONSTRUCTION SITE. THIS MOSQUE IS BETTER KNOWN AS "SURAU BATU" BY THE VILLAGERS BECAUSE OF THE MATERIALS ITS CONSTRUCTION IS MADE OF STONE, BECAUSE AT THAT TIME IT WAS VERY DIFFICULT TO FIND BUILDINGS, ESPECIALLY MOSQUES MADE OF STONE.
THIS MOSQUE AIMS TO BE A RELIGIOUS EDUCATION CENTER FOR THE AREA AROUND THE VILLAGES OF GADONG, KATA, CHENGKAU, SEBERANG PAYA AND SO ON.


BUILDING AND CONSTRUCTION


SITE PLAN



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TEROKA DISCOVERY CENTRE

NURUL HANA NADHIRA BINTI MOHD ANUAR [a] AND
Ts. SITI AMIRAH BINTI MOHTARAM [b]

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Abstract

This project is intended to design the Teroka Discovery Centre on Jalan Persisiran Payang in Kuala Terengganu. It also satisfies the needs of the community local and international. The location is strategic because it is close to both residential and commercial areas. It is also known for its stunning panorama views and proximity to Terengganu drawbridge, which is a major tourist attraction. With a focus of the passage from the historical to the contemporary architectural or vice versa, it also aims to educate tourists about Terengganu through traditional and technological means. Transition is the design strategy that was used in this project. It addresses specific site concerns and establishes a local point that will aid in the socio economic growth at the community local and international. Spaces are divided into two blocks, the first block is designed using traditional methods. Materials and activities that are offered there are also provided using traditional approaches . On the other hand the other block is designed using a contemporary architecture concept, which is shown based on the material and the construction method. The block is also full of technology and this transition can give a different feeling to the tourist.

Keywords: Discovery Centre, Kuala Terengganu, Contemporary Architecture, Transition

NURUL HANA NADHIRA BINTI MOHD ANUAR
SV : TS SITI AMIRAH BINTI MOHTARAM

INSTITUTION NAME : POLITEKNIK PORT DICKSON
PRODUCT ID : Respex23-029

TEROKA
discovery centre

RESPEX
8th REGIONAL EDUCATORS STUDENTS PRODUCT'S EXHIBITION 2023
"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

BACKGROUND

This project is intended to design the Teroka Discovery Centre on Jalan Persisiran Payang in Kuala Terengganu. It also satisfies the needs of the community local and international. The location is strategic because it is close to both residential and commercial areas. It is also known for its stunning panorama views and proximity to Terengganu drawbridge, which is a major tourist attraction. With a focus of the passage from the historical to the contemporary architectural or vice versa, it also aims to educate tourists about Terengganu through traditional and technological means. Transition is the design strategy that was used in this project. It addresses specific site concerns and establishes a local point that will aid in the socio economic growth at the community local and international. Spaces are divided into two blocks, the first block is designed using traditional methods. Materials and activities that are offered there are also provided using traditional approaches . On the other hand the other block is designed using a contemporary architecture concept, which is shown based on the material and the construction method. The block is also full of technology and this transition can give a different feeling to the tourist.

PROBLEM STATEMENT

1. Lack of information about the cultural of terengganu
2. No cultural activities dueto modernization
3 Lack of green/ sustainable building near the

OBJECTIVES

1. To create as special experience in order to attracr the tourist to get more information about terengganu through the design intention from transition

2. To utilize the green design strategies such as solar panel,greywater harvesting, large curtain wall for energy saving & sustainability

3.Organize hands-on workshops or demonstrations where visitors can actively participate and learn traditional crafts, such as batik painting, songket weaving, or kite-making. These interactive sessions allow tourists to immerse themselves in the local culture, learn new skills, and have a

DESIGN SOLUTION

VEGETATION
trees &vegetation help cool the enviroment,vegetation a simple and effective way to reduce heat & provide shade

BUILDING ORIENTATION
The building orientation to minimize solar gain,good orietation can increase the energy efficiency

WIND FLOW DIRECTION
high occurrence of cool wind from North and North-West.Shape of building is design to create obstruction to divert the wind flow.

CIRCULATION
Sensible vehicle circulation and parking which offered separeted entry points and paths for pedestrianand Vehicular

INNOVATION HIGHLIGHTS

landscape area for interactive activity

solar panel for energy saving

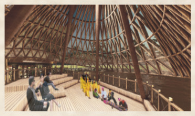
large curtain wall for maximize natural lighting

COMMERCIAL VALUES

workshop for anyaman & batik

sunken garden for gatherig area

full of technology systems

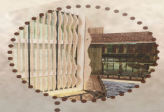


amphitheatre for performance

DESIGN DIAGRAM

For safety reasons and to provide natural ventilation and lighting, the workshop area is using adjustable louvres.

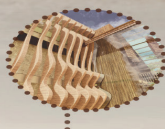
Buildings may be efficiently heated and cooled using artificial lake-source thermal district networks, which reduces energy use and CO2 emissions.



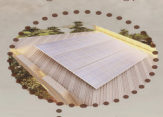
Applying Low E to windows aids in preventing infrared radiation from the outside from penetrating the glass. Low E also aids in retaining your heating and cooling energy.

landscape design improves land management and reduces the environmental impact of urban living . Landscaping improves air quality.

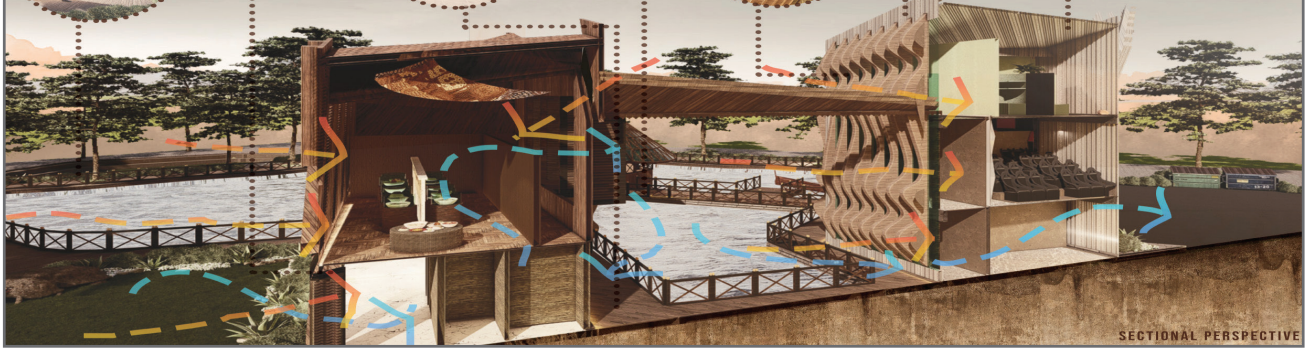
incorporating a water feature into the landscape to provide visitors with an opportunity to engage with the water element



A vertical fin shields the building's occupants from wind, rain, and high or low temperatures and humidity.



Solar panel systems' primary advantage is that they are a renewable energy source.



SECTIONAL PERSPECTIVE

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

KEMBARA TERENGGANU DISCOVERY CENTRE

Siti Aysha Binti Mohammad Amin[1,*] and Fahanim binti Abdul Rashid[2]

[1,2] Jabatan Kejuruteraan Awam, Politeknik Port Dickson, Negeri Sembilan, MALAYSIA

*farsb84@gmail.com

Abstract.

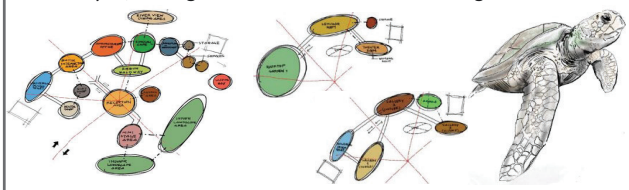
Terengganu is endowed with the natural beauty of tropical rainforests with exotic flora and fauna, surrounded by tranquil emerald islands and a coastline of beautiful sand beaches. It also has a distinct cultural heritage that features traditional arts, handicrafts, traditional culinary, and cultural performances. Leveraging the uniqueness of Terengganu, the Kembara Terengganu Discovery Centre was proposed as a showcase of local traditional arts, culture and heritage. The conceptual idea of this centre was inspired by a turtle which is famous for being long-lived and an icon for Terengganu. This centre promotes and preserves the uniqueness of local arts, culture and heritage for the community, visitors and the generations of the future. It was designed according to the sustainable architecture concept such as cross-natural ventilation, green materials such as bamboo and timber, natural daylighting, green wall and a central courtyard with a water cascade that utilizes collected rainwater to cool the building. This centre also provides remarkable rooftop gardens to allow visitors to engage with the natural environment while enjoying the panoramic view of Muara Sungai Terengganu.

Keywords: Kembara Terengganu Discovery Centre, Sustainability, Green Architecture

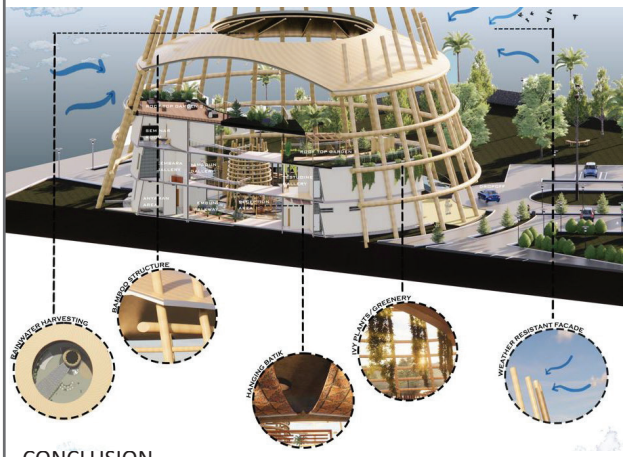
SITI AISYA MOHAMMAD AMIN & MDM. FAHANIM ABDUL RASHID

METHODOLOGY

Kembara Terengganu Discovery Centre was designed based on site analysis, findings from site observation and design solutions.



INNOVATION HIGHLIGHT

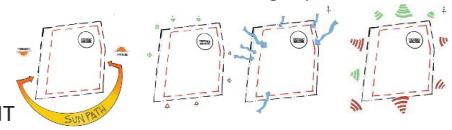


BACKGROUND

Leveraging the uniqueness of Terengganu, the Kembara Terengganu Discovery Centre was proposed as a showcase of local traditional arts, culture and heritage. The conceptual idea of this centre was inspired by a turtle which is famous for being long-lived and an icon for Terengganu. This centre promotes and preserves the uniqueness of local arts, culture and heritage for the community, visitors and future generations.

OBJECTIVES

1.to preserve local cultural heritage and promote tourism for visitors to understand and appreciate the diversity of Terengganu.
2.to create a sustainable discovery centre that helps to preserve cultural heritage and educate awareness about sustainability among visitors.
3.to integrate green building elements such as green courtyard, rooftop garden, green building material, green wall and rainwater harvesting to promote natural environment.



PROBLEM STATEMENT

Despite Terengganu's rich cultural heritage, there is often a lack of accessible and engaging spaces for visitors to learn about and experience these local cultures and traditions. This creates a missed opportunity to discover about Terengganu's cultural heritage.

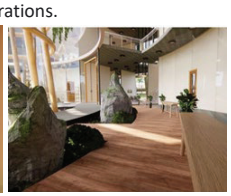
COMMERCIAL VALUE/ APPLICATION

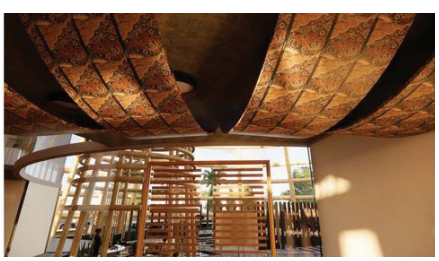
Sustainable Building Design

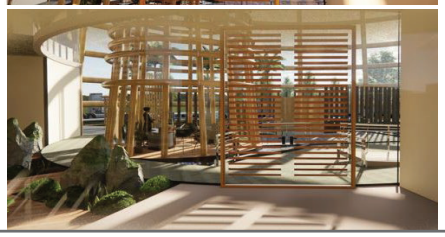
1. Rainwater Harvesting:collect rainwater for water cascade to cool the building
2. Bamboo Structure:using natural & eco building material
3. Roof Garden:improve air quality, alleviate building heat, therapy & aesthetic
4. Green Wall:reduce building heat & improve air quality

CONCLUSION

Kembara Terengganu Discovery Centre serves as a centre that preserve and promotes cultural heritage for visitors to understand and appreciate the origins of Terengganu. It also helps to promote tourism, economic activities to support local communities and protect natural environment for future generations.






RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

PAYANG DISCOVERY CENTER

Muhammad Aidil Azri bin Mohd Hazly[1,*] and Fahanim binti Abdul Rashid[2]

[1,2] Jabatan Kejuruteraan Awam, Politeknik Port Dickson, Negeri Sembilan, MALAYSIA

* farsb84@gmail.com

Abstract.

The Discovery Centre is a cutting-edge alternative to the museum and offers an interactive experience that may be shared with the visitor to pique their interest and grasp the information on the uniqueness of Terengganu. The Payang Discovery Centre is proposed as a new landmark in Terengganu. It is strategically located on Jalan Pesisir Payang, Kuala Terengganu, next to the tower drawbridge. It is a new urban icon, in response to bringing back the livability of Kuala Terengganu. The aims of Payang Discovery Centre are to highlight Terengganu's identity, local heritage and culture, and also to revitalise its economy. The centre also provides information and engages local traditional activities for visitors to foster new forms of creativity and learning, as well as to support the socio-economic growth of the neighbourhood. The conceptual ideas derived from the local heritage culture and site context were transferred into the building's forms and spaces to achieve the architectural goal. Incorporating the architectural elements of traditional Terengganu Malay house, this centre encourages people to appreciate the beauty of vernacular Malay architecture and the local culture heritage. The building shape was designed radially to maximise the advantage of scenic views of Muara Sungai Terengganu and its surroundings. The Payang Discovery Centre is also a showcase for science and sustainable technology. Aside from local traditional motif facades, this building also integrates sustainable building elements such as a green courtyard, solar panels, skylights, and green building materials to promote sustainability.

Keywords: Payang Discovery Centre, Vernacular Architecture, Sustainability, Green Architecture

PAYANG DISCOVERY CENTRE

MUHAMMAD AIDIL AZRI BIN MOHD HAZLY

BACKGROUND

The Discovery Centre is a cutting-edge centre that offers an interactive experience that may be shared with the visitor to pique their interest and grasp the information on the uniqueness of Terengganu. The Payang Discovery Centre is proposed as a new landmark in Terengganu. It is strategically located on Jalan Pesisir Payang, Kuala Terengganu, next to the tower drawbridge. It is a new urban icon, in response to bringing back the livability of Kuala Terengganu.

OBJECTIVES

- To inspire people to learn more about the vernacular Malay architecture style motifs and contemporary on building facades that can improve visually appearance of the building and draw visitors to discover its ornamentation and history.

- To integrates green building elements such as green courtyards, solar panels, skylights and green building materials to promote sustainability.

METHODOLOGY

The Seven Puteri Ulek Mayang, which are expressed in seven points of view of the surroundings, which impact the design intention and serve as inspiration. The building is oriented radially as well, emphasising the proximity of the design along the axis and its function while also allowing for fascinating views. The weaving and carving traditions in the State of Terengganu are also highlighted to acknowledge a new generation.

CONCLUSIONS

In conclusion, a Discovery Center serves as an important cultural and educational institution that offers engaging experiences as well as interactive learning opportunities for its visitors. Through careful planning, strategic design and community collaboration, a Discovery Center can bring about several significant benefits.

DESIGN SOLUTIONS

Sun Path | Ventilation | Sensory

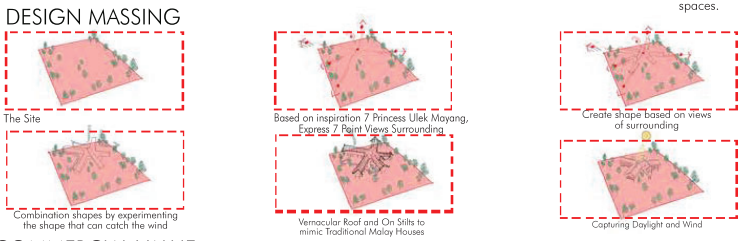
PROBLEM STATEMENTS

- Terengganu identity, heritage & culture diminished over the time.

- Lack of info & knowledge to discover about Terengganu.

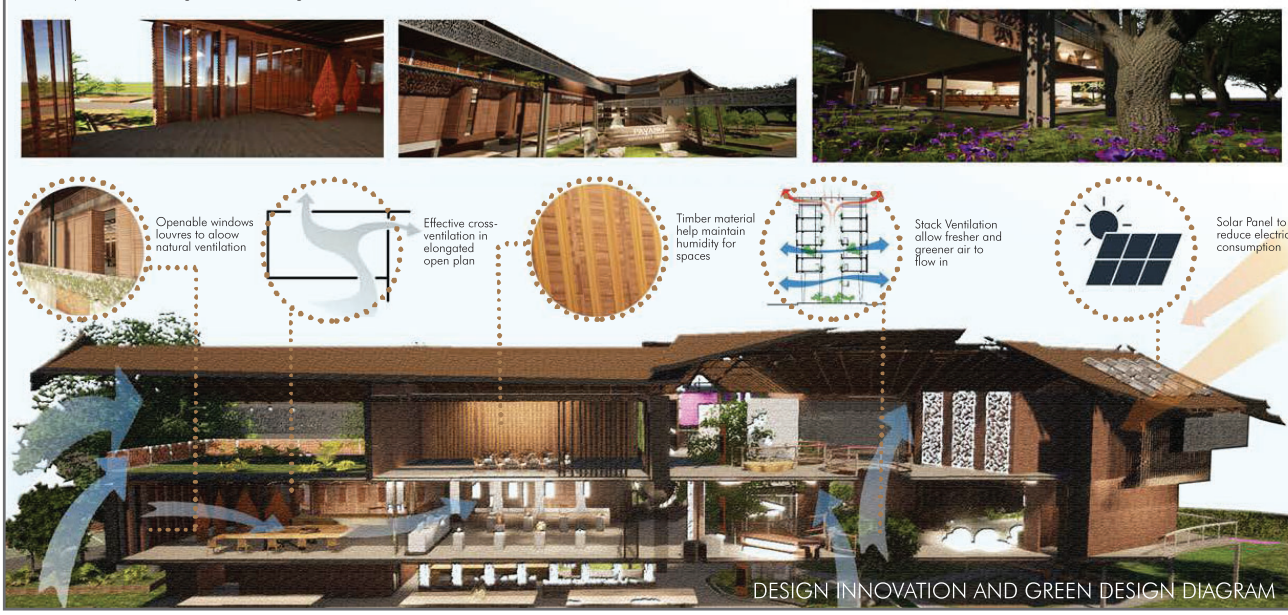
- A lack of knowledge about cultural and activities in Terengganu and gathering spaces.

DESIGN MASSING



COMMERCIAL VALUE

To preserve and highlight Terengganu's identity, local heritage & culture and the beauty of local architecture. It provides information and engages local traditional activities for visitors to foster new forms of creativity and learning, as well as to support the socio-economic growth of the neighbourhood by attracting tourist from near to far by activities and gathering function to all of surrounding that can enhance the desirability of the surrounding neighborhood.



DESIGN INNOVATION AND GREEN DESIGN DIAGRAM

RESPEx 2023
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Regional Educators, Students Product's Exhibition

JELAJAH TERENGGANU DISCOVERY CENTRE

Putri Ramizahtul Aida binti Zainal Abidin[1,*] and Fahanim binti Abdul Rashid[2]

[1,2] Jabatan Kejuruteraan Awam, Politeknik Port Dickson, Negeri Sembilan, MALAYSIA

*farsb84@gmail.com

Abstract.

Jelajah Terengganu Discovery Centre was a new landmark of Kuala Terengganu. It was designed as a center for tourism, social and cultural heritage exchange among the community and visitors. It reflects the beauty of Terengganu's traditional arts, crafts and rich cultural heritage. The conceptual idea of Jelajah Terengganu Discovery Centre was to inspire the visitor to discover and explore the uniqueness of Terengganu through interactive exhibitions, cultural programs, traditional activities and heritage trails. It encouraged visitors to explore the distinctive of Terengganu through immersive and hands-on experiences with local activities such as songket weaving, hand drawn batik, wood carving, gasing and others. This centre was designed according to the green architectural concept with natural ventilation, solar photovoltaic system, a rooftop garden and green building materials. It also focused on the concept of sustainability using the lake for rainwater catchment and experiencing the local fisherman's life with the boat ride. This memorable experience allowed visitors to explore the relationship local communities have with the natural environment. This centre is a showcase for green architecture for environmental and social sustainability.

Keywords: Jelajah Terengganu Discovery Centre, Green Architecture, Sustainability.

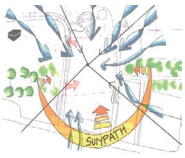
JELAJAH TERENGGANU DISCOVERY

BACKGROUND

Jelajah Terengganu Discovery Centre is a showcase to inspire the visitors to discover and explore the uniqueness of Terengganu through interactive exhibitions, cultural programs, traditional activities and heritage trails. It also incorporates green architecture elements to promote environmental and social sustainability.

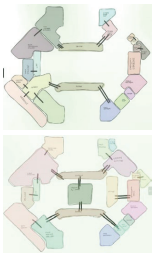
METHODOLOGY

Jelajah Terengganu Discovery Centre was designed based on site analysis, findings from site observation & design solutions.

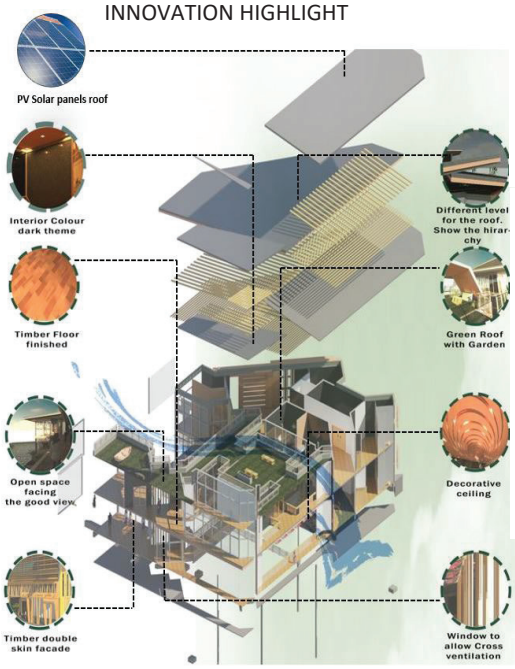


OBJECTIVES

1.to design a discovery centre where visitors can explore and learn about the uniqueness of Terengganu through interactive exhibits, hands-on local activities and educational programs that promote curiosity and learning about the cultural heritage of Terengganu.
2.to apply local motifs on building facades that present the elegance of Malay architecture.
3.to apply green design strategies such as green roof, PV solar panels, green building materials and rainwater harvesting that help to cool the building and save energy.



INNOVATION HIGHLIGHT

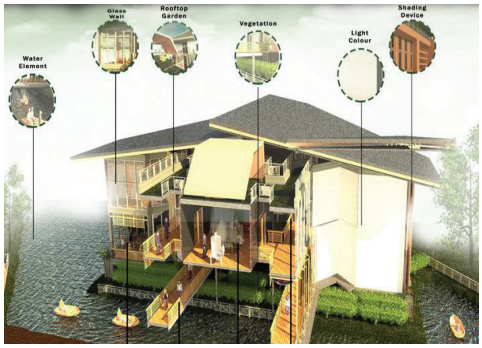


PROBLEM STATEMENT

Terengganu is endowed with stunning sights and a richness of traditional arts, culture and Malay heritage. The rise of globalization and industry nowadays, overwhelmed young generation today are more interested in using social media and other digital platforms than in traditional cultural activities. As a result, traditional cultural practices and traditional activities are forgotten and buried.

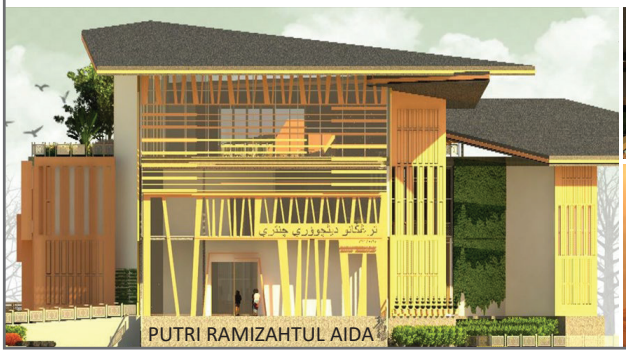
COMMERCIAL VALUE/ APPLICATIONS

This discovery centre also applied the green architectural concept with natural cross ventilation, solar photovoltaic system, a rooftop garden and green building materials. It also focused on the concept of sustainability using the lake for rainwater catchment which help to cool the building and its surrounding environment.



CONCLUSION

Jelajah Terengganu Discovery Centre reflects the beauty of Terengganu's traditional arts, crafts and rich cultural heritage that must be preserved and conserved. This centre is important to highlight the historical of Terengganu, which help visitor to understand the past and shape the future generations



PUTRI RAMIZAHTUL AIDA

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

3D BUILDING MODEL RECONSTRUCTION USING UAV POINT CLOUD IN REVIT SOFTWARE

Fauzul Azhan bin Abdul Aziz [1], Nur Asyiqeen binti Abdul Latif [1], Nur' Liyana binti Abdul Rahman [1], Chelsea Anak Joseph [1]

[1] Politeknik Ungku Omar, Ipoh, Perak, Malaysia

Abstract.

The rapid development of Unmanned Aerial Vehicle (UAV) technology or better known as Drones has been widely used in mapping, monitoring, reconnaissance, agriculture and so on. There are various techniques used to produce 3D building models either through laser scanning, manual measurements in the field, entering measurement data from 2D plans and also aerial photography using drones. The choice of technique depends on cost, quality and time. In this study, the technique of producing 3D building models using UAVs was used to see the effectiveness of 3D models produced using data from point clouds. The UAV used is a DJI Phantom 4 Pro for the process of taking aerial photos of the CISEC building located at Polytechnic Ungku Omar. The selection of the study location in the CISEC building is because the building is free from obstacles such as tall buildings and trees that make it difficult to take aerial photos. This photo data is processed using open source software which is WebODM software to produce a point cloud. This point cloud data is used for the reconstruction of the building's 3D model using Revit software. Quantitative analysis of the building model is done by comparing the measurements of the model with the real building to see the effectiveness of the 3D modeling of the building using Drone technology. Users can also visually view the building's 3D model environment. The results of the study found that the measurements for the 3D model of the building had a difference of 0.159m for width, 0.088m for height and 2.05m for length. The difference in length is 2.05m over 1,000m. This is due to the flight planning route for the building not being well planned, resulting in the camera angle for filming not being able to fully capture the aerial image of the building.

Keywords: *UAV, 3D model bangunan, Point cloud, Revit,*

RESPEX 2023
8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION
"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

PEMBINAAN SEMULA MODEL 3D BANGUNAN MENGGUNAKAN UAV POINT CLOUD DI DALAM PERISIAN REVIT

POLITEKNIK UNGKU OMAR

EN. FAUZUL AZHAN BIN ABDUL AZIZ
PENYELIA PROJEK

NUR ASYIQEEN BINTI ABDUL LATIFF
PELAJAR

NUR'LIYANA BINTI ABDUL RAHMAN
PELAJAR

CHELSEA ANAK JOSEPH
PELAJAR

LATAR BELAKANG

Building Information Modelling (BIM) banyak digunakan pada masa kini kerana ia merupakan model digital yang boleh dipersembahkan secara visualisasi dalam bentuk 3D realistik. Ia mengandungi pelbagai maklumat geometri dan informasi bangunan. Teknik fotogrammetri menggunakan teknologi drone yang digunakan untuk mendapatkan foto udara sesuatu bangunan membolehkan penghasilan model 3D bangunan dapat dilaksanakan dengan cepat dan pantas, menjimatkan masa dan kos berbanding menggunakan kaedah kovensional. Foto udara ini diproses menggunakan perisian WebODM bagi menghasilkan data *point cloud*. Data-data ini digunakan bagi membina bina semula model bagi menghasilkan model 3D bangunan CISEC, Politeknik Ungku Omar menggunakan perisian Revit. Hasil dari kajian ini mendapati teknologi drone boleh digunakan bagi membina semula model 3D berdasarkan perbezaan selisih yang kecil apabila ukuran dibandingkan dengan bangunan sebenar.

OBJEKTIF

- Untuk mencipta semula model bangunan CISEC dalam bentuk 3D
- Untuk menganalisis dan membandingkan bangunan sebenar dan butiran 3D model
- Untuk memaparkan model 3D dalam virtual video dengan menggunakan perisian Enscape

CIRI-CIRI INOVASI

Penambahbaikan teknik pengumpulan data bagi membina semula bangunan sedia ada ke dalam bentuk model 3D.

NILAI KOMERSIAL

- Model ini sesuai digunakan di Unit building information modeling (JKR) bagi menyimpan data secara digital
- Model boleh dilihat secara visual secara atas talian oleh pihak yang berkepentingan

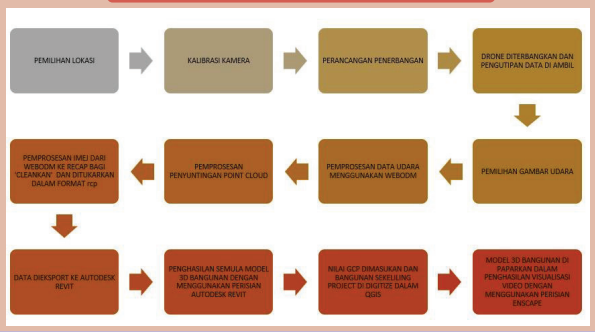
KESIMPULAN

Kalian mendapati kaedah fotogrammetri menggunakan teknologi drone dapat menghasilkan semula bangunan CISEC dalam bentuk 3D dengan cepat dan pantas berbanding dengan pengukuran secara konvensional. Namun begitu analisis yang diperolehi mendapati terdapat selisih antara lebar, tinggi dan panjang bangunan . Hasil kajian mendapati ukuran bagi model 3D bangunan terdapat selisih 0.159 meter bagi lebar, 0.088 meter bagi tinggi dan 2.05 meter bagi panjang. Selisih bagi panjang adalah 2.05 meter lebih dari 1 meter. Ini disebabkan laluan perancangan penerbangan bagi bangunan tidak dirancang dengan baik mengakibatkan sudut kamera untuk pengambaran tidak dapat mengambil sepenuhnya gambar udara bangunan tersebut. Model 3D bangunan yang dihasilkan boleh dilihat secara visual secara atas talian bagi menambahbaik paparan 3D model supaya lebih realistik dan menarik melalui perisian Enscape.

PENYATAAN MASALAH

Teknik konvensional yang digunakan mengambil masa yang lama dan memerlukan tenaga kerja yang ramai. Oleh itu teknik fotogrammetri menggunakan teknologi drone digunakan bagi menghasilkan 3D model bangunan dengan menjimatkan masa, kos dan tenaga manusia.

METODOLOGI



RAJAH

Gambaran sebenar

Data point cloud

Model 3D bangunan (REVIT)

Visualisasi (Enscape)

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

PROJECT TITLE: DE'VENT YOUTH RECREATION CAMP

NORUL FAZLINA BINTI KHASHIM, NORNAWAR LAILI BINTI NORDIN, AR. AZMAN ZAINAL MD NOR AND HAMIZAH BINTI MOHD JAAFA

[1]Norul Fazlina Binti Khashim, Port Dickson, Negeri Sembilan.

[2]Nornawar Laili Bini Nordin, Port Dickson, Negeri Sembilan.

[3]Ar. Azman Zainal Md Nor, Port Dickson, Negeri Sembilan.

*Hamizah Binti Mohd Jaafar

Abstract.

The objective of this project is to create a dynamic and engaging recreation camp that offers participants a memorable and transformative experience in a natural setting. By fostering a sense of adventure, exploration, and personal growth, this aims to provide a well-rounded program that promotes physical activity, social interaction, and environmental awareness.

Nature-Centric Design: The camp's design will seamlessly blend with the surrounding natural environment, integrating sustainable architecture, native landscaping, and eco-friendly materials. This approach will ensure minimal ecological impact while maximizing the connection between participants and the outdoors.

Safe and Supportive Environment: Safety is paramount in the camp design. The facilities will be built and maintained to meet rigorous safety standards, ensuring the well-being of participants. Trained staff will be available to provide supervision, guidance, and support throughout the camp, promoting a positive and inclusive atmosphere for all attendees.

Sustainable Practices: This will prioritize sustainability in its operations. The camp will incorporate renewable energy sources, waste management systems, and water conservation practices. By teaching participants about sustainable living, the camp aims to instill lifelong habits that protect the environment.

Comfort and Connectivity: While embracing nature, the camp will also provide comfortable amenities to enhance the participants' experience. Well-designed accommodations, dining facilities, and gathering spaces will foster a sense of community and enable social interactions. The inclusion of modern technologies, such as Wi-Fi and communication systems, will ensure connectivity and safety.

RESPEX

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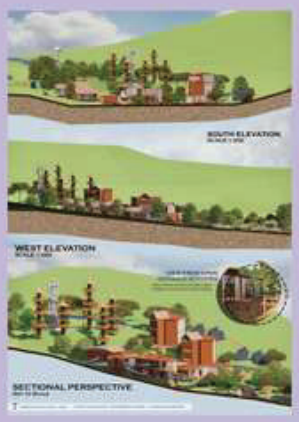

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OMAHQUE RESTO IN DEPOK

Muhammad Azka Widyananto[1,*], Muhammad Rafly Fajar Alghifari [2]

[1]Pancasila University, Indonesia

[2]Pancasila University, Indonesia

Abstract.

Rencana pengembangan dan operasional restoran Omahque Resto in Depok memiliki tujuan utama untuk menciptakan pengalaman kuliner istimewa dengan menyajikan masakan lokal autentik dan layanan berkualitas tinggi. Bangunan restoran didesain dengan tema Industrial yang menggabungkan tembok, roster, dan vegetasi untuk menciptakan suasana yang menarik. Dalam rencana ini, beberapa aspek utama yang dibahas meliputi latar belakang, desain dan tata ruang, fasilitas dan infrastruktur, lingkungan dan keberlanjutan, serta keselamatan dan kebakaran. Restoran Omahque Resto memiliki visi untuk menjadi tujuan kuliner terkemuka di Depok dengan menyajikan hidangan lokal autentik yang modern dan menggunakan bahan berkualitas tinggi. Perhatian khusus diberikan pada desain interior yang menarik dan nyaman, menciptakan suasana yang mengundang dan inspiratif. Ruang terbuka yang terang dengan sentuhan elemen alam dan dekorasi dengan tema industrial akan diciptakan. Bangunan restoran akan dirancang dengan gubahan masa berbentuk kotak simetris, dengan penyesuaian pada bagian yang dipotong untuk memenuhi kebutuhan sirkulasi. Tembok bangunan akan diberi variasi dengan penggunaan roster untuk memberikan aksen industrial yang menarik. Fasilitas dan infrastruktur yang disediakan akan mengikuti standar umum yang berlaku untuk restoran. Dalam hal lingkungan dan keberlanjutan, restoran ini akan menyediakan area resapan di seluruh tapak yang menggunakan aspal permeabel, serta sistem pembuangan air limbah yang terstruktur. Keselamatan dan kebakaran juga menjadi perhatian dengan adanya tangga darurat sebagai rute evakuasi yang langsung menuju ke tempat terbuka, serta penggunaan APAR (Alat Pemadam Api Ringan) di beberapa titik. Secara keseluruhan, restoran Omahque Resto yang berlokasi di Depok memiliki tujuan yang jelas untuk memberikan pengalaman kuliner istimewa dengan menyajikan masakan lokal autentik dalam lingkungan yang nyaman, aman, dan berkelanjutan.

Kata Kunci : Trafo tenaga, Suhu, Beban.

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RESTO & CO-WORKING

OMAHQUE in DEPOK

Supervisor :
DIPTYA ANGGITA,S.T., M.T

Member :
Muhammad Azka Widyananto
Muhammad Rafly Fajar Alghifari

Member :
Bagas Desta Putra
Mohammad Rafi Alkamal

BACKGROUND

The concept idea of the café restaurant and co-working building concept does not only function as a commercial building but users also can feel a different experience when entering the room. The concept uses materials that are exposed to the elements, or it can be called Industrial, with glass elements and secondary skin, and a concrete roster which provides the benefit of giving access to sunlight to enter the building to balance the thermal conditions inside the building. Around the green element site which has enough vegetation around this café building, you can feel the coolness when you are around the building or outside the building.

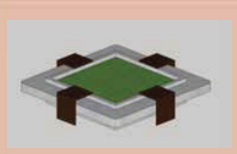
PROBLEM STATEMENT

The concept idea of the café restaurant and co-working building concept does not only function as a commercial building but users also can feel a different experience when entering the room. The concept uses materials that are exposed to the elements, or it can be called Industrial, with glass elements and secondary skin, and a concrete roster which provides the benefit of giving access to sunlight to enter the building to balance the thermal conditions inside the building. Around the green element site which has enough vegetation around this café building, you can feel the coolness when you are around the building or outside the building.

OBJECTIVE

The study project consists of a restaurant building and a co-working space. This restaurant building is a café building that serves special culinary delights with authentic local cuisine and high-quality service. The main function of this building is service to consumers in a comprehensive and friendly manner. Café can provide comfort for visitors from the atmosphere of the café. Co-working space building, providing a place to work or do assignments, a meeting place.

INNOVATION HIGHLIGHT



The architectural detail of the café that I exposed is a seat with a tree that is placed in an outdoor area so that it becomes a multifunctional place from a place on a tree

COMMERCIAL VALUE

Commercial Values/Application Energy saving and green building are one of the overall concepts in the study project building. By making many openings that function to simplify the entry of natural lighting produced by the sun. Omahque Resto is a restaurant that carries a modern industrial theme or concept. The use of a roster concrete façade is a point of interest in this building. The 2nd floor is divided into two, rooftop and semi-outdoor. Providing facilities, such as parking areas, toilets, outdoor areas, sockets, prayer rooms, smoking areas, free Wi-Fi, and others. Meanwhile, the co-working space building has a modern minimalist theme or concept. The use of double skin on the façade which is made of aluminum is the point of interest in this building. 2nd floor with different functions, 1st floor as a work area, 2nd floor as a cafe or relaxing area. Providing facilities such as individual work areas, communal work areas, meeting rooms, pantries, copy print scan rooms, libraries, and café areas.

METHODOLOGY

Café Omahque Resto and co-working carry a modern industrial concept/theme. The cafe with 2 floors has 2 rooftops, one of which uses a semi-outdoor roof, even some of the cafe tables are made open space. The AC room is on the 2nd floor. Meanwhile, the co-workshop space has a modern minimalist concept. Made with 2 floors with different functions, namely the work area is located on the `1st floor, and the face area is located on the 2nd floor.

CONCLUSION

Cafe and co-working study projects have been designed with that in mind ecological, social and economic value. Consideration of using materials that have a positive impact on user comfort space, and the environment. The materials used include concrete, glass, brick red, iron, and wood. The use of this material also because it carries an industrial concept helps save energy in terms of color selection material, and the character of the material itself. Neutral color selection also affects user activity mostly working on laptops. The application of natural lighting and ventilation systems in cafes and co-working also helps saving energy through the concept of open space that allows sunlight to enter properly.

DIAGRAM/PICTURE

Café Omahque Resto and co-working use a modern industrial concept/theme. The cafe with 2 floors has 2 rooftops, one of which uses a semi-outdoor roof, even some of the cafe tables are made open space. The AC room is on the 2nd floor. Meanwhile, the co-workshop space has a modern minimalist concept. Made with 2 floors with different functions, namely the work area is located on the `1st floor, and the face area is located on the 2nd floor

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APPLICATION OF BIOPHILIC DESIGN IN RESTAURANT AND CAFÉ

Anindya Aulia Putri[1], Mohammad Rofi Alkamal [2]

[1]Pancasila University, Indonesia

[2]Pancasila University, Indonesia

Abstract.

A restaurant is generally used to refer to a place that serves a dish to customers or a place to enjoy the food. However, a restaurant is also a meeting place or a place to relax for various groups, ranging from formal to non-formal, and from young to old with a comfortable place. Every people can spend their time to discussed or talking about their problems with their family or friends. It is the same as a cafe, but the difference is that cafes offer drinks such as coffee, and warm or cold drinks and only offer snacks, the rest of the cafe concept is almost similar to the restaurant. The plan will be to design a restaurant and cafe serving local food from various regions in Indonesia with their own distinctive taste. The restaurant will be made is located in a city where the wealth level of the middle and upper class is quite a lot, the theme of the restaurant will be made in a luxury style, and it also adjusts to the shape of the existing buildings around the area. The shape and style of a luxury building can make eyes interested and it will be the identity of the building. Lately, the natural environment has been replaced by an artificial environment, which means humans do not have more interaction with nature. Creating a biophilic design in this modern era can re-optimize the connection between humans and nature in terms of health, the environment, and many aspects Then, the purpose of biophilic design is to create good habitats for humans as biological organisms that inhabit modern structures, landscapes, and structures. So biophilic design is primarily when implemented in a place where a lot of interaction is needed, not only interactions between humans but also with nature. To conclude, the planning of the building to be made is a restaurant and cafe located in the middle of the city which will have the theme of luxury by serving local Indonesian food with the concept of a biophilic design building

Keywords: biophilic design, luxury style, restaurant, and cafe

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KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
POLITEKNIK MALAYSIA PORT DICKSON
PERSATUAN TEKNOLOGI MALAYSIA

RESPEX
8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023
"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

APPLICATION OF BIOPHILIC DESIGN IN RESTAURANT AND CAFÉ

Supervisor:
Diptya Anggita, S.T., M.T

Member:
Anindya Auilia Putri
Mohammad Rofi Alkamal

BACKGROUND

Lately, the natural environment has been replaced by an artificial environment, which means humans do not have more interaction with nature. Creating a biophilic design in this modern era can re-optimize the connection between humans and nature in terms of health, the environment, and many aspects. Then, the purpose of biophilic design is to create good habitats for humans as biological organisms that inhabit modern structures, landscapes, and structures. So biophilic design is primarily when implemented in a place where a lot of interaction is needed, not only interactions between humans but also with nature. Restaurants and café are not only a place to enjoy food or drinks but also place to make human get more interaction with each other, by communicating, discussing, and quality time with their family or friends. Therefore, people need to get more interaction between humans and nature in a comfortable place. Feeling the presence of nature in a luxurious building is the combination that we will be use in this building, a building that will attract every eye.

PROBLEM STATEMENT

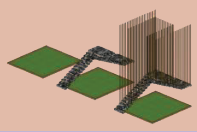
In the modern era, there is so much technology that can facilitate or help humans, but sometimes they forget to give space to nature. So, it can cause a lack of disproportion between oxygen produced by nature and pollution produced by humans. Modern building designs that lack openings, it does not support the concept of biophilic design. Because it does not give enough space for natural lighting and natural air to enter the site or building, it also can not feel close to nature. It can provide a large gap in human connectivity with nature when using materials that are less environmentally friendly to nature. The material in the building will become the identity concept in the building itself, for the biophilic design concept will use natural materials that can give the impression of being close to nature.

OBJECTIVE

1. Make a comfortable place to enjoy eating and gathering with nature vibe
2. Combine two concept in one place (biophilic and luxury)
3. Can use natural resources for materials, vibe, and the interaction with nature

INNOVATION HIGHLIGHT

Living garden will be the innovative in our building. For making a good air sirculation, this living garden is located inside of the indoor area of the restaurant. So, the visitor of the restaurant can feel comfortable in indoor area because the biophilic concept in this living garden. There are some specific plants which aim to for making a pure natural air. The picture of biophilic design which is the concept of living close to nature really attached in this living garden and this indoor area, therefore this living garden really make a calming vibe, comfortable visit, and very useful for our visitor.



COMMERCIAL VALUE

1. New comfortable eating area with nature vibe
2. Feel the presence of nature with plants, water, and wind in one place
3. Luxury design combine with natural materials

METHODOLOGY

Making a building with environmentally friendly materials can make a better place to give some space between humans and nature. Giving space for natural lighting and plants inside or around the building can increase the presence of nature. The shape of the building with openings can maximize the natural air that will get into the building.

CONCLUSION

In conclusion, the product we made is a restaurant and café using a biophilic design combined with a luxury style, people also need more interaction with nature in this modern era in a comfortable place to increase the human feelings of the presence of nature in a luxurious building.

DIAGRAM/PICTURE

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Measured drawing of Rumah Bujang Berkembar, Terengganu.

Zulaiha Binti Johari, Muhammad Faiq Irfan Bin Md Razali, Manisha Ainnur Binti Mostapa, Muhammad Amirul Bin Md Adenan.

Polytechnic Port Dickson, Malaysia

Abstract.

This abstract was written to explain our research on the activity that we have carried out for our Semester 5, Measured Drawing course on Rumah Bujang Berkembar. This project was made to gain students' knowledge on the traditional houses of Malaysia specifically in the state of Terengganu. The Rumah Bujang Berkembar is one of the traditional houses or architectural heritage houses that is located at Museum of Terengganu. Besides that, this house has high potential to use as a source of education for the public. This activity was conducted to create tenacity and consistency of students Polytechnic Port Dickson in handling this measured drawing project. During this project, we learned how to collect measurements correctly by using the measuring tools that have been given, for instant measuring tape, electronic measure device and measuring laser. We learned many new things such as the types of carving that are on the house, weaving on walls and type of connections that holds the house. Furthermore, we also get more in-depth knowledge about this traditional house from which on we learn about the history and the establishment of this house. The genealogy of the owner was also documented. In addition, all the research that we receive from the beginning of the project until end is composed and published in a product of book filled with the construction, structure, and details of Rumah Bujang Berkembar. To conclude, having to learn and produce an output that can spread information on Terengganu Traditional can help citizens on appreciating the beauty of Vernacular Architecture.

KAWANS
KAJIAN ALAM WARISAN NEGERI SEMBILAN

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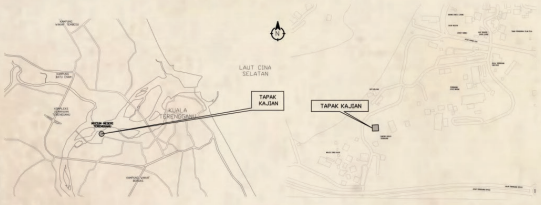
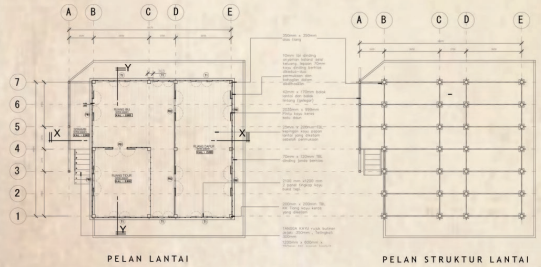
RUMAH BUJANG BERKEMBAR



PELAN KUNCI

PELAN LOKASI



PELAN LANTAI

PELAN STRUKTUR LANTAI

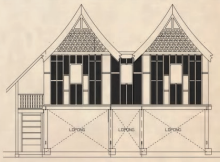
PENDAHULUAN PELAN LANTAI

Susun atur ruang merupakan antara fokus yang utama bagi membezakan seni bina rumah tradisional sesebuah negeri itu. Konsep ruang sering kali dikaitkan dengan cara pembahagian ruang atau spatial element yang memberikan identiti sekaligus melambangkan fungsi bagi setiap ruang dalam sesuatu bagunan tersebut. Bagi Masyarat Negeri Terengganu, sudah semestinya mereka mempunyai ciri rumah tradisional Negeri Terengganu termasuklah rumah Bujang Berkembar ini, Terdapat beberapa bahagian ruang dalam rumah ini iaitu, Ruang Serambi, Rumah ibu, Ruang tidur, dan juga Ruang dapur. Keunikan yang terdapat pada rumah ini ialah pemilik asal rumah bujang berkembar ini, menambah sebuah Ruang tidur di bahagian Rumah ibu.

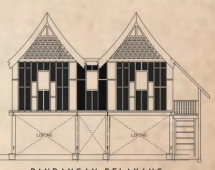
SEJARAH LATAR BELAKANG

Rumah Bujang Berpeleh ini pada asalnya dimiliki oleh Hajjah Hasanah binti kasim dan terletak di Jalan Hiliran, Kuala Terengganu. Pada tahun 1986, rumah ini didirikan semula di tapak seperti mana sekarang. Rumah Tradisional ini telah didirikan semula di Kompleks Muzium Negeri Terengganu pada Tahun 1986 dan mendapat pengiktarafan daripada Jabatan Warisan Negara sebagai salah satu khazanah negara. Rumah ini dahulunya didiami oleh golongan bangsawan dan dibina tanpa menggunakan sebarang paku dengan teknik Tanggam dan Pasak. Teknik ini memudahkan penghuninya sekiranya ingin berpindah atau dialihkan.

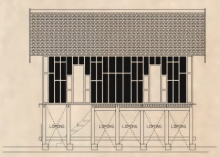
PANDANGAN BANGUNAN



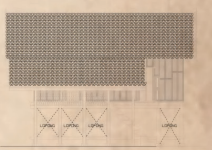
PANDANGAN HADAPAN



PANDANGAN BELAKANG



PANDANGAN KANAN



PANDANGAN KIRI

ZULAIHA BINTI JOHARI · PUTRI RAMIZAHTUL AIDA BINTI ZAINAL ABIDIN · SITI AYSHA BINTI MOHAMMAD AMIN · MUHAMMAD FAIQ IRFAN BIN MD RAZALI
MUHAMMAD AMIRUL BIN MD ADENAN · NURUL HANA NADHIRA BINTI MOHD ANUAR · MUHAMMAD AIDIL AZRI BIN MOHD HAZLY · MANISHA AINNUR BINTI MOSTAPA

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MEASURED DRAWING OF RUMAH LIMAS BELANDA, KUALA TERENGGANU, MALAYSIA

Siti Aisyah Zarifah Binti Muhaiddin, Nur Nabilah Najwa Binti Salimi, Siti Maryam Binti Abdullah, Farah Nabilah Binti Amran, Anis Sabirin Binti Mohd. Fuad, Muhammad Amir Redzuan Bin Rosli, Mohammad Adam Hafidz Bin Mohd. Amir, Muhammad Zharif Bin Yunos, Ts. Nik Hasnira Binti Nik Pa

Politeknik Port Dickson, Km 14 Jalan Pantai, 71050 Si Rusa, Port Dickson, Malaysia.

Abstract.

This research aims to explore the traditional Terengganu Malay house architecture and its cultural significance in modern times. The study utilized qualitative research methods including interviews, observation, and literature review to gather data and gain an emic perspective of the traditional Malay house. The results show that the architecture of Rumah Limas Belanda has a variety of motifs and wood carving patterns with elements of Arabic calligraphy motifs, natural flora motifs and geometric motifs that are applied based on Islamic law and morals. Indeed, this study was conducted as an effort to preserve the heritage of wood carving art found at Rumah Limas Belanda in Terengganu so that it can be used as a reference by other researchers and future generations. The findings reveal that traditional Malay house architecture has a rich cultural heritage and reflects the Malay cultural identity. It is a form of sustainable architecture that takes into consideration the local climate and environment. The traditional house architecture features distinctive elements such as the raised floor, sloping roof, and intricate wood carvings. However, the cultural significance and value of the traditional Malay house architecture are challenged by modernization, urbanization, and mass tourism. Many traditional Malay houses have been replaced by modern buildings or transformed into tourist attractions, losing their authenticity and cultural value. The study emphasizes the importance of preserving the traditional Malay house architecture as a part of Malaysia's cultural heritage. It recommends the integration of traditional Malay house architecture with modern building design to create sustainable, culturally aware communities. The study also highlights the need for further research and documentation of traditional Malay house architecture to ensure its preservation for future generations.

RUMAH LIMAS BELANDA

KUALA TERENGGANU, MALAYSIA

POLITEKNIK MALAYSIA PORT DICKSON

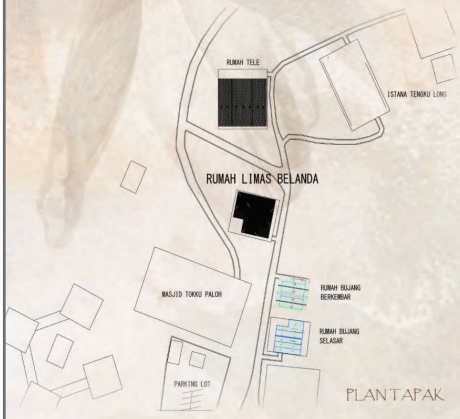
RESPEX 2023

KENALI RUMAH LIMAS BELANDA

Rumah ini di bina sewaktu zaman pemerintahan Al-Marhum Sultan Zainal Abidin iii. Rumah ini kemudiannya di jadikan kediaman anakanda baginda, Tengku Ngah Aisyah Hajjah. Tapak asal rumah ini ialah di Jalan Kota Lama,Istana Maziah, Kuala Terengganu. Ruang hadapan rumah ini dikhaskan kepada para tetamu, ruang kedua dijadikan ruang tidur manakala ruang ketiga iaitu Surung di jadikan tempat mengadakan mesyuarat, majlis keramaian serta upacara khusus. Bahagian atas pintu dan tingkap labuh terdapat ukiran yang bermotifkan flora serta kaligrafi. Di bahagian dalam rumah pula terdapat pintu gerbang berukir yang berfungsi memisahkan ruang serambi dan ruang ibu. Setiap ukiran dan kaligrafi ayat al-Quran ini memberikan peringatan bersifat keagamaan. Manakala, buah Putong yang diletakkan di bahagian atap rumah merupakan simbolik batu untuk mengigati

PLAN KUNCI

PLAN LOKASI



PLAN TAPAK

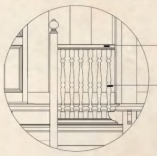
PENGENALAN

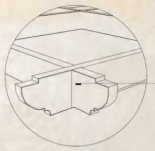
Rumah Limas belanda ini dibina oleh Al-Mahrhum Sultan Zainal Abidin iii pada tahun 1889. Rumah ini kemudiannya di jadikan kediaman anakanda baginda, Tengku Ngah Aisyah Hajjah

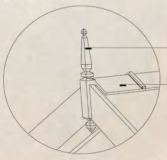
Asal perkataan "LIMAS" ialah antara gabungan lima perabung dan pengaruh penggunaan bahasa Belanda maka terciptalah "LIMAS". seperti mana yang dapat di lihat, rumah ini mempunyai 3 ruang iaitu ruang hadapan dikhususkan untuk para tetamu, ruang ke -2 di jadikan tempat tidur pada waktu malam dan waktu siang di jadikan ruang makan. Ruang ke - 3 pula di panggil surung iaitu tempat mesyuarat, majlis keraimaian serta upacara khusus pada zaman dahulu. Keunikkan atap Singgora yang di perbuat daripada tanah liat yang bersifat poros mampu menyerap air semasa hujan dan mampu menyejukkan suhu dalam rumah ini.

Rumah Limas Belanda ini mempunyai dua tingkat yang tersergam indah di Jalan Tok Lam, Bandar Kuala Terengganu ini telah dibina pada 1920an, zaman pemerintahan Sultan Sulaiman Badrul Shah (1920-1942). Pada asalnya, rumah ini beserta Masjid Putih terletakdiKampung Dalam yang merupakan sebahagian kawasan Istana Maziah. Rumah Limas Belanda telah lama dikenali oleh masyarakat setempat sebagai 'Rumah Tiang Kembar' kerana tiang anjungnya dibina sederet sebanyak lima pasang secara berkembar.

ELEMENT KURSUS

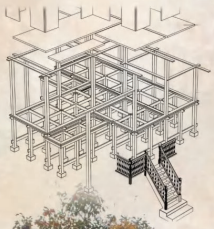






REKA BENTUK RUMAH LIMAS BELANDA

Negeri Terengganu terdapat beberapa bentuk rumah tradisional Melayu dan salah satunya di panggil Rumah Limas Bungkus. Struktur rumah ini dikenali berdasarkan bumbung rumahnya yang terdiri dari pada sebuah perabung lurus dan bersambung pula dengan 4 buah perabung yang turun ke cucuran atap yang dihiasi dengan ukiran-ukiran kerawang kayu. Rumah jenis ini mempunyai beberapa bentuk daripada bentuk panjang dan bersegi empat tepat. Ruangnya pula terdiri daripada ruang anjung, beranda, rumah tengah dan dapur. Rumah Terengganu di bina daripada kayu cengal, meranti dan kapur. Manakala atapnya daripada atap tanah dan atap genting senggora.



UKIRAN

Keunikan motif dan corak ukiran kayu seni bina Rumah Limas Belanda di Terengganu adalah bercirikan penggunaan motif kaligrafi Arab yang sinonim diukir dan diilhamkan oleh tukang-tukang ukir kayu Melayu tradisional di Terengganu sebagai suatu perlambangan yang menepati jiwa, keindahan dan citarasa Islam (Mohd Yusof Abdullah, 2021).

SITI AISYAH ZARIFAH BINTI MOHD DIN
SITI MARYAM BINTI ABDULLAH
MUHAMMAD AMIR RIDZUAN BIN ROSLI
MOHAMMAD ADAM HAFIDZ BIN MOHD AMIR
NUR NABILAH NAJWA BINTI SALIMI
ANIS SABIRIN BINTI MOHD FUAD
MUHAMMAD ZUARIF BIN YUNOS

RESPEx 2023
8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Student Product's Exhibition

APPLICATION OF GREEN INDUSTRIAL IN THREE SEASON HOTEL MANAGEMENT SCHOOL

Kayla Malindi Kamatsya, Azwir Ilamin, Anisah Qonita Ardiani

Pancasila University, Indonesia

Abstract

Tourism is an important part of increasing the emanation of a given name. The success rate of Indonesian national development in all areas will depend heavily on human resources as a nation's asset. To optimize and maximize the development of all human resources owned, it is done through education, both through formal education and non-formal education. The development of the educational world is currently entering an era marked by the incessant innovation of technology, thus demanding an adjustment of the educational system in line with the demands of the working world. Education must reflect the process of humanizing humans in the sense of actualizing all the potential they possess into capabilities that can be utilized in everyday life in the wider community. One of the institutions on the formal education line that prepares graduates for excellence in the world. The term "green industrial concept" refers to an approach or framework that aims to integrate environmentally sustainable practices and principles into industrial processes and operations. It involves adopting cleaner and more efficient technologies, reducing resource consumption, minimizing waste generation, and mitigating the environmental impact of industrial activities. In conclusion, the building plan to be made is a hospitality vocational school. This project was built with various spaces needed to support learning activities such as dormitory buildings, libraries, laboratories, dormitories, offices, and other supporting buildings. this building presents the concept of the building with green industrial style.

Keywords : Green Industrial design and Hotel Management School

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
POLITEKNIK MALAYSIA PORT DICKSON
PERSATUAN TEKNOLOGI MALAYSIA

RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

AKA 2021
ANISAH QONITA ARDIANI, AZWIR ILAMIN, KAYLA MALINDA K,
DIPTYA ANGGITA, ST.MT.

PANCASILA UNIVERSITY
PRODUCT ID: RESPEX23-114

Three Season Hotel Management School

BACKGROUND

The Three Season Hotel Management School building was designed with the primary purpose of being an educational institution, and was built with a variety of spaces needed to support learning activities such as lecture halls, libraries, laboratories, dormitories, offices, and other supporting buildings. Provide a telephone network in front of the path to make it easier for students to use the telephone network which will later help in the education field. The school gate was left open enough to show beauty in the facade like the building facade to attract students, and a school signboard was added to the gate to introduce the school. Make the amphitheater at the lowest contour and right in the middle of the path to be visible from the outside of the path. Giving a shelter to a place to relax or just to talk or to do tasks, in addition to unique designs can make it a focal point and point of interest.

PROBLEM STATEMENT

Based on surveys and research, contour conditions tend to be bumpy and backward getting higher. The view that wants to be taken is in front of the path because it is mountainous, but in some parts it is blocked by vegetation in the form of tall trees. Meanwhile, the other view is to the right, to the left and back of the path is blocked by high vegetation and high wall fence. The road network on the front of the road is only the road that leads to multipurpose buildings with a concrete road condition. The telephone network is not yet on the path so it needs to be built. For social conditions, the community is centred after we survey it more towards individualism and for criminality it is very rare, it is a fairly orderly city.

OBJECTIVE

The Study Project is a school building designed primarily as an educational institution, and constructed with various spaces necessary to support learning activities such as lecture halls, libraries, laboratories, dormitories, offices, and other supporting buildings. For this project, there are two goals. A few of the goals are: 1. Meet the needs of vocational education facilities of the group of international level tourism programs in Semarang, which will be planned and designed according to the discipline of architecture. 2. Acquire the basics in planning and designing an International Standard Tourism Vocational High School in Bogor as an educational facility that prepares students to enter employment in the tourism sector.

INNOVATION HIGHLIGHT

Architecture Detail: Gazebo
Gazebo is a building that is in the garden, usually each side is open because according to its main purpose, the gazebo is a comfortable place to enjoy the garden. With an open side, those of you who are in it can enjoy the view of the garden more freely and can also enjoy the air blowing without being obstructed by the cover on each side.

COMMERCIAL VALUE

The project has three commercial values: energy efficiency, harmony with nature, and uniqueness. The focus is on constructing an energy-efficient building that minimizes environmental impact, reduces energy consumption, and enhances occupant comfort. Additionally, the project includes elements like green roofs, living walls, rooftop gardens, and outdoor spaces to promote biodiversity, provide insulation, and create visually appealing areas for relaxation and social gatherings. Courtyard or atrium gardens are designed with lush plantings, water features, seating areas, and pathways to create serene and peaceful environments within the building.

METHODOLOGY

Location: Graha Bina Humaniora, Jl. Dewi Sartika No.10A, RT.05/RW.06, Sentul, City, Kabupaten Bogor, Jawa Barat 16810.

CONCLUSION

In conclusion, this project was built with various spaces needed to support learning activities such as dormitory buildings, libraries, laboratories, dormitories, offices, and other supporting buildings. this building presents the concept of the building with green industrial style.

DIAGRAM/PICTURE

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

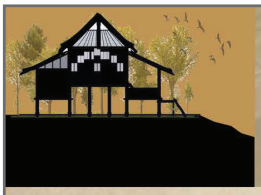
MEASURED DRAWING OF RUMAH BUJANG BERSERAMBI SELASAR, KUALA TERENGGANU, MALAYSIA

Muhammad Adib Bin Azmi, Isma Fikri Bin Mohd Rafpi, Khairil Ilham Najmi Bin Khairul Anam, Asna Amirah Binti Anuar, Nur Fatihah Binti Kamarudin, Nurul Athirah Binti Kamarul Bahrin, Nurhazwani Binti Razmi, Nur Amirah Amanina Binti Mohad Azimi, Aliah Uzma Rosnan, Ts. Nik Hasnira Binti Nik Pa

Polteknik Port Dickson, Km 14 Jalan Pantai, 71050 Si Rusa, Port Dickson, Malaysia

Abstract.

The Rumah Bujang Berserambi Berselasar is an iconic traditional Malay house with unique characteristics and features that reflect the cultural and social values of the local community. This research experience focuses on the study of Rumah Bujang Berserambi Berselasar in Terengganu, a state in eastern Peninsular Malaysia, with the aim of analyzing its architectural design and cultural significance. The research involved fieldwork visits to Rumah Bujang Berserambi Berselasar in Terengganu, data collection through interviews with local experts, house owners, and community members, and literature and archive reviews. The study revealed that Rumah Bujang Berserambi Berselasar in Terengganu has various architectural features that enabled it to withstand the hot and humid tropical climate, such as its raised platform, high roof, ventilated side walls, and openings. Moreover, these features also reflect the societal values and beliefs, such as the importance of social hierarchy, privacy, and environmental sustainability. Additionally, the research highlights the cultural, historical, and social significance of Rumah Bujang Berserambi Berselasar in Terengganu, which have been preserved and passed down for generations. The house serves as a testimony to the Malay traditions, beliefs, and artistic expressions, and it creates a unique sense of place and belonging to the community. However, the research also acknowledges the challenges that threaten the preservation and continuity of Rumah Bujang Berserambi Berselasar, such as urbanization, modernization, and the lack of awareness and appreciation. In conclusion, this research experience sheds light on the architectural design, cultural, and social significance of Rumah Bujang Berserambi Berselasar in Terengganu and provides insights on the importance of preserving and promoting the traditional built heritage as an essential element of Malaysian identity. The findings could inform the development of policies and strategies to safeguard Rumah Bujang Berserambi Berselasar's continuity and integration into modern urban environments. Moreover, the research contributes to the knowledge in architectural history, cultural heritage, and socio-cultural studies.



RUMAH BUJANG SERAMBI SALASA

(MUZIUM NEGERI TERENGGANU , KUALA TERENGGANU)

DCA50233 MEASURED DRAWING

KUNCI PELAN
TANPA SKALA

PELAN LOKASI
TANPA SKALA

PELAN TAPAK
SKALA 1:250

INTRODUCTION

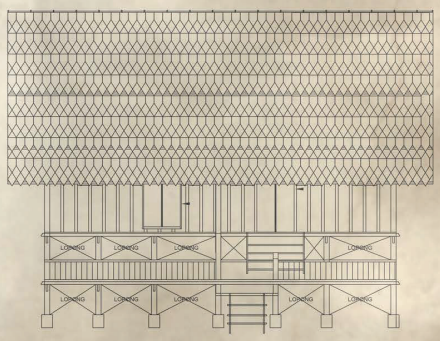
Rumah Bujang Berserambi Berselasar OR Rumah Tiang Seribu between one of the houses traditional that can be found in Terengganu. Selasar Berserambi Single House is the earliest long-roofed building built among traditional house architecture Terengganu. This house has many pillars but the number of foundations is only 12 pillars.

HISTORY

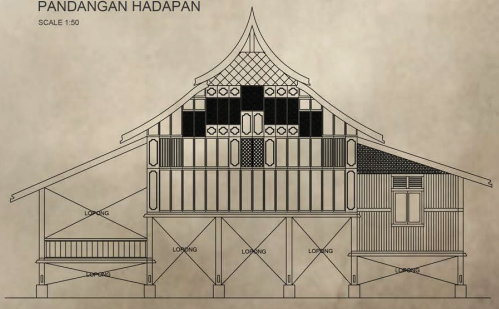
The original owner of this house is Tuan Haji Abdul Kadir or better known as Syeikh Abdul Kadir Kolam. This house is believed to have been built in 1885 by his students working together. This house was handed over to the Terengganu State Museum by Tuan Haji Hasim bin Mohamad in 1997 and rebuilt in 1997. Rumah Berserambi Berselasar is the earliest long-roofed house in Terengganu which is estimated to be over 300 years old and full of interesting carvings .This Single Porch House was built using a prefabricated method decorated with interesting and impressive wood carvings from a local sculptor, Brother Norhaiza bin Nordin, who is the Managing Director of Bakawali Carving. On the east coast of Peninsular Malaysia, most of the traditional houses were influenced by the early communities that settled in the area, namely the Thai and Cambodian communities.

REKA BENTUK

The design of this Single Porch House has its own uniqueness. This house has 39 wooden poles as the main structure of this house. The basic design of this house is like other traditional Malay houses, only the front is added. The foundation of this house is to use scrap wood and wooden floors. The floor part is not nailed but studded according to Traditional Malay architecture. In accordance with the name Bujang, this house has no rooms. However, it only has a large space called Mother's House, kitchen and main room.



PANDANGAN HADAPAN
SCALE 1:50



PANDANGAN KANAN
SCALE 1:50

NAMA : 1.MUHAMMAD ADIB 2.ISMA FIKRI 3.ASNA AMIRAH 4.NUR FATEHAH 5.KHAIRIL ILHAM 6.NURUL ATHIRAH 7.NURHAZWANI 8.AMIRAH AMANINA

LECTURER : MADAM NIK HASNIRA , MADAM SITI FATIMAH TUZZAHRAH , MADAM ROSLINDA

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

Istana Tengku Long

Muhammad Danial Hakim Bin Mohd Shahrom[1] Haikal Izwan Bin Kamarudin[2] Sofia Farhani Binti Ramlan.[3] Nadia Nurhafiza Binti Roslan[4] Lee Wan Jing[5] Nurin Nabilah Binti Azhar[6] .Siti Khadijah Binti Abdullah[7] Siti Fatimah Tuzzahrah Binti Abd Latif[8]

Politeknik Port Dickson, Km 14, Jalan Pantai, 71050 Si Rusa, Port Dickson Negeri Sembilan Darul

Abstract.

Tengku Long Palace is a heritage architectural building located in the Terengganu State Museum. The objective of this measured drawing project is to record and document the uniqueness of the architecture of the heritage building located in Bukit Losong, Kuala Terengganu in form of technical drawing, documentary and report. The methodology used for this project is fieldwork, interviews, observations and historical studies from literary sources. The tools used throughout the implementation of this project are tape measure, laser tape measure, laptop, digital camera, A3 paper, sketch book, adhesive tape, charcoal and paper sheets. Through various methodologies, history and background are studied and information is accurately and concisely presented, for example, the history of Tengku Long Palace and the events that have happened to the Palace, including the background of the Palace. In terms of structure, cengal wood is widely used as the main material in the construction of Tengku Long Palace. The research carried out clearly shows that Tengku Long Palace has historical value that needs to be preserved. As a result, Tengku Long Palace in the royal village of the old Malay sultanate, Besut is a valuable historical relic. The effort to dignify it needs to be observed involving the details of the attraction to the new generation.

key word: Terengganu , Palace , Tengku Long , Measured Drawing , Politeknik Port Dickson

KEMENTERIAN PENGAJIAN TINGGI

RESPEX 2023

ISTANA TENGKU LONG

POLITEKNIK MALAYSIA PORT DICKSON

KAWANS

ABSTRACT

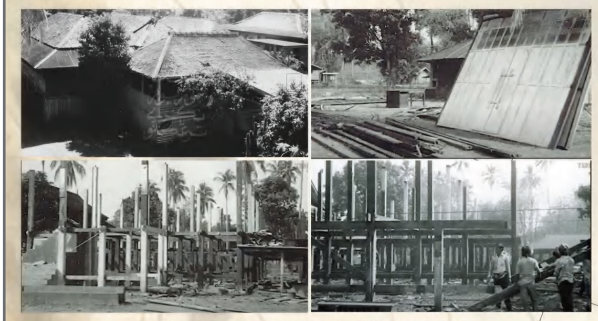
Tengku Long Palace is a heritage architectural building located in the Terengganu State Museum. The objective of this measured drawing project is to record and document the uniqueness of the architecture of the heritage building located in Bukit Losong, Kuala Terengganu in form of technical drawing, documentary and report. The methodology used for this project is fieldwork, interviews, observations and historical studies from literary sources. The tools used throughout the implementation of this project are tape measure, laser tape measure, laptop, digital camera, A3 paper, sketch book, adhesive tape, charcoal and paper sheets. Through various methodologies, history and background are studied and information is accurately and concisely presented, for example, the history of Tengku Long Palace and the events that have happened to the Palace, including the background of the Palace. In terms of structure, cengal wood is widely used as the main material in the construction of Tengku Long Palace. The research carried out clearly shows that Tengku Long Palace has historical value that needs to be preserved. As a result, Tengku Long Palace in the royal village of the old Malay sultanate, Besut is a valuable historical relic. The effort to dignify it needs to be observed involving the details of the attraction to the new generation.

key word: Terengganu , Palace , Tengku Long , Measured Drawing , Politeknik Port Dickson

HISTORY

Istana Tengku Long is a palace that was originally built 30.48 meters on the edge of Sungai Besut, in Kampung Raja, Besut. It is a valuable historical heritage. This is because the mahligai is a symbol of Tengku Long's love for his wife, Tengku Wook, one of Terengganu's royal relatives. Tengku Long Tengku Ngah was the second Besut Commissioner after taking over the reins of Besut district (a district bordering Kelantan state) from the first commissioner, Tengku Chik Haji in 1929.

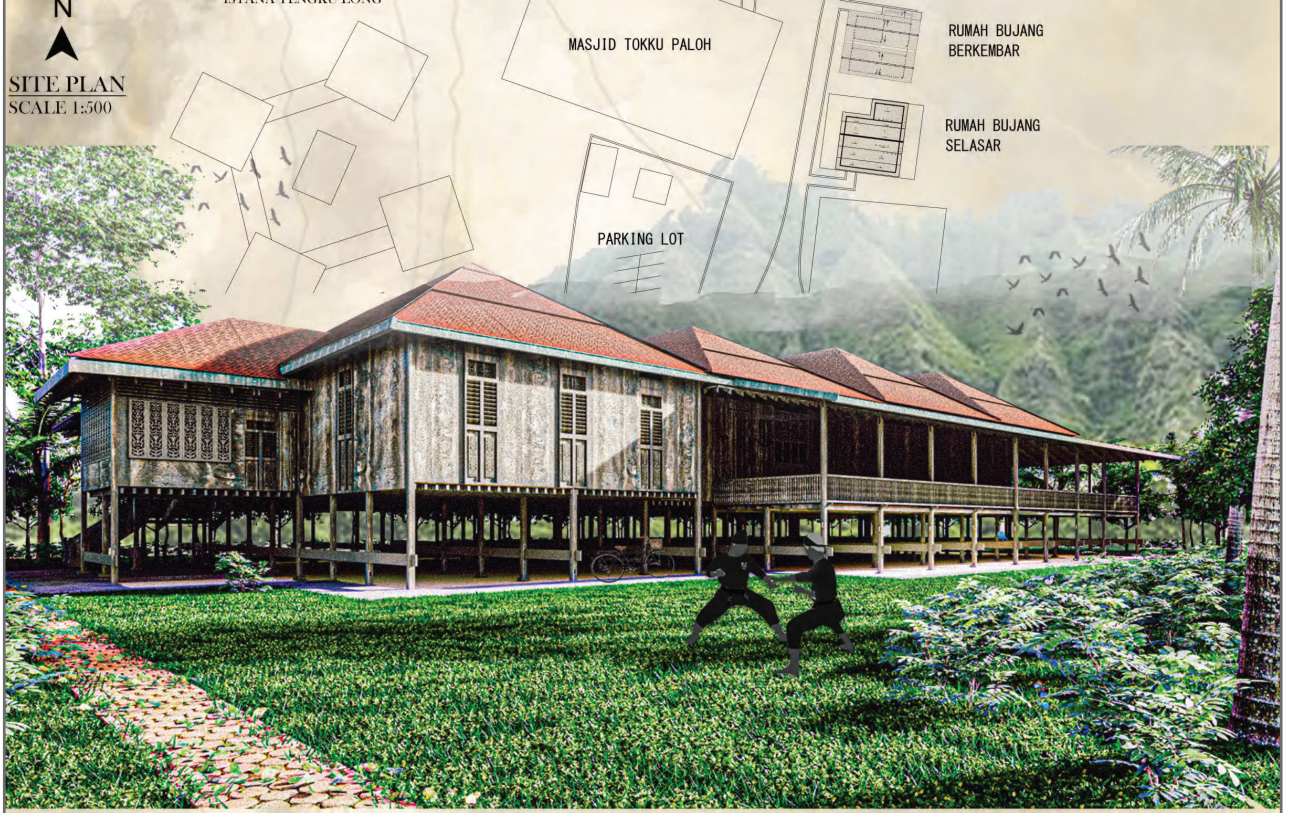
After ruling the Besut district for some time, Tengku Long was later replaced by his son-in-law as the third Besut Commissioner, Tengku Sulong, the husband of Tengku Kembang. It was rebuilt at the State Museum site on the edge of the Terengganu River. According to the notes of Tan Sri Mubin Sheppard, this palace was first built in 1850 AD, but if you look at the date found on one of the carvings in the palace it is dated 1904 AD. Its area is 27.43 meters x 21.34 meters consisting of hard cengal wood and walls decorated with delicate carvings.



THE PICTURE WAS TAKEN IN 1986 THE FIRST ISTANA TENGKU LONG

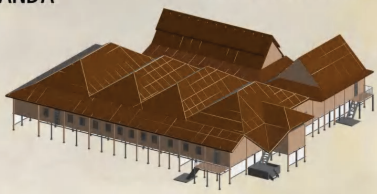
KEY PLAN

LOCATION PLAN



SITE PLAN
SCALE 1:500

PANDANGAN ISOMETRIK (SEBELUM TAHUM 1986)



MUHAMMAD DANIAL HAKIM BIN MOHD SHAHROM (F2016) JAZZAMUDIN BIN AZAHARI (F2056) SITI KHADIJAH BINTI ABDULLAH (F2018) NURIN NABILAH BINTI AZHAR (F2022) HAIKAL IZWAN BIN KAMARUDIN (F2030)
LEE WAN JING (F2020) NOR AZRIEL IKHWAN BIN NOR ZAHAR (F2033) SOFIA FARHANI BINTI RAMLAN (F2003) NADIA NURHAFIZA BINTI ROSLAN (F2013)
LECTURER: MADAM NIK HASNIRA BINTIK NIK PA / SITI FATIMAH TUZZAHRAH BINTI ABD LATIF / TS. ROSLINDA BINTI ABDULLAH

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

Rumah Warisan Terengganu, Rumah Tele

Muhammad Hariz bin Mohd Razali[1] , Wan Nor Farradhila Elyana binti Wan Mahadi[2] , Nurbatrisyia Afrina binti Muzafar[3] , Muhammad Bakhtiar Affandi bin Norashidi[4] dan Puan Siti Fatimah Tuzzahrah binti Hj. Latif[5]

Politeknik Port Dickson, Km 14, Jalan Pantai, 71050 Si Rusa, Negeri Sembilan

Abstract.

The Tele House is a heritage building located in the village of Losong, Kuala Terengganu. The objective of this measured drawing project is to create alignment in the operation of the Measured Painting Project of the Diploma of Architectural Arts at Port Dickson Polytechnic. In addition, it explains the work process and responsibilities of students to go through throughout the execution of the project.

In addition, explain the work process and student by the student throughout the implementation of this measured drawing project. The methodology used is fieldwork measuring, recording, studying and analyzing the early history of the building in order to further strengthen the information. In addition, the interview session is one way that has been used in the process of collecting detailed data / information as well as obtaining verbal testimony from the heir of Tele House, Village Losong.

Among the tools used throughout the implementation of this project are measuring tape, writing equipment, digital tape measure, butter paper, laptop and camera as well as information for the building being investigated. All additional equipment is used to complete all the processes during the study.

Through methodology, history and backgrounds can be studied and obtained accurately and precisely, such as the history of the inheritance house as well as the events that have ever occurred to the estate house. In terms of structure, cengal wood and many other types are used as the main building materials in the construction of heritage houses. Studies conducted clearly showed a heritage house that has historical value to be preserved.

Keywords : *records, process, heritage, investigate, history*

RUMAH LIMAS BELANDA

KUALA TERENGGANU, MALAYSIA

POLITEKNIK MALAYSIA PORT DICKSON

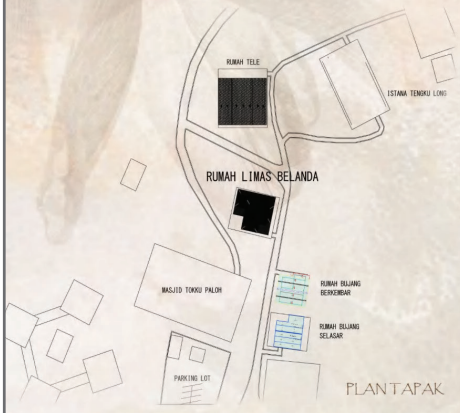
RESPEX ATORS ION 2023

KENALI RUMAH LIMAS BELANDA

Rumah ini di bina sewaktu zaman pemerintahan Al-Marhum Sultan Zainal Abidin iii. Rumah ini kemudiannya di jadikan kediaman anakanda baginda, Tengku Ngah Aisyah Hajjah. Tapak asal rumah ini ialah di Jalan Kota Lama,Istana Maziah, Kuala Terengganu. Ruang hadapan rumah ini dikhaskan kepada para tetamu, ruang kedua dijadikan ruang tidur manakala ruang ketiga iaitu Surung di jadikan tempat mengadakan mesyuarat, majlis keramaian serta upacara khusus. Bahagian atas pintu dan tingkap labuh terdapat ukiran yang bermotifkan flora serta kaligrafi. Di bahagian dalam rumah pula terdapat pintu gerbang berukir yang berfungsi memisahkan ruang serambi dan ruang ibu. Setiap ukiran dan kaligrafi ayat al-Quran ini memberikan peringatan bersifat keagamaan. Manakala, buah Putong yang diletakkan di bahagian atap rumah merupakan simbolik batu untuk mengigati

PLAN KUNCI

PLAN LOKASI



PLAN TAPAK

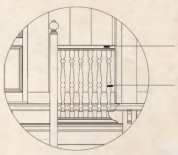
PENGENALAN

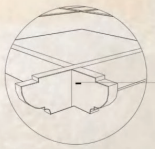
Rumah Limas belanda ini dibina oleh Al-Mahrhum Sultan Zainal Abidin iii pada tahun 1889. Rumah ini kemudiannya di jadikan kediaman anakanda baginda, Tengku Ngah Aisyah Hajjah

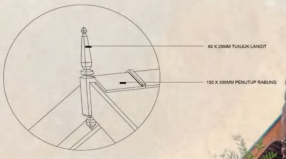
Asal perkataan "LIMAS" ialah antara gabungan lima perabung dan pengaruh penggunaan bahasa Belanda maka terciptalah "LIMAS". seperti mana yang dapat di lihat, rumah ini mempunyai 3 ruang iaitu ruang hadapan dikhususkan untuk para tetamu, ruang ke -2 di jadikan tempat tidur pada waktu malam dan waktu siang di jadikan ruang makan. Ruang ke - 3 pula di panggil surung iaitu tempat mesyuarat, majlis keraimaian serta upacara khusus pada zaman dahulu. Keunikkan atap Singgora yang di perbuat daripada tanah liat yang bersifat poros mampu menyerap air semasa hujan dan mampu menyejukkan suhu dalam rumah ini.

Rumah Limas Belanda ini mempunyai dua tingkat yang tersergam indah di Jalan Tok Lam, Bandar Kuala Terengganu ini telah dibina pada 1920an, zaman pemerintahan Sultan Sulaiman Badrul Shah (1920-1942). Pada asalnya, rumah ini beserta Masjid Putih terletakdiKampung Dalam yang merupakan sebahagian kawasan Istana Maziah. Rumah Limas Belanda telah lama dikenali oleh masyarakat setempat sebagai 'Rumah Tiang Kembar' kerana tiang anjungnya dibina sederet sebanyak lima pasang secara berkembar.

ELEMENT KURSUS

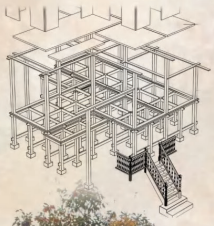






REKA BENTUK RUMAH LIMAS BELANDA

Negeri Terengganu terdapat beberapa bentuk rumah tradisional Melayu dan salah satunya di panggil Rumah Limas Bungkus. Struktur rumah ini dikenali berdasarkan bumbung rumahnya yang terdiri dari pada sebuah perabung lurus dan bersambung pula dengan 4 buah perabung yang turun ke cucuran atap yang dihiasi dengan ukiran-ukiran kerawang kayu. Rumah jenis ini mempunyai beberapa bentuk daripada bentuk panjang dan bersegi empat tepat. Ruangnya pula terdiri daripada ruang anjung, beranda, rumah tengah dan dapur. Rumah Terengganu di bina daripada kayu cengal, meranti dan kapur. Manakala atapnya daripada atap tanah dan atap genting senggora.



UKIRAN

Keunikan motif dan corak ukiran kayu seni bina Rumah Limas Belanda di Terengganu adalah bercirikan penggunaan motif kaligrafi Arab yang sinonim diukir dan diilhamkan oleh tukang-tukang ukir kayu Melayu tradisional di Terengganu sebagai suatu perlambangan yang menepati jiwa, keindahan dan citarasa Islam (Mohd Yusof Abdullah, 2021).

SITI AISYAH ZARIFAH BINTI MUHAYUDDIN
SITI MARYAM BINTI ABDULLAH
MUHAMMAD AMIR REDZUAN BIN ROSLI
MOHAMMAD AFIAM HAFIDZ BIN MOHD AMIR
NUR NAHLAH NAJWA BINTI SALIMI
ANIS SABIRIN BINTI MOHD FUAD
MUHAMMAD ZHARIF BIN YUNOS

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

TRIFECTA XENIA ACADEMIA: HOSPITALITY SCHOOL IN SENTUL CITY, INDONESIA

Galih Putra Sulindra[1,*], Stella Melviana Bauty[2] and Yuliani[3]

[1] Department of Architecture, Pancasila University, Indonesia

[2] Department of Architecture, Pancasila University, Indonesia

[3] Department of Architecture, Pancasila University, Indonesia

*Corresponding member

Abstract.

Trifecta Xenia Academia (TXA) is a design for a Tourism Polytechnic school at Sentul City consisting of dormitories, schools, and offices. The theme carried out in the TXA design is "nourish," which means supporting and maintaining stability in implementing the Tridharma (The Three Pillars) of Higher Education. Etymologically, Trifecta means a perfect group of three, Xenia (*noun.* Greek) is a form of an ancient concept of hospitality, and Academia means the environment or community concerned with the pursuit of research, education, and scholarship. Therefore TXA means a hospitality school that accommodates the development of student interests and talents to implement the Tridharma of Higher Education. The TXA design used a biomimicry approach in architecture by taking the primary form of human hands as a form of "supporting" symbolism.

The New Gate of Sentul, which consists of highways, business centers, and commercial and residential areas, will be constructed in Sentul City. Thus, TXA would build in Sentul City to provide educational institutions in densely populated areas. TXA consists of 9 study programs from the culinary school, hospitality services to hospitality management businesses. The uniqueness of TXA from other polytechnic schools in Indonesia is the zoning division based on wind circulation and sunlight so that the entire building mass gets enough light and air. In addition, TXA also implements green and sustainable architecture by reducing cut and fill, trying not to cut any three in site, installing solar panels as an alternative source of electrical energy, and reducing air conditioning by increasing the number of openings.

Based on site and climate analysis, the temperature in the chosen location tends to be cool with equivalent sun hours around 11,45 to 12.5 hours per day. Therefore the only problem for the chosen site is the high humidity caused by the climate and high rain intensity. To solve that, TXA became a semi-outdoor building that opened in some areas to allow air and sunlight through the room. In addition, the TXA design also provides a waterway so that rainwater can flow into the Cikeas River (about 100m from the location) without using any additional tools because the natural contour levels allow the water to move from the building to the river.

Keywords: *biomimicry, hospitality school, sentul city*

INNOVATION & CREATIVITY LEARNING CENTER

Project Background

In the 21st Century the world has change alot, more connext to nature so it presses education system to be improved for the society

Objectives

It is a place to connect different parties to progress in the same

to enhance the development of creativity

Share and Give advice

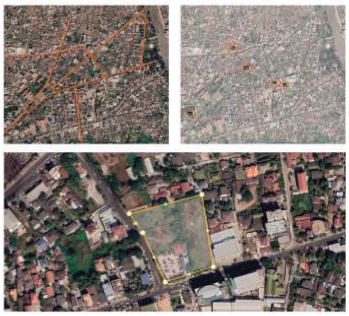
User

Youngster

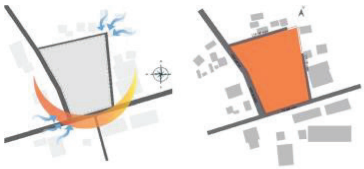
Students

Working persons

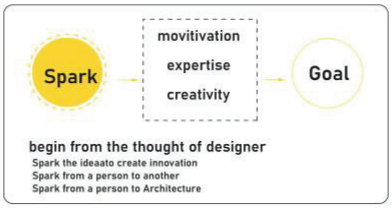
Site Location



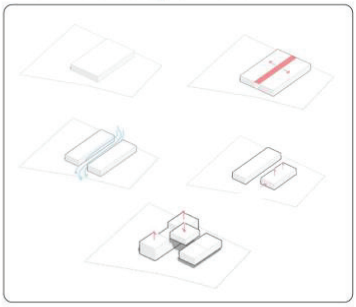
Site Analysis



Concept



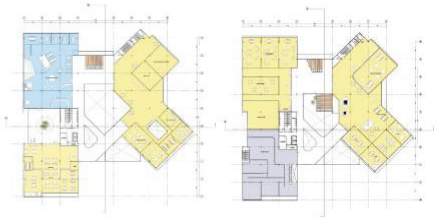
From Developement



Master Plan

Floor Plan

Elevation

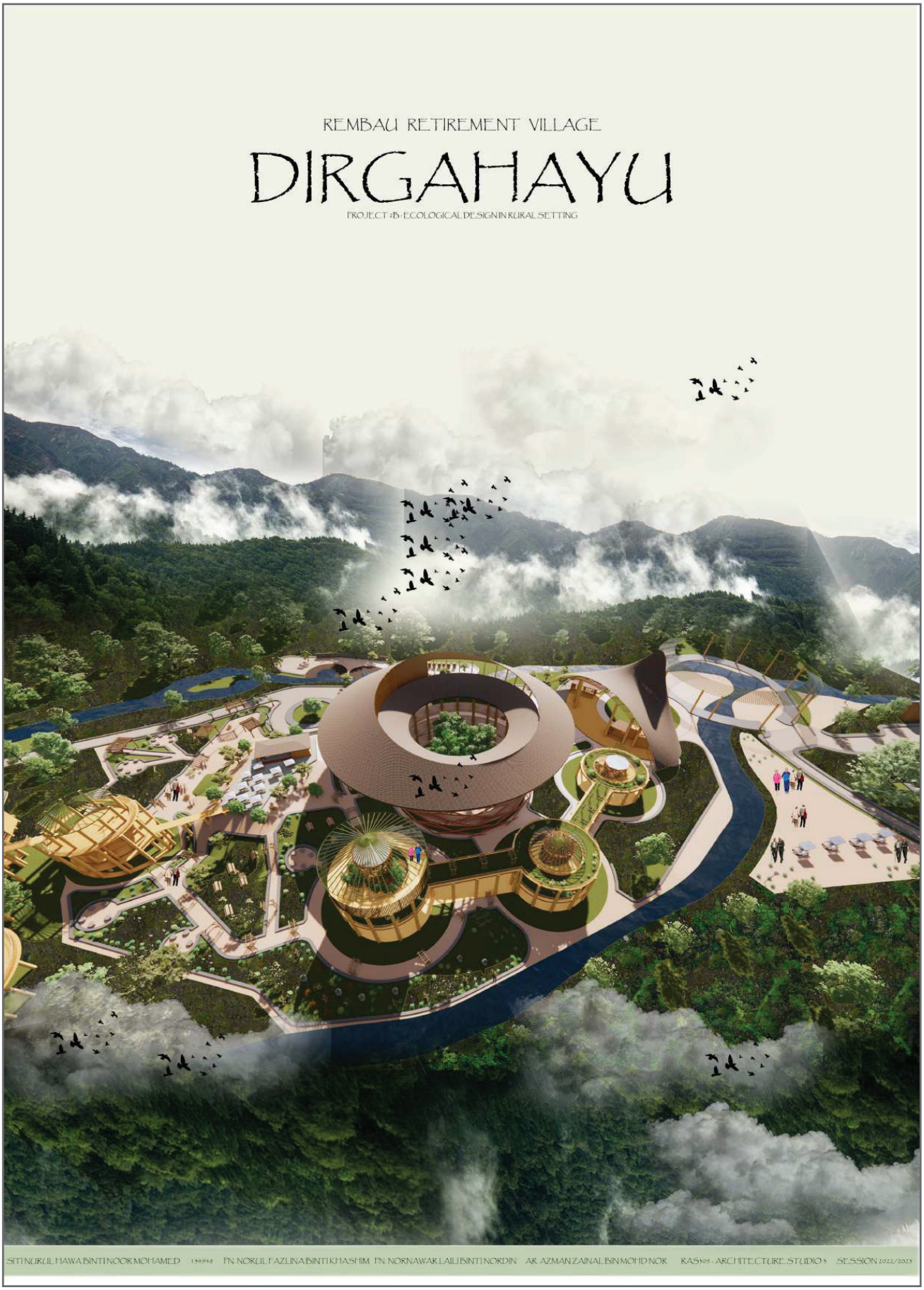



Freesia
Rooting for a new start
Location: 719 Golan-dong, Danwon-gu, Ansan-si, Gyeonggi-do
Area: 18,272 m2
Legend: Quasi-residential areas
Construction rate: 70%
Floor area ratio: 500%
Site analysis
Orientation
View
Bus stop
Green space
Sun
Wind direction
Noise
Main road
Housing & Shopping Center
Prolog
Currently, the elderly welfare problem and the elderly job problem in Korea have become a hot topic recently as the elderly population increases, and we decided to create a welfare center for the elderly because we wanted to create a building that can solve these problems.
Concept
Education
Alternating current
Leisure
It created a space for the elderly to make a new start, such as 'I support your beginning,' the flower language of Freesia
Mass process
<building-A>
Starts with a rectangular mass.
Pierce the center to secure a light.
Create ramps.
Creating a Rest Area.
Increase public space by adding layers.
<building-B>
Starts with a rectangular mass.
Pierce the center to secure a light.
For the design cutting corners.
Lander Image
Library
Media room
Rooftop ramp
Atrium
Walking trails
Outdoor Sports Facilities
Fitness room
Physical therapy room
Site Plan
Floor plan
<building-A>
<building-B>
roof floor
3rd floor
2nd floor
1st floor
Staff facilities
Core
public facility
Program room
Affinity analysis
Bubble block
Waste glass reprocessing resistant to high pressure and high temperature.
Atrium
Making a small garden in the atrium and getting sunlight from each roof.
유리glass
UV
Visible light
Infrared rays
Indoor heating
Indoor cooling
CRC board
Specialized in nonflammability and water resistance of eco-friendly materials.
Eco-Carat
Specialized in processing, humidity control, and odor removal of daily life by mixing natural volcanic ash and natural clay minerals.
Marble
Specification for processing heat resistance of natural materials.
Terra Court Earth
Specialized in processing and deodorizing functions of natural materials such as soil, jade, and charcoal and air cleaning effects.
Cross-sectional view
Elevation <building-A>
<building-B>

REMBAU RETIREMENT VILLAGE

DIRGAHAYU

PROJECT #5 : ECOLOGICAL DESIGN IN RURAL SETTING



SITI NURUL HAWA BINTI NOOR MOHAMED 154848 PN NORUL FAZLINA BINTI KHASHIM PN NORNAWAR LAILI BINTI NORDIN AR AZMAN ZAINAL BIN MOHD NOR RAS505 - ARCHITECTURE STUDIO 5 SESSION 2022/2023

RAS 305 ARCHITECTURE STUDIO 3 | PROJECT 2 REMBAU RETIREMENT VILLAGE

DESA Sang Berida

ber ; ida = tua, yang berpengalaman luas

The Sang Berida retirement village is designed to provide comfort and active lifestyle in Rembau area and intend to enhance both physical and mental wellnes of the resident by encouraging a self-development which condradict of common conception associated with existing retirement village or nursing home.

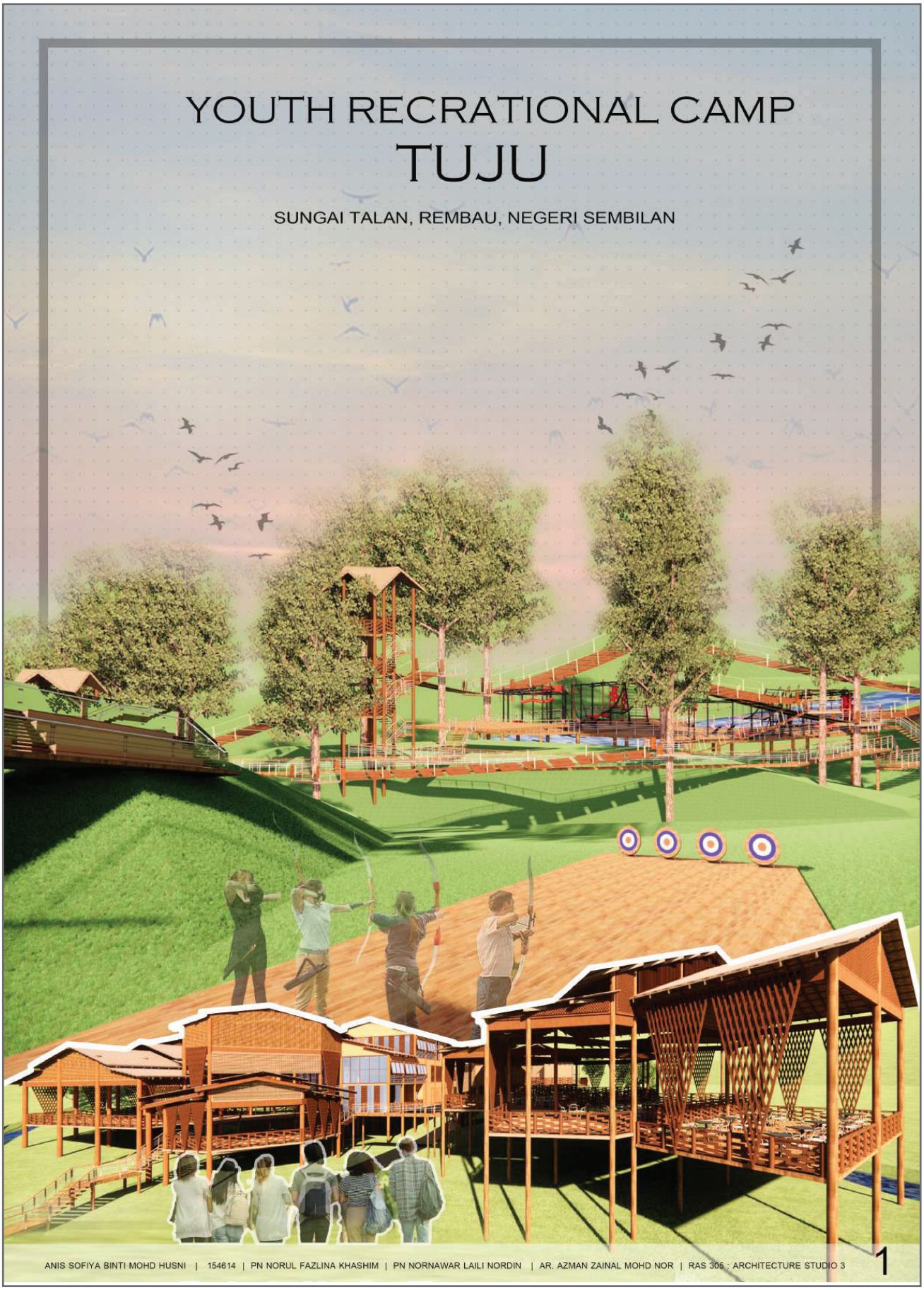
The main purpose is to provide independent and assisted living for seniors with dedicated healthcare from professionals located within reach, personalised senior living facilities and ecological environment setting – a place where elderly can call home

'the entire development is designed with the elderly in mind.'

MOHAMAD AMIRUL BIN MOHAMAD RODZE | 154611 | MS. NORUL FAZLINA KHASHIM | AR. AZMAN ZAINAL MD NOR | MS. NORNAWARLAILI NORDIN

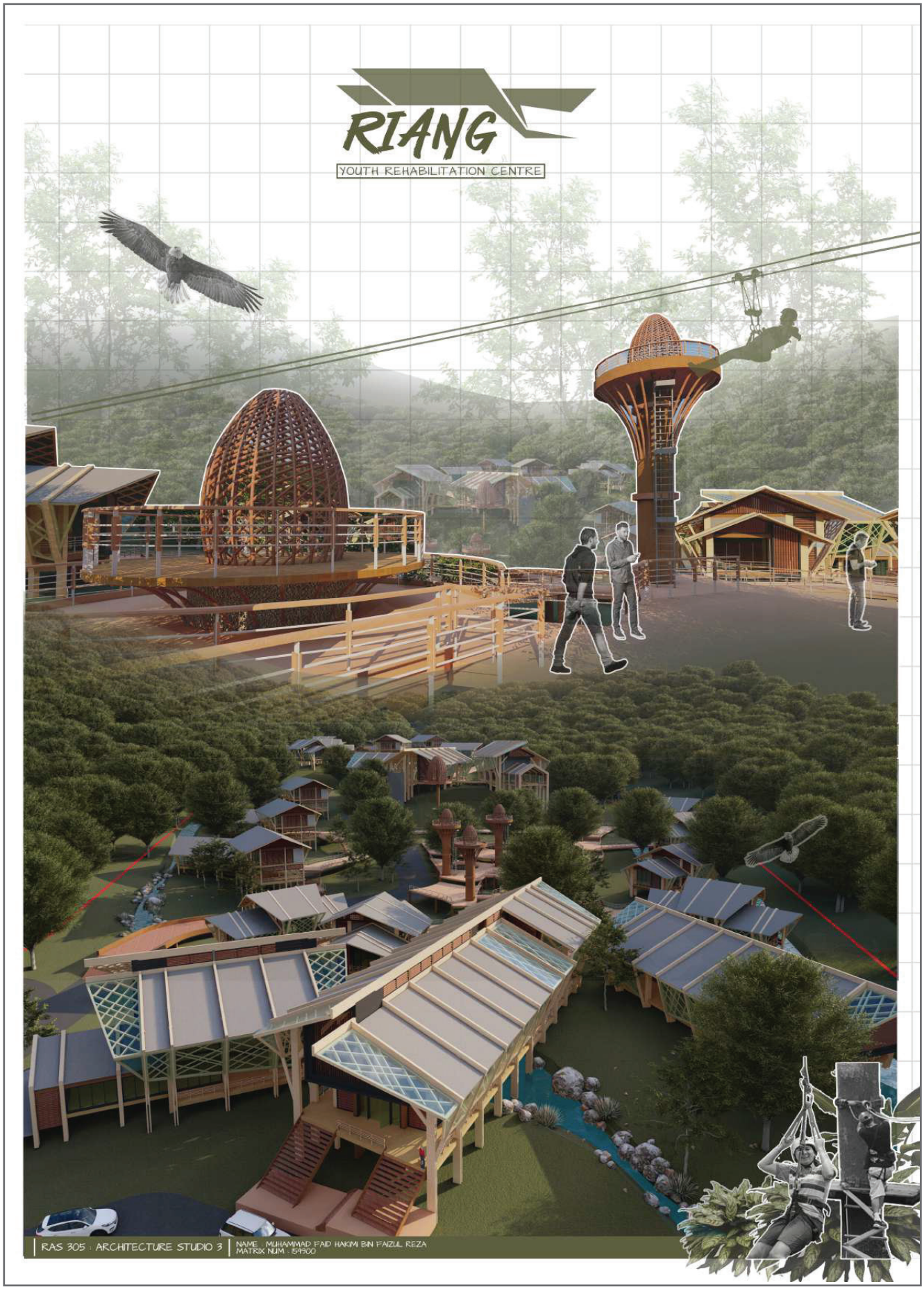
YOUTH RECRATIONAL CAMP
TUJU

SUNGAI TALAN, REMBAU, NEGERI SEMBILAN



ANIS SOFIYA BINTI MOHD HUSNI | 154614 | PN NORUL FAZLINA KHASHIM | PN NORNAWAR LAILI NORDIN | AR. AZMAN ZAINAL MOHD NOR | RAS 305 : ARCHITECTURE STUDIO 3

1


RIANG
YOUTH REHABILITATION CENTRE
RAS 305 : ARCHITECTURE STUDIO 3
NAME : MUHAMMAD FAID HAKIMI BIN FAIZUL REZA
MATRIX NUM : 84900

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
POLITEKNIK MALAYSIA PORT DICKSON
PERSATUAN TEKNOLOGI MALAYSIA

RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

BACKGROUND

- Theme: Marine and education
- Style: Modern and professional
- Color Palette: Deep ocean blue (reflects depth and beauty), White (conveys cleanliness and order)
- Background: Gradient of bright to darker ocean blue, creating an illusion of depth
- Location: Near the sea, showcasing stunning beach views with breaking waves and clear sky
- Structures: Elegant and simple sailboat or cruise ship-shaped buildings, representing the connection to the maritime world
- Central Element: Horizontal pathway resembling a ship's anchor, symbolizing stability and strength
- Environmental Enhancement: Expanding green areas and trees surrounding the marine school to create a comfortable and shaded environment, preventing excessive heat and offering a cooler and more natural atmosphere for students and staff.

PROBLEM STATEMENT

- Environmental Impact: Environmental challenges include coastal erosion, sea-level rise, and marine pollution due to the coastal location of the site.
- Resource Management: Sustainable management of marine resources and a deep understanding of marine ecosystems are necessary.
- Safety and Security: Safety challenges include severe weather conditions, complex navigation, and maritime activities.
- Vulnerability to Climate Change: Vulnerability to climate change, such as increasing sea surface temperatures and changing weather patterns, needs to be considered.

OBJECTIVE

- Creating an inspiring environment: The use of creative marine elements and appealing aesthetics will foster enthusiasm and a desire to learn and participate in marine activities.
- Optimizing interaction with the marine environment: Stunning sea views and easy access to the beach will encourage a deeper understanding and appreciation of marine life.
- Ensuring environmental sustainability: The use of environmentally friendly materials, renewable energy technologies, and sustainable landscape design should be considered to ensure environmental preservation.
- Enhancing safety and security: Early warning systems, adequate coastal protection, and robust infrastructure must be implemented to address potential risks associated with the marine environment.
- Building integrated educational facilities: Classrooms, laboratories, libraries, and practical areas should be well-designed and meet the needs of relevant curricula.
- Promoting collaboration and interaction: Open spaces that provide meeting areas, workshops, and discussion rooms will encourage valuable knowledge and experience exchange.
- Considering architectural beauty and aesthetics: Building forms, colors, and textures should be carefully designed to create visually appealing and pleasant impressions.

COMMERCIAL VALUE

- Inspirational Environment: This design creates an inspirational environment with the creative use of marine elements and appealing aesthetics.
- Interaction with the Marine Environment: With breathtaking ocean views and easy access to the beach, prospective students will be able to optimize their interaction with the marine environment.
- Integrated Educational Facilities: This design considers the need for integrated educational facilities, including classrooms, laboratories, libraries, and practical areas.
- Enjoyable Learning Experience: By focusing on architectural beauty and aesthetics, this design creates an appealing and visually enjoyable impression.
- Integration with the Natural Environment: This design incorporates extensive green areas and trees surrounding the maritime school.
- Energy Efficiency: This design also prioritizes energy efficiency by utilizing building designs that maximize natural lighting and ensure proper airflow.

CONCLUSION

In this design, Ancol Maritime Academy aims to create an inspirational environment, optimize interaction with the marine environment, ensure environmental sustainability, enhance safety and security, build integrated educational facilities, encourage collaboration and interaction, and pay attention to architectural beauty and aesthetics.

INNOVATION HIGHLIGHT

Integration of Marine Elements: The creative use of marine elements in the design, such as sailboat-shaped or cruise ship-inspired buildings, showcases a unique integration with the marine world. This innovative approach creates a strong connection between the academy and its marine theme.


METHODOLOGY

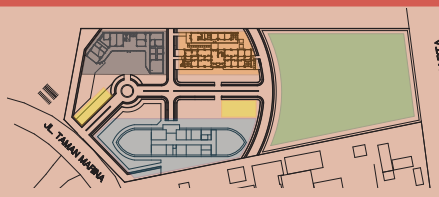
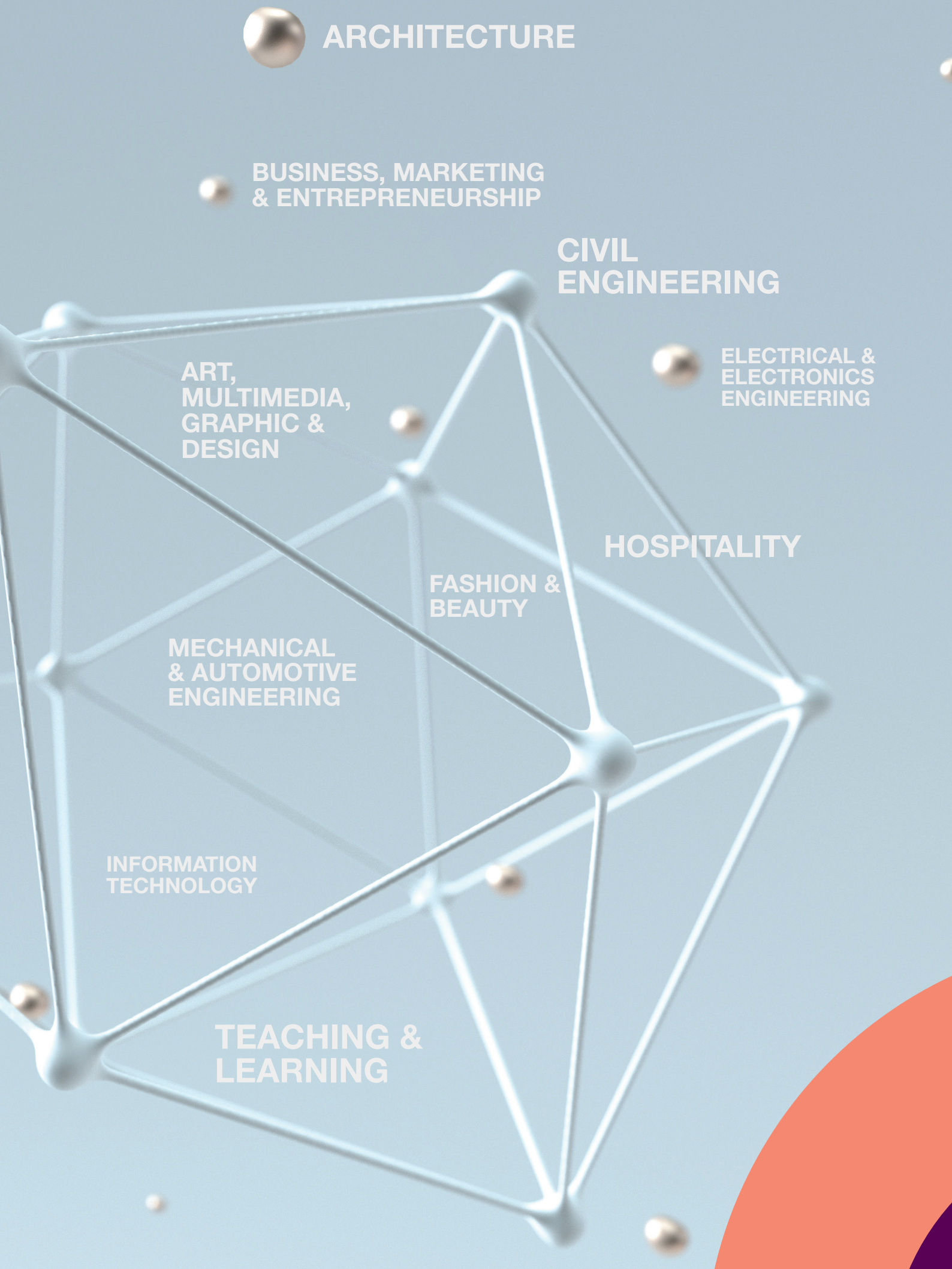





DIAGRAM / PICTURE





ARCHITECTURE
BUSINESS, MARKETING
& ENTREPRENEURSHIP
CIVIL
ENGINEERING
ELECTRICAL &
ELECTRONICS
ENGINEERING
ART,
MULTIMEDIA,
GRAPHIC &
DESIGN
HOSPITALITY
FASHION &
BEAUTY
MECHANICAL
& AUTOMOTIVE
ENGINEERING
INFORMATION
TECHNOLOGY
TEACHING &
LEARNING

ART, MULTIMEDIA, GRAPHIC & DESIGN

Category

05

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

SMART BRECELET

Galuh Amanda Oktavia[1], Nurul Izza[2], Asyraf Aulia[3], M.Fhadil Fadli[4], Prof. Dr. Yuli Yetri M.Si[5]

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[2]Nurul Izza, Mechanical engineering department, Politeknik Negeri Padang, West Sumatera, Indonesia

[3]Asyraf Aulia, Mechanical engineering department, Politeknik Negeri Padang, West Sumatera, Indonesia

[4]M.Fhadil Fadli, Mechanical engineering department, Politeknik Negeri Padang, West Sumatera, Indonesia

[5]Prof.Dr. Dra. Yuli Yetri, M.Si, Mechanical engineering department, Politeknik Negeri Padang, West Sumatera, Indonesia Nurulizza556@gmail.com

ABSTRACT

Smart bracelets are an innovation that emerged as a result of increasing awareness of cases of sexual violence in public places, especially educational locations. With the rise of cases of sexual violence in society, this makes it a taboo subject, and even those who experience it receive shame, disgrace, and harsh treatment from their surroundings. As a result of sexual harassment, the victim becomes psychologically traumatized, which can lead to conditions such as bipolar disorder, depression, and even the risk of self-injury. Apart from that, they can also experience physical ailments such as headaches and be at risk of meningitis, and the worst thing is getting pregnant. A study published in the Journal Acta Obstetricia et Gynecologica Scandinavica showed that more than 70% of abusers suffer from tonic immobility and cannot move to confront the offenders. A smart bracelet is a tool that can detect the motion of the perpetrator. Quick access was a top priority when creating this smart bracelet. With the help of information technology (IT), users can signal those closest to them to help if an unwanted situation occurs. The process used to design a smart bracelet makes use of a sound sensor and a light sensor. The operational Global Positioning System (GPS) is another technique that is also used. Users only need to press the emergency button on the smart bracelet for three seconds to start emitting a sound that will attract the attention of others and make them come to help. In addition, emergency contacts linked to the wristband can receive location updates via the wristband. The purpose of making this tool is to reduce the incidence of sexual harassment. The sophistication of this breakthrough technology is expected to provide comfort to the community.

Keywords: Smart bracelet, Sexual harassment, Impact of harassment, Prevention

Main Organizer: Co-Organizer: With Cooperation

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
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PERSATUAN TEKNOLOGI MALAYSIA

RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

SMART BRACELET

(Prevention of Sexual Harassment)

BACKGROUND

Sexual harassment is a case that is very likely to occur, not only to women but also to men. Based on Law Number 26 of 2000 concerning the Human Rights Court, what is meant by sexual violence is stated as an act equivalent to rape, sexual slavery, forced prostitution, and forced sterilization. The rise in cases of sexual harassment that occurs is certainly a frightening specter in society.

METHODOLOGY

In designing this tool, we used a method of combining technology: sound sensors, light sensors, the Global Positioning System, and solidwork.

PROBLEM STATEMENT

A study published in the journal Acta Obstetricia et Gynecologica Scandinavica showed that more than 70% of abusers suffer from tonic immobility and cannot move to confront the offenders. Many of the victims of sexual harassment were unable to resist when the harassment occurred. This is because a syndrome sometimes occurs that causes the victim's body to stiffen so that they do not know how to respond.

INNOVATION HIGHLIGHTS

The prevention effort that we propose is a technological innovation in electronic wristbands. Later, this bracelet can be an alarm for the owner if he feels he is in danger of being abused. The owner of this bracelet can press the emergency button for 2 seconds, and later this bracelet will emit a sound and light so as to attract the attention of those around him. Not only that, but this bracelet can also provide location sharing to contacts who have registered on the bracelet system.

OBJECTIVE

Seeing the urgency of the problem of sexual violence, especially in school and campus environments, we are moved to be able to contribute to addressing this problem by creating a technological innovation, namely a smart bracelet to prevent sexual harassment, especially in educational settings. Because the truth is, prevention is better than cure.

COMMERCIAL VALUE

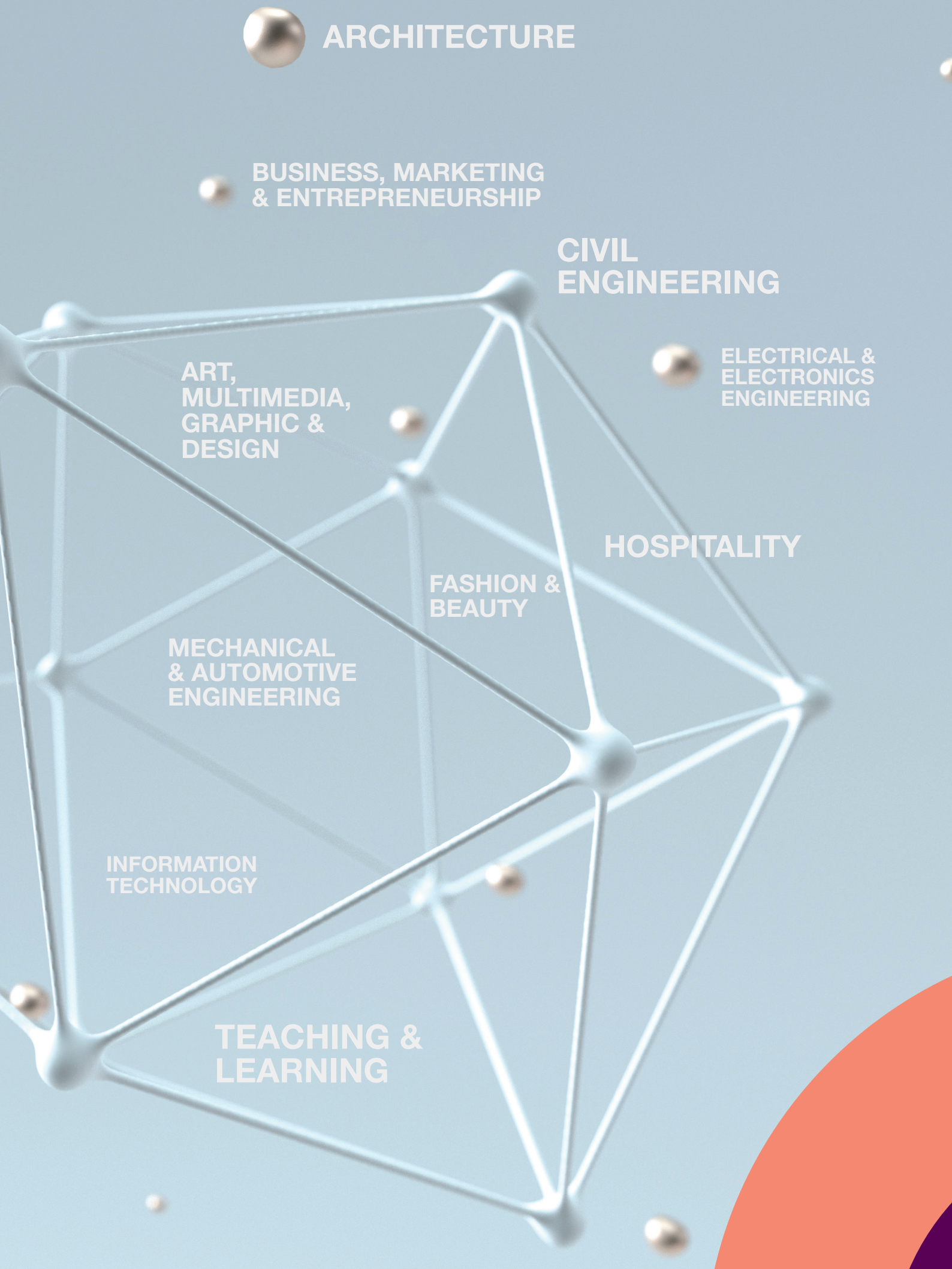
Smart bracelets really have a commercial opportunity. Because it has many advantages, just like easy to carry anywhere, the high interest of the community in protecting themselves, have fast access so that the owner can immediately get help, also fashionable, so it is suitable for everyday use.

PRODUCT

CONCLUSION

A smart bracelet is a tool that can detect the motion of the perpetrator. Quick access was a top priority when creating this smart bracelet. With the help of information technology (IT), users can signal those closest to them to help if an unwanted situation occurs. The process used to design a smart bracelet makes use of a sound sensor and a light sensor. The operational Global Positioning System (GPS) system is another technique that is also used. Users only need to press the emergency button on the smart bracelet for three seconds to start emitting a sound that will attract the attention of others and make them come to help. In addition, emergency contacts linked to the wristband can receive location updates via the wristband.

Our Team:
Galuh Amanda Oktafia | Nurul Izza | Asyraf Aulia | Muhammad Fhadil Fadli


ARCHITECTURE
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BEAUTY
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& AUTOMOTIVE
ENGINEERING
INFORMATION
TECHNOLOGY
TEACHING &
LEARNING

TEACHING & LEARNING

Category

06

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

I-PROGRAMMING

Arif Anafi bin Mohd Rizam[1,*], Farah Wahida binti Ahmad Faizu[2], Muhammad Khairul Iman bin Badrin[3] and Nur Dalila binti Abdullah[4]

[1 2 3 4] Department of Information Technology and Communication, Politeknik Muadzam Shah, Pahang, Malaysia

Abstract.

Most common Malaysians are almost entirely unaware of the new concept of Computational Thinking, especially students new to the subject of Computer Science. The findings showed that 92% of the respondents did not know the computational thinking skill, signifying an urgent need to determine relevant components that characterize such a skill needed in educational programs, which according to Wing (2006), has numerous components. I-Programming is an e-Learning website with the concept of gamification. This project aims to expose students to the world of programming, which is Web Programming, to help them in their Sijil Pelajaran Tinggi (SPM) coursework for Computer Science subjects and pass the exam with flying colors. It can help students to identify the relevant components that characterize the computational thinking skills that students need in the study of Computer Science with concept programming with learning through play. I-Programming was developed using Atom software and a few languages such as HTML, CSS, JavaScript, and PHP. Additionally, for database development, it uses the phpMyAdmin platform in XAMPP. It guarantees the security of data is not lost and can be stored permanently in the database system. Using the agile model method in this project, customers remain involved in the development process and can request changes depending on market realities. Since Agile is an iterative process, self-organizing teams continue to learn, grow, and improve over time. Overall, i-Programming is an e-Learning web with a gamification concept that is efficient, engaging, user-friendly, and accurate e-Learning web to store and record relevant user data.

Keywords: i-programming, e-learning

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
POLITEKNIK MALAYSIA PORT DICKSON
PERSATUAN TEKNOLOGI MALAYSIA

RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

Product ID : RESPEX23-004
Title Category : TEACHING AND LEARNING
Institution : POLITEKNIK MUADZAM SHAH

TEAMS NAME :
1) ARIF ANAFI BIN MOHD RIZAM
2) FARAH WAHIDA BINTI AHMAD FAIZU
3) MUHAMMAD KHAIRUL IMAN BIN BADRIN
4) NUR DALILA BINTI ABDULLAH

BACKGROUND

I-Programming is an e-learning website focusing on HTML language which is the language to build a website. This website apply the gamification concept to aid the students in fun learning environment. It consists of three (3) modules which are i-note, i-play and i-quiz.

PROBLEM STATEMENT

1. The students have not been exposed to the world of programming from the beginning.
2. Student's lack of knowledge of programming concepts.
3. The uncreative and outdated learning methods or styles.

OBJECTIVE

1. To create an i-play module to test student's knowledge in conceptual programming.
2. To provide references to the students through i-note module.

INNOVATION HIGHLIGHT

- MYIPO : LY2023M01840

COMMERCIAL VALUE

- Collaboration with Sekolah Menengah Kebangsaan Muadzam Shah

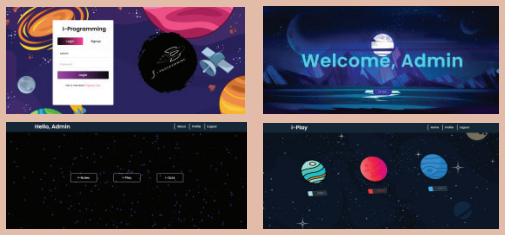
METHODOLOGY

- **Requirement Analysis** - Problem and solution
- **Design** - Collect information
- **Development** - HTML, PHP MySQL
- **Testing** - Detect error
- **Implementation** – Applied in SMK Muadzam Shah
- **Maintenance** - Any problems in the system

CONCLUSION

I-Programming gives the opportunity for the students to expose the fun in learning programming especially for HTML language. It helps them in Sijil Pelajaran Malaysia(SPM) for computer science course and hoping that they can pass the exam with flying colors. I-play offer to test their knowledge based on the questions given. The programming editor can shows the output based on the programming written in the editor.

DIAGRAM/PICTURE



RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

GREENYCT ECOGAME: AN INTERACTIVE BOARD GAME FOR TEACHING ENVIRONMENT QUALITY AND POLLUTION CONTROL SUBJECT WITH ADAPTATION OF KITARECYCLE.

Anis Sakinah binti Zainal Abidin[1,*], Nor Azrin binti Ahmad Kurnin [1] and Azini Amiza binti Hashim[1], Nur Syafiqah binti Mohd Sakri[1], Nur Farisha binti Mohd Fairus[1]

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Abstract.

In the field of education, innovative approaches are constantly being sought to engage students effectively and enhance their understanding of complex subjects. This study focuses on the development of a board game as a teaching aid for the subject of Environment Quality and Pollution Control, targeting semester 4 students pursuing a Diploma in Chemical Engineering. The objective is to create an interactive learning tool that surpasses traditional teaching methods, fostering student engagement and raising awareness about environmental issues. Inspired by the popular Monopoly game, the board game has been modified to align with the content of Environment Quality and Pollution Control. Two main components of the board game are the "Wisepedia" and the "Community Buzz". The Wisepedia feature of the game challenges students' understanding of the subject matter by testing their knowledge through a series of questions. This component encourages students to actively participate in the learning process while reinforcing their comprehension of environmental subjects' knowledge. The Community Buzz aspect of the board game aims to create awareness and concern about environmental issues among the students. Furthermore, the Community Buzz integrates the KITARecycle program initiated by SWM Environment Sdn. Bhd., encouraging students to embrace recycling practices and contribute to environmental preservation. To evaluate the effectiveness of the board game as a teaching aid, a survey was conducted among the target student group. The results indicated a high level of acceptance and positive feedback regarding the board game's utilization in the classroom. Students appreciated the interactive and engaging nature of the game during learning process. Additionally, the survey results demonstrated a significant increase in the students' awareness and knowledge of the KITARecycle program. This shows that the development of an interactive board game for teaching Environment Quality and Pollution Control has proven to be an effective and well-received approach among semester 4 students in the Diploma of Chemical Engineering program.

Keywords: Teaching aid, board game, environmental awareness, KITARecycle

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

GREENYCT ECOGAME: AN INTERACTIVE BOARD GAME FOR TEACHING ENVIRONMENT QUALITY AND POLLUTION CONTROL SUBJECT WITH ADAPTATION OF KITARECYCLE

Dr. Anis Sakinah binti Zainal Abidin (Leader), Nor Azrin binti Ahmad Kurnin , Azini Amiza binti Hashim, Nur Syafiqah binti Mohd Sakri and Nur Farisha binti Mohd Fairus
POLITEKNIK TUN SYED NASIR SYED ISMAIL

BACKGROUND

GreenyCT Ecogame is a teaching aid for Environment Quality and Pollution Control subject in Diploma of Chemical Engineering at Politeknik Tun Syed Nasir Syed Ismail. Drawing inspiration from Monopoly, GreenyCT Ecogame has been thoughtfully modified to align with the content of this subject. Two key components, namely "Wisepedia" and "Community Buzz," have been incorporated to enhance the learning experience. It also integrates the KITARecycle program, initiated by SWM Environment Sdn. Bhd.

OBJECTIVE

1) To develop an interactive learning tools tailored to the subject of Environment Quality and Pollution Control.
2) To integrate real-world environmental awareness programs such as KITARecycle into the learning tools.
3) To evaluate the student's acceptance of the board game as an interactive learning tools and student's awareness towards KITARecycle programme.

COMMERCIAL VALUE/APPLICATION

- ❑ Applicati o n in Environmental Quality and Pollution Control subject (DGC40083) reinforcing the student's comprehension of subject.
- ❑ Encouraging students to embrace recycling practices and contribute to environmental preservation through KITARecycle programme.

DIAGRAM

PROBLEM STATEMENT

Traditional teaching methods (chalk and talk) currently employed in the subject have proven to be ineffective in capturing students' interest.

The absence of interactive learning tools limits in the subject's theoretical content and inhibits student exploration on critical environmental issues (Chen, *et al.*, 2021).

Students have limited exposure to real-world environmental awareness programs such as KITARecycle, which hampers their understanding and role on mitigating environmental degradation.

METHODOLOGY

DESIGN OF THE GAME	IMPLEMENTATION	SURVEY	RESULT
-Game instruction -Boardgame -Ownership cards for each properties and facilities -30 Wisepedia cards -30 Community Buzz	Students of Environment Quality and Pollution Control (DGC 40083)	Survey before and after the implementation on: - Acceptance of students regarding lecturer's teaching methods in the classroom - Level of students' awareness on KITARecycle	Result analysis

INNOVATION HIGHLIGHT

- ❑ Integration of content knowledge from Environment Quality and Pollution Control subject (DGC40083) in Wisepedia card.
- ❑ Incorporation with KITARecycle program launched by SWM Environment Sdn. Bhd.

CONCLUSION

By implementing GreenyCT Ecogame as an innovative teaching approaches, educators could foster a more stimulating and engaging learning environment. This innovation contributes to the advancement of effective teaching practices in the field of environmental education.

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MIKRAJ
(Israk Mikraj Education Board Game)

Ts. Wida Yanti binti Mohammad Zen Umar[1], Mohamad Faizal bin Ahmat [2] dan Mohamad Shahrin bin L Bari[3]

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Abstrak

Israk Mikraj Education Board Game atau dikenali sebagai MIKRAJ, merupakan sebuah permainan didik hibur bagi memperingati peristiwa agung Rasulullah ﷺ ketika peristiwa Israk Mikraj dari Masjidil Haram ke Masjidil Aqsa dan seterusnya ke Sidratul Muntaha. Peristiwa ini adalah sebahagian daripada silibus yang digunakan di dalam Kursus Pengajian Islam yang dipelajari di Institusi Pengajian Tinggi dan peringkat sekolah. Namun peristiwa sirah ini kurang mendapat perhatian khusus kerana pensyarah dan guru terikat dengan buku teks serta disampaikan dalam bentuk lisan sahaja. Justeru, satu inovasi didik hibur sebagai alat bantu mengajar yang menarik telah dibangunkan, yang mana peristiwa Israk dan Mikraj diaplikasikan dalam perisian elektronik dan papan permainan. Objektif inovasi ini adalah untuk meningkatkan tahap kefahaman dan penglibatan pelajar melalui kerja berpasukan, toleransi dan interaksi. Inovasi ini dibangunkan melalui tiga fasa iaitu fasa mereka bentuk, fasa pembangunan produk dan fasa penilaian keberkesanan produk. Rekabentuk produk adalah berdasarkan model *Games Based Learning*, manakala pada fasa pembangunan, papan permainan berkonsep didik hibur dengan bahan sokongan kad dihasilkan serta permainan aplikasi elektronik yang boleh diakses menggunakan telefon pintar. Pembangunan MIKRAJ telah memberi impak yang tinggi dalam Pendidikan kerana berjaya menjadi alat pengajaran yang menyokong pembelajaran berpusatkan pelajar, dengan 100% (kolaboratif) penglibatan pelajar dalam sesi pembelajaran, dan semua komponen berkaitan komunikasi telah disepadukan di dalam MIKRAJ.

Kata kunci: permainan didik hibur, alat bantu mengajar, Israk Mikraj, telefon pintar

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ISRAK MIKRAJ EDUCATION BOARD GAME

Ts. Wida Yanti binti Mohammad Zen Umar | Mohamad Faizal bin Ahmat | Mohamad Shahrin bin L Bari
POLITEKNIK KUCHING SARAWAK

PENGENALAN

MIKRAJ merupakan permainan memperingati peristiwa agung Rasulullah ﷺ ketika peristiwa Israk Mikraj dari Masjidil Haram ke Masjidil Aqsa dan seterusnya ke Sidratul Muntaha. Inovasi ini berciri **permainan didik hibur Islamik yang menyokong pembelajaran abad ke-21.**

PERNYATAAN MASALAH

Pensyarah/Guru menghadapi **masalah untuk mendapatkan perhatian dan penglibatan penuh pelajar** bagi pengajaran agama yang bersifat teori kerana pensyarah dan guru **bergantung kepada buku teks dan hanya boleh menyampaikan maklumat secara lisan**.

OBJEKTIF

Membina alat bantu mengajar (ABM) berciri didik hibur yang menyokong **Pembelajaran Berpusatkan Pelajar dengan penglibatan 100% pelajar**.

KEISTIMEWAAN INOVASI

- ✓ **Papan permainan didik hibur Islamik pertama** yang dicipta adaptasi daripada kitab-kitab muktabar yang digunakan sebagai ABM di dalam kelas.
- ✓ 3 dalam 1 – Ibrah, Uji Minda, Amali solat

NILAI KOMERSIAL

- Hak Cipta Terpelihara: **AR2022W06613** MyIPO
- **Telah diiktiraf oleh Jabatan Mufti Sarawak**
- **Dwi bahasa** – potensi pasaran antarabangsa
- Permainan didik hibur – sesuai dimainkan bersama keluarga (**1 keluarga, 1 MIKRAJ**)
- **Aplikasi telefon pintar** – canggih dan interaktif
- **Mendapat liputan media massa** – perkongsian lebih luas dan potensi pasaran tinggi.

METODOLOGI

MIKRAJ dibangunkan melalui tiga fasa iaitu **fasa mereka bentuk, fasa pembangunan produk** dan **fasa penilaian keberkesanan produk**. Reka bentuk produk dibina berdasarkan model **Game-based Learning** .

KESIMPULAN

Inovasi MIKRAJ memberi **impak yang tinggi dalam pendidikan** kerana menjadi medium pembelajaran abad ke-21 yang menekankan **penglibatan 100% pelajar (kolaboratif) dan mengintegrasikan semua kemahiran komunikasi** dalam sesi pembelajaran.

GAMBAR PRODUK

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Regional Educators, Students Product's Exhibition

A STUDY ON THE USE OF RICE HUSKS AND COCONUT SHELLS TO MAKE PARTICLE BOARD

Siti Noraain Binti Harun[1], Mohamad Hishammuddin Bin Mat Alwi[2] Muhammad Harith Bin Mohd Sukri[3] and Muhammad Irfan Aqmar Bin Hakim[4]

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Abstract.

Medium Density Fiberboard (MDF) has become one of the primary composite materials for panels used in the furniture, construction, and packaging industries. Fiberboard is a product made from crushed wood-based residues mixed with binding agents. The continuous demand for wood-based construction materials has had a negative impact on the sustainability of forest resources. Ongoing efforts are being made to find new sources to replace wood. In this regard, studies on the use of agricultural waste in the production of particle boards have become increasingly popular. Therefore, research on the use of coconut shell and rice husks has been conducted. Both of these agricultural wastes have the potential to be alternatives to wood because they have several important properties such as good thermal and acoustic insulation, low density, and they are cheaper than wood. Furthermore, they have not been fully utilized yet. They also have the potential to be used as raw materials in particle board manufacturing. The main objective of this study is to produce particle boards using coconut husks and rice husks and to identify the physical characteristics of the resulting boards. In this study, samples ranging from approximately 5 mm to 2 mm were used. Three experiments were conducted using three different samples. The first test used a sample consisting of 50% coconut shell and 50% rice husks, the second sample used 60% coconut shell and 40% rice husks, and the third sample used 70% coconut shell and 30% rice husks for particle board production. These samples were subjected to bending tests, water absorption tests, swelling thickness test and fire resistance tests to determine several mechanical and physical properties. Overall, the particle boards produced from the mixture of coconut shell and rice husks showed superior performance compared to Medium Density Fiberboard (MDF). They exhibited better durability, water resistance, flexibility, and fire resistance than MDF. For future improvements and further research, different percentages and other agricultural wastes can be utilized.

Keywords: Medium Density Fiberboard (MDF), coconut shell, rice husks, bending tests, water absorption tests, swelling thickness test, fire resistance tests.

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

POLITEKNIK MALAYSIA
PORT DICKSON

SUPERVISOR NAME : MRS. SITI NORAAIN BINTI HARUN

MOHAMAD HISHAMMUDDIN BIN MAT ALWI (06DKA20F2007)
MUHAMMAD HARITH BIN MOHD SUKRI (06DKA20F2004)
MUHAMMAD IRFAN AQMAR BIN HAKIM (06DKA20F2029)

A STUDY ON THE USE OF RICE HUSKS AND COCONUT SHELLS TO MAKE PARTICLE BOARD

INTRODUCTION

- Medium Density Fibreboard (MDF). MDF is widely used in the industry for making kitchen items, bedroom furniture from the aspect of construction components such as mouldings, carved edges, kambi boards, window frames and flooring materials. Among the identified problems is the process of using it against the environment or known to be environmentally friendly.
- Agricultural waste containing lignocellulosic material can be used as a substitute for natural wood if it has suitable fibre quality. Lignocellulose consists of three main structural components namely; cellulose, hemicellulose and lignin, which form the structural support system

PROBLEM STATEMENT

- Agricultural waste containing lignocellulosic material can be used as a substitute for natural wood if it has suitable fibre quality.
- When the mechanical properties of MDF change, it is categorized as damaged and cannot be used because of its changed and weakened properties when exposed to water.
- The problem of lack of wood as a raw material to make particle board is faced by the industry today. This is because the high demand for wood causes widespread deforestation and this can cause natural oxygen to decrease.

OBJECTIVE

1. Producing particle board using coconut shells and rice husks.
2. Identify the physical characteristics of coconut shell particle board and rice husk through:

- Bending Test
- Fire Resistance Test
- Water absorption Test
- Swelling Thickness Test

METHODOLOGY

1.RAW MATERIAL PREPARATION
2.CHIPPING AND FLAKING
3.DRYING AND SCREENING
4.ADDING RESIN
5.FORMING AND PREPRESSING
6.HOT PRESSING TO REQUIRED THICKNESS
7.COOLING AND SIZING
8. RESULT

ANALYSIS DATA

Bending Test

Coconut Shell	Rice Husk	Max Load
50%	50%	15 kg
60%	40%	16 kg
70%	30%	18 kg
MDF		17 kg

Fire Resistance Test

Coconut Shell	Rice Husk	Fire Burn (1s-30s)
50%	50%	26s
60%	40%	29s
70%	30%	32s
MDF		16s

Water Observation Test

Coconut Shell	Rice Husk	Water Absorption (%) (6hours)
50%	50%	28%
60%	40%	38%
70%	30%	27%
MDF		20%

Swelling Thickness Test

Coconut Shell	Rice Husk	Swelling Thickness (%) (6hours)
50%	50%	8%
60%	40%	0%
70%	30%	1%
MDF		11%

CONCLUSION

Particleboard based on a mixture of coconut shell and rice husk can be used as an alternative material for the production of fiberboard because it has properties of durability, strength against fire resistance, and higher strength than MDF board. In addition, the water absorption of coconut shell and rice husk mixed board is also lower than MDF board. In addition, the production of boards based on waste materials such as coconut shells and rice husks can reduce environmental pollution and reduce the use of wood in the construction industry

DIAGRAM/PICTURE

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Regional Educators, Students Product's Exhibition

TaskMinder: Your Personal Assignment Assistant - A Comprehensive Workload Management App

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Abstract.

In the fast-paced worlds of academia and the workplace, effective management of multiple duties and assignments is crucial for productivity and success. Traditional methods, such as post-it notes and disorganised to-do lists, frequently result in disorganisation, missed deadlines, and increased tension. TaskMinder: Your Personal Assignment Assistant was developed as a comprehensive app to optimise workload management and increase productivity in response to these obstacles. In the absence of an effective and centralised task management system, it is difficult for students and professionals to effectively organise their responsibilities, prioritise tasks, and meet deadlines. In addition, limited tools and platforms frequently hinder collaboration and communication between team members on group initiatives. This study's objective is to introduce TaskMinder, a robust app that addresses the aforementioned challenges by providing a centralised platform for task management, efficient collaboration, and opportune reminders. Methodology involved a comprehensive analysis of existing task management tools and platforms in the development of TaskMinder. Surveys and interviews were used to collect user feedback and requirements to ensure that the app meets the needs and preferences of its intended users. Following an iterative development process that incorporated user feedback and usability testing, the app's interface and features were refined. TaskMinder provides an intuitive interface that enables users to create, prioritise, and manage assignments from a single location. The application provides graphical representations of progress, enables the monitoring of key milestones, and enables users to designate completed tasks, fostering a sense of accomplishment. Smart notifications and reminders assist users in keeping track of crucial dates, thereby decreasing the likelihood of missed deadlines and last-minute anxiety. Through in-app communication, file sharing, and task delegation, the integrated collaboration features promote efficient cooperation. TaskMinder differentiates itself by combining comprehensive workload management features with a user-friendly interface and effective collaboration tools. The app's comprehensive design accommodates both individual users and teams, fostering productivity and facilitating seamless task coordination. TaskMinder: Your Personal Assignment Assistant provides a practical and efficient solution to the difficulties of effectively managing duties. By providing a centralised platform for task management, progress monitoring, and collaboration, the application increases productivity, reduces stress, and enhances the overall efficiency of task

HOSPITALITY

Category

07

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Regional Educators, Students Product's Exhibition

SOYBEAN PULP INSTANT NOODLE

Nurul Fasihah Razak[1*], Naqiuddin Syahmi Sazali[1], Nurul Nabihah Khairul Salleh[1] and Noremylia Zulkernaen[1]

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Abstract.

Soybean pulp instant noodles are instant noodles that are made from soybean pulp waste, or okara. This instant noodle is a better product modification when comparing to other instant noodles on the market. This is due to the fact that most instant noodles are known to be low in calories, fibre, and protein; besides, they also contain high fat content, carbohydrates, and sodium. However, there are various nutrients found in soybean pulp, such as high fibre, protein, and vitamins which may be beneficial. Although instant noodles are internationally recognized food that has many advantages especially its convenience characteristic such as their quick preparation (three to five minutes) and ready to be eaten, their consumption is still limited because of their reputation as an unhealthy food. Therefore, the purpose of producing this product is to evaluate the potential of soybean pulp as an healthier instant noodle and to reduce wastage or disposal of soybean pulp that could become a problem in environmental pollution as the production of soybean products increase throughout the world. Three different formulations have been made, and sensory evaluation analysis was used to determine the potential of a new marketable soybean pulp waste to the wealth product. Sensory data revealed that the majority of panelists agreed that formulation 2 (F2) is better in terms of colour, shape, and aftertaste compared to formulation 1 (F1) and formulation 3 (F3), respectively. As a result, introducing the soybean pulp in instant noodles will aid in introducing the soybean pulp potential application in food industry and might help elevate instant noodle as a healthier product and make them more palatable, valuable, marketable, and acceptable.

Keywords: Instant Noodle, Soybean Pulp, Okara, Waste, Sensory Evaluation

RESPEX 8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

Nurul Fasihah Razak[1*], Naqiuddin Syahmi Sazali[1], Nurul Nabihah Khairul Salleh[1] and Noremylia Zulkernaen[1]

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SOYBEAN PULP INSTANT NOODLE

INTRODUCTION

Instant noodles that made from soybean pulp were innovated and inspired by instant noodles that already in the market. This innovation was using soybean pulp waste to enhance the nutritional content of the conventional instant noodles that made from wheat flour. Soybean pulp or okara is by-product generated during tofu or soymilk production processes. This waste have been a serious disposal issues especially in Asian countries with high soybean consumption. Therefore, this innovation helps to changes these waste to health product by evaluate the potential of the soybean pulp waste in the food systems.

OBJECTIVE

1. To innovate and produced instant noodle which are made from soybean pulp waste.
2. To determine the best formulation of soybean pulp instant noodle by sensory evaluation and evaluate the potential of these product in food industries.
3. To avoid high-rate wastage for soybean production in Malaysia.

PROBLEM STATEMENT

- Lack of good nutritional value in conventional instant noodles such as fiber, protein, minerals and vitamins(S. Jennifer, 2021).
- Soybean pulp waste have been globally serious disposal issues (Starling, 2011).
- High nutrition value in soybeans are not fully utilized and only used for animal feeds.

COMMERCIAL VALUE

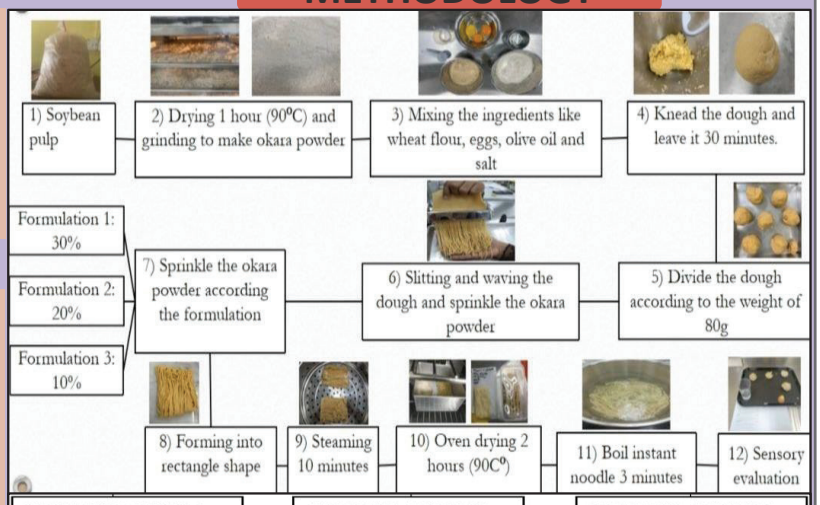
- Reasonable and affordable price which Is RM7.90 for 1pack/5pieces
- Provides amazing instant noodles that are high in fiber and protein based on okara
- It can prevent obesity and cholesterol because it has fiber, protein and also used drying method to make our product healthier

INNOVATION HIGHLIGHT

1. Developing the best formulation to produce the soybean pulp instant noodle.
2. Developing the best methods to incorporated the soy bean pulp powder in instant noodle.
3. Reduced the disposal problem by soybean product.
4. Turned the soybean pulp waste into nutritious and tasty food product.

DIAGRAM/PICTURE

METHODOLOGY



FORMULATION 1	FORMULATION 2	FORMULATION 3
-Okara powder (30%)	-Okara powder (20%)	-Okara powder (10%)
-Wheat flour (55%)	-Wheat flour (65%)	-Wheat flour (75%)
-Eggs (9%)	-Eggs (9%)	-Eggs (9%)
-Water (5%)	-Water (5%)	-Water (5%)
-Olive oil (0.9%)	-Olive oil (0.9%)	-Olive oil (0.9%)
-Salt (0.1%)	-Salt (0.1%)	-Salt (0.1%)

CONCLUSION

The majority of panelist agreed that F2 are better in terms of color, shape and aftertaste compared to F1, F3. A total of 30 panelists chose F3 as their preferred hardness rating over F1 and F2. In contrast to F2 and F3, F1 is more in demand from the panel in terms of elasticity. However overall acceptability, the majority of the panel agreed the formulation 2 is the best formulation compared to F1 and F3 due to the hardness and elasticity of the noodles was still acceptable. The weakness of F1 and F3 probably due to the aftertaste that perceives by panelist after consuming make it unacceptable.

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Regional Educators, Students Product's Exhibition

THE PRODUCTION OF ANIMAL FEED SUPPLEMENT USING EXTRACTED OIL FROM CATFISH WASTE AND VEGETABLE WASTE

Nurul Asmawanie Binti Ramli[1,*], Athira Najwa Binti Mohd Suhud [2], Fifie Suriani [3] and Nur Shazliyana Binti Duris[4]

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*Nurul Asmawanie Binti Ramli

Abstract.

Global poultry, fisheries and agricultural supply has increased significantly and is expected to exceed 200 million tonnes by 2030. This increased demand has resulted in a significant volume of food by-products and waste which is around 20% to 50% per year. If this waste is dumped in landfills, it will generate methane gas, one of the greenhouse gases, contributing to global warming. These by-products can be used as a supplement in the animal diet because they are a good source of protein, minerals, and vitamins. This study aims to produce animal feed supplements from catfish waste oil and vegetable waste. Catfish oil is extracted from catfish waste by using soxhlet extraction method and mixed with vegetable waste to produce the animal feed supplement. The fish oil extracted from fish waste is very useful as a feed supplement for animals, as the fish oil is known riches in omega-3 fatty acids, Eicosapentaenoic Acid (EPA), and Docosahexaenoic Acid (DHA). The nutritional value, pH and moisture content of the animal feed supplement produced is analyzed to compare the product produced with commercial animal feed supplement. The finding reveals that the pH, moisture content, and nutritional value such as crude fat, protein, vitamin, mineral and carbohydrate of this formulated animal feed supplement are not significantly different ($p<0.05$) compared to commercial animal feed supplements and can be alternative animal feed supplement in the market.

Keywords: Catfish waste, animal feed supplement, vegetable waste

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

PRODUCT PICTURE

PRODUCT ID : Respex23-007

TITLE : THE PRODUCTION OF ANIMAL FEED SUPPLEMENT USING EXTRACTED OIL FROM CATFISH WASTE AND VEGETABLE WASTE

TEAM MEMBERS:
NURUL ASMAWANIE BINTI RAMLI
ATHIRA NAJWA BINTI MOHD SUHUD
FIFIE SURIANI
NUR SHAZLIYANA BINTI DURIS
POLITEKNIK TUN SYED NASIR

BACKGROUND

As the world's population has grown, it increase the demand for poultry, which has led to a lack of poultry supplies. Animal feed additives are used to preserve health and encourage the growth of poultry. Catfish oil from catfish waste combined with vegetable waste, eggshell, soy lecithin, and starh is used to make organic animal feed supplements. Protein, minerals, and vitamins can be found in vegetable waste (Rajeh et.al.,2021), and the omega-3 fatty acid Eicosapenteanoic acid (EPA) and Docosahexaenoic acid (DHA) can be found in fish oil (Alfio et. al., 2021) To enhance the product's texture, soy lecithin and starch are added, while eggshell is added as a calcium source to boost bone density and promote growth.

PROBLEM STATEMENT

- The shortage of poultry supply due to increase of human population.
- Waste of resources: This waste contains high nutrients which can transform into value-added product.
- Odor pollution caused by fish waste.

OBJECTIVE

- To extract oil from catfish waste.
- To produce animal feed supplement using vegetables waste and extracted oil from catfish waste.
- To study the nutrional value of formulated animal feed supplement.

METHODOLOGY

INNOVATION HIGHLIGHT

- Animal feed supplement was produced from catfish waste oil and vegetable waste. Catfish oil is extacted from catfish waste by using soxhlet extraction method.
- The oil yield, pH value, Moisture content and Nutrional value of formulated animal feed supplement from extracted catfish oil and vegetable waste are calculated and analyzed.

COMMERCIAL VALUE

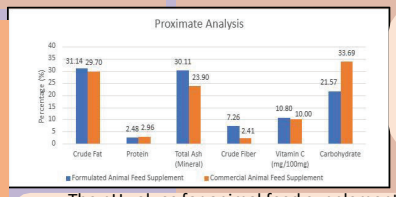
- The target market for this product is farmers who have livestock such as chickens, cows and goats.
- The commercial value for this product is RM15.00 300g/pack.
- Catfish is an expensive fish, hence it is replaced by using catfish waste and vegetable waste as alternative ingredients.
- The supplement is an alternative animal supplement on the market.

FORMULATIONS

INGREDIENTS	FORMULATION
Vegetable Waste Powder	57%
Egg Shell Powder	10%
Fish Oil	7%
Starch	15%
Soy Lecithin	5%
Distilled Water	6%
TOTAL	100%

RESULT

OIL YIELD PRODUCTION : 65.33%

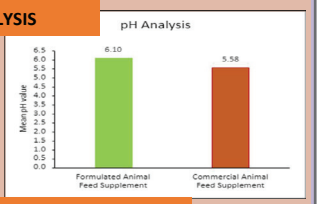


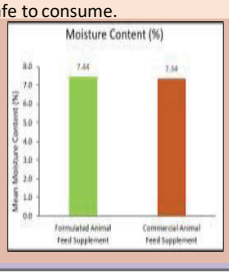
PROXIMATE ANALYSIS

- Crude fat, total ash (mineral content), crude fiber and vitamin C is higher compared to commercial animal feed supplement.
- This nutrition may help to boost the growth of poultry.

pH ANALYSIS

- The pH values for animal feed supplements are from 6 to 7 (Cox et. al., 2013).
- The pH value for formulated animal feed supplement is nearest to neutral pH which indicates it is safe to consume.





MOISTURE CONTENT

There is no significant difference between the moisture content(%) value for both animal feed supplements.
Low moisture content is important to reduce microbial growth and increase the supplement's shelf life.

CONCLUSION

In conclusion, organic animal feed supplement was successfully produced by using extracted oil from catfish waste and vegetable waste. The finding reveals that the pH, moisture content, nutritional value such as crude fat, protein, vitamin, mineral and carbohydrate of this formulated animal feed supplement is comparable to commercial animal feed supplement. In addition, the production of this new formulation of feed supplement may reduces the cost of animal feed supplement production and increase the growth of the poultry. The results show this product can be an alternative animal feed supplement in the market and the ingredients are organic and easy to obtain.

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Regional Educators, Students Product's Exhibition

FROZEN NON-DAIRY KEFIR WITH SNAKE FRUIT LEATHER

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Abstract.

Nowadays, the statistics of people who suffer from digestive problems are increasing dramatically, as it indicates the Malaysians are not taking their digestive health seriously and almost 90 percent of children assessed in a new Malaysian study have been found suffer from either lactose intolerance or lactose malabsorption. Kefir is a fermented dairy product that produced by a mixture of lactic acid bacteria, acetic acid bacteria, and yeast normally. It is believed as a good medium for probiotic organisms that may help in reducing some digestive problems. On the other hand, coconut is classified as a highly nutritious functional food, due to it providing many health benefits beyond its nutritional content. The fatty acid component of coconut consists of lauric acid, a component which is otherwise present only in mother's milk and known to have lot of health benefits. Snake fruit which is also known as *salak* owing to its richness in antioxidants, phenolics, vitamins and minerals. However, despite wide variety of health benefits, snake fruit is still underutilized and unknown to the global market. In fact, the perishability of snake fruit due to higher moisture content also may cause problems to the food industries. Thus, considering the potential of these valuable fruits and fermented foods, maximize the utilization of the coconut milk and snake fruit approaches as main ingredients in kefir, was the best opportunity for us to innovate the fermented products that suit with global market trends and demand. In this study, the coconut milk was used as the alternative to dairy and its undergoes lactic acid fermentation under controlled conditions for production of kefir. Whereas, the perishability of snake fruit was managed by converting it into fruit leather and as an addition to the coconut milk kefir. Three formulations were involved which are 50:50, 60:40, 70:30 ratios of coconut milk with snake fruit puree. From the hedonic and scoring test methods, results showed that the second formulation with 60:40 of coconut milk and snake fruit puree exhibits the best characteristics in terms of flavour, sourness, and overall acceptability. This innovative product provides a viable alternative to dairy products for consumers who are lactose intolerant, allowing them to enjoy the wide diversity of attributes' uniqueness from coconut milk and snake fruit. With the growing awareness of lactose intolerance, this lactose-free product has high potential commercial values to be market with affordable and reasonable price.

Keywords: Non-dairy kefir, Coconut milk, Lactose intolerant, Snake fruit, Fruit leather

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

FROZEN NON-DAIRY KEFIR WITH SNAKE FRUIT LEATHER

NABILLA HUDA BINTI BAHARUDDIN, HARINEE A/P DEVARAJ, SYAZA FARHANIM BINTI HAMRAN, KHAIRIN ISYRAQ BIN KAMARUL ZAMAN
POLITEKNIK TUN SYED NASIR SYED ISMAIL
Respex23-023/ HOSPITALITY

BACKGROUND

- The fermented foods & beverages market is projected to grow at a CAGR of 6.35% during the forecast period (2022-2027).
- The increasing prevalence of health problems among the growing population and rising trend of people towards plant-based diets is anticipated to boost the market demand for fermented foods (Mordor, 2021).
- **Kefir** is a fermented food that are considered a very good source of probiotics (Mantzourani et at., 2019)
- **Coconut milk** is classified as a highly nutritious functional food. The fatty acid component of coconut consists of lauric acid, a component which is otherwise present only in mother's milk and known to have lot of health benefits (Ismul & Joserizal, 2021)
- **Snake fruit** is underutilized exotic fruit that proven as a good source of vitamins, minerals, dietary fiber, and bioactive compounds with antioxidant activities (Hiasinta et al., 2020)
- Considering the potential of these valuable fruits and fermented foods, maximize the utilization of the coconut milk and snake fruit approaches as main ingredients in kefir, is the best opportunity for us to innovate the fermented products that suit with global market trends and demand.

PROBLEM STATEMENTS

- Almost 90 % of children assessed in a new Malaysian study have been found suffer from either lactose intolerance or lactose malabsorption (Tingmin, 2022).
- The statistics of people who suffer from digestive problems are increasing dramatically, as it indicate the Malaysians are not taking their digestive health seriously (Anisa, 2018)
- Limited and underutilized of indigenous local fruit (snake fruit) although it proven have positive health benefits impacts and nutrient dense (Purabi et al., 2019)
- Perishability of snake fruit and shorter shelf life due to higher moisture content (Widayanti et al., 2021)

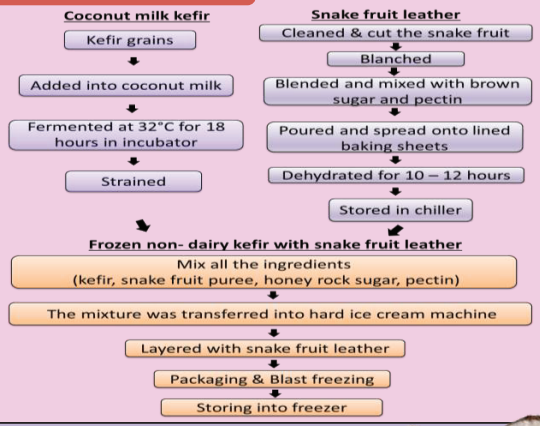
INNOVATION HIGHLIGHTS

- Suitable for all ages target groups including those who are suffered lactose intolerance and gut problems.
- Introduction of highly beneficial plant-based milk (coconut milk) and underutilized exotic local fruit as main ingredients.
- Converting perishable exotic snake fruit to fruit leather to extend the shelf life
- Proven as a good sources of probiotics to consumers
- Introduction of diversity and unique taste, flavour and texture of frozen fermented food products with chewy fruit leather
- Towards food sustainability and green technology supports

OBJECTIVES

- To provide one of the alternative food approaches for lactose intolerance consumers.
- To produce nutrient-dense of fermented foods that are suitable for people who are suffered nutritional deficiency and digestive problems.
- To maximize the utilization of indigenous and underutilized exotic local fruit and coconut milk.
- To manage perishability and prolong the shelf life of snake fruit

METHODOLOGY



COMMERCIAL VALUES

- Reasonable and affordable price which is RM 4.20 for 180g per cup.
- Convenience ready to eat product.
- Plant based non-dairy alternatives to lactose intolerance person
- Suitable for consumers that have nutritional deficiency and digestive problems
- Introducing and promoting exotic local fruit and coconut milk to the foreign consumers and countries.

PICTURES RELATED

CONCLUSION

SNAKEFIR has high potential to be commercialized and marketed to local and foreign consumers. It also provides a viable alternative to dairy products for consumers who are lactose intolerant and gut problems, allowing them to enjoy the wide diversity of attributes' uniqueness from nutritious coconut milk and underutilized snake fruit.This innovative product has registered copyright under MyIPO.

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Regional Educators, Students Product's Exhibition

PEA EGGPLANT DUMPLINGS

Nur Nadiah Binti Nasri[1,*], Nur Izzati Izzah Binti Abdullah Othman[2] Camisha Ranny A/P Robert[3] and Dina Izzaty binti Moohyiddin[4]

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Abstract.

Snacks have gained popularity among people over the past few years. Because of this, pea eggplant has been employed in this study to generate an innovation in snack product. Pea eggplant has high nutritional value including calcium, phosphorus, and iron. Due to its nature of high water content, the researchers had dried the pea eggplant into powdered forms to increase its shelf life and can easily be incorporated into the dough of the dumpling skin. In this study, all the dumpling skin had same formulation which is 90% of wheat flour and 10% of pea eggplant flour. The manipulated variables in this study was the fillings of the dumplings. The fillings had been formulated into three different formulations whereby the ration of pea eggplant and dhal beans had differed. Formulation 1 had ratio of 70:30 of pea eggplant and dhal beans, while Formulation 2 had 60:30 and Formulation 3 had 50:50. Dhal beans were used in the fillings to provide better texture and mouthfeel. Approximate 5g of fillings were shaped on dumpling skin and brought to baking process until half-cooked. The products were then freezed by using blast freezer and were packed in a tray packaging. All formulations were analysed by sensory testing. Formulation 1 has the highest and significant difference in terms of taste, color, texture, and eggplant out of the three formulations created. The results were tabulated in a table and spider web to highlight the consumer preferences. Most consumers had preffered the formulation 1 because it had attractively possesed a unique earthy taste and flavour.

Keywords: pea eggplant, dumplings, frozen product, dhal beans, food innovation

NUR IZZATI IZZAH BT ABDULLAH OTHMAN
CAMISHA RANNY A/P ROBERT
NUR NADIAH BT NASRI
DINA IZZATY BT MOOHYIDDIN

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POLITEKNIK MALAYSIA TUN SYED NASIR
Respex23-024

PEA EGGPLANT DUMPLING

BACKGROUND

- Frozen Pea Eggplant Dumplings is a savory snack made from an underutilized local crop known as "Terung pipit".
- This product consists of two components : the dumpling skin and the filings. The skin is made with 10% of powdered pea eggplant ,while the fillings incorporated pea eggplant as the main ingredient.
- The pea eggplant dumplings are commercialized as a frozen product.

PROBLEM STATEMENT

- Pea eggplants is underutilized local crops that commonly used for "sambal tumis" only.
- Pea eggplant has an earthy taste, strong odour and unappetizing looks on the inside ,so many of them not preferring it.
- Lack of variations in the use of pea eggplant in different type of foods.

OBJECTIVE

- To produce savory snacks of dumpling by using pea eggplant.
- To analyze the formulations for frozen pea eggplant dumplings.
- To conduct sensory evaluation for pea eggplant dumplings.

METHODOLOGY

Preparation of dumpling skin by 10% pea eggplant powder.

↓

Preparation of fillings - Weighing the ingredients (based on the ratio of pea eggplant & dhal beans,F1 is 70:30,F2 is 60:40, & f3 is 50:50).

↓

Blending ingredients into mixture.

→

Filtering to remove excess liquid (by sieve filter)

↓

5g of fillings onto each dumpling skin.

↓

Moulding into dumpling shape.

↓

Baking to half cook(150°C,10min)

→

Cooling (15 minute)

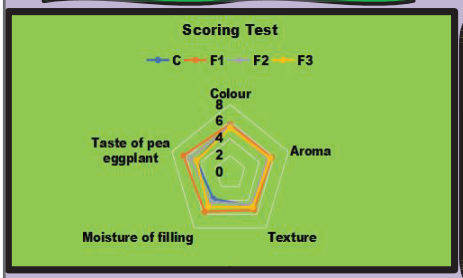
↓

Freezing by blast freezer(-18°C)

↓

Packaging
1°=Primary packaging (Dumpling Tray)
2°=Secondary packaging (Polypropylene)

DIAGRAM/PICTURE



CONCLUSION

- Formulation 1 had the highest and significant scores for colour, aroma, taste and overall acceptance attributes.
- Formulation 2 had a significant difference for texture attributes by score 6.0.
- Formulation 1 had selected as the final product for frozen pea eggplant dumpling.

COMMERCIAL VALUE

- Lower cost (RM 5.77) compared to other vegan dumpling products in the market which average cost is RM 11.90.
- All ingredients are easily available and cheap in the local market.
- People tend to choose healthier option of snacks.
- Unique flavour

INNOVATION HIGHLIGHT

- Innovated from an underutilized local crop, pea eggplant.
- Product is partially baked so it gives a healthier option too for consumers since it can be served as baked or fried dumplings .
- High shelf life.
- Both skin and the filling of dumplings consists of pea eggplant as the ingredients.
- Serve a unique flavor and taste of dumplings.

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MANGO-P FLAKES

Nur Atiqah binti As'ari [1,*], Fadliyyatunnur Binti Mohd Rafi [1], An Nur Nabilah Binti Zulkifli [1], Siti Nurfarhana Binti Samsol [1]

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*Corresponding member

Abstract.

Flakes are one of the most popular breakfast options in the world. Commonly flakes for breakfast are made of 100% of corn (maize) as the main ingredients. Mango-P Flakes are made of a combination of mango (*Mangifera Indica*) peel powder and corn maize. The idea of using mango peel as part of the ingredients is due to an increase in food waste contributed by the fruit and vegetable sectors. According to the previous study, mango peels themselves contained various nutrients and were capable of becoming source of fiber in human daily diet. This product innovation aimed to use fruit waste such as mango peel in producing a food product. A feasibility assessment and the consumer acceptability of mango peel flakes were determined. Production of Mango-P Flakes started with the production of mango peel powder. Mango peels were dried (cut into small sizes 2cm x 1cm) using a dehydrator at 70°C for 3 hours and ground to produce the powder. Then it is been mixed with all other ingredients and spread thinly on the tray before baking at 175°C for 15 minutes. After that, the flakes were cooled down in the oven at 150°C for 3 minutes to make sure the flakes are in crispiness. The percentage of mango peel powder in Formulation 1, Formulation 2 and Formulation 3 in the production of this product are 15%, 10% and 5%. The findings of sensory analysis indicated that most consumers prone towards 3rd formulation in term of texture, color, taste, aroma, and overall acceptance of the product. The end product of the innovation has a bit taste of mango with appearance in a light-yellow color. As mango is one of the most popular local fruits in Malaysia, it contributes to the increase in 'fruits waste' that comes from the so-called un-edible part of these fruits. Through the successful usage of mango peel in this Mango-P Flakes product, hopefully, it can contribute to reducing 'fruit and vegetable waste' thus helping to create a sustainable environment solution ahead in Malaysia. On the other hands, the nutrient potential inside mango peel can be seen as added value to increase and empowering the peel as part of food ingredients in the future.

Keywords: Mango, peel , flakes , food waste, fiber

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JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
POLITEKNIK MALAYSIA PORT DICKSON
PERSATUAN TEKNOLOGI MALAYSIA

RESPEX
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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

MANGO-P FLAKES

NUR ATIQAH BINTI AS'ARI
FADLIYYATUNNUR BINTI MOHD RAFI | AN NUR NABILAH BINTI ZULKIFLI | SITI NURFARHANA BINTI SAMSOL
POLITEKNIK TUN SYED NASIR SYED ISMAIL

PRODUCT ID: Respex23-032 CATEGORY: HOSPITALITY

BACKGROUND

Mangoes (Mangifera indica L .) from the family of Anacardiaceae, are one of the most popular native fruits in Malaysia. Mango pulp is the most essential component in the manufacture of mango-based food products since it may be utilised in a variety of dishes other than for raw consumption. This condition then lead to increase in 'fruit waste,' which derives from the fruits' so-called inedible parts of the mango (seed and peel). It was reported that around 50 000-70 000 tonnes of mango peel going to waste every year (Nguyen et al, 2019). The improper disposal causes severe environmental impacts (Nitropack, 2022). According to Ajila (2020), mango peel has a significant amount of phenolic and bioactive compounds. Therefore, this study proposed the innovation of mango flakes by using mango peel as the ingredients thus hopefully it will contribute to decrease the food wastage and create sustainable enviroment ahead.

Mango-P Flakes

OBJECTIVES

- To produce mango peel powder prior to flakes production.
- To develop flakes formulations that made of mango peel powder as the ingredients.

PROBLEM STATEMENTS

- Increase in food waste trend from years to years in Malaysia (2019, 16 678 tan - 2021, 17 007 tan). According to SMcorp in 2021, food waste that high in nutrient can be reduces.
- According to Henry (2019), mango peel waste was a good source of nutrients, particularly phenolic content, which has antioxidant properties. Because it contains valuable nutrients for human health, it is therefore, wasteful to throw it out.

INNOVATION HIGHLIGHT

Mangoes are one of the most popular native fruits consumed in Malaysia, therefore lead to an increase in 'fruit waste,' which derives from inedible parts specifically peels. The findings of sensory analysis indicated that most consumers prone towards 3rd formulation which contain 15% of mango peel powder, in terms of texture, color, taste, aroma, and overall acceptance of the product. The end product of the innovation has a bit taste of mango with appearance in a light-yellow color. It is hoped that using mango peel as an ingredient in food will reduce "fruit and vegetable waste," thus contribute in the development of sustainable environmental solutions in Malaysia. Furthermore, we can prevent the waste of source nutrients because mango peel contains its own nutritional qualities.

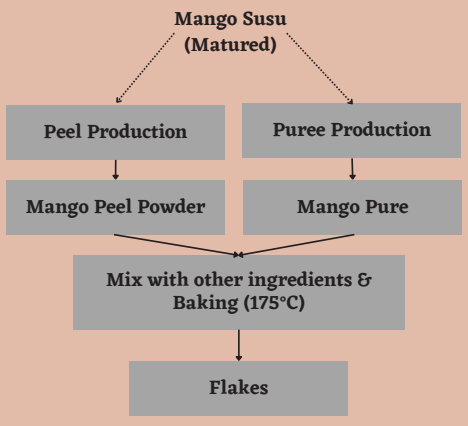
COMMERCIAL VALUE

Total Cost (5 Box);
= Raw Materials Cost + Packaging Cost + Overhead Cost
= RM 10.26 + [(RM 1 X 5 Box) + (RM 0.38)] + RM 0.10
= RM 15.74

Cost (1 Box) = RM 3.15
Profit (50%) = 50% x RM 3.15
= RM 1.58

Total Cost = RM 3.15 + RM 1.58
= RM 4.73 @ RM 4.80

METHODOLOGY



CONCLUSION

In conclusion, In conclusion, there is the potential for mango peel as food ingredients as consumers give acceptable overall acceptance in sensory analysis that has been done in this project. Therefore, the usage of mango peel known to be a source of good nutrients can be extended into various types of food products in the future. Thus, it also contributes to reduce food waste and creating a sustainable environment for the future ahead.

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PEGAGA ICE CREAM

Mohamad Afifi bin Ismail[1*] Adam Syarifuddin bin Mohammad Fauzi [1] and Nur Syafiqah binti Mohd Jafree[1], 'Aina Syahirah binti Mohd Jaman[1], Najwa Husna binti Mohd Nor[1]

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Abstract.

Ice cream is a mixture of milk, cream, sugar, and other ingredients that has been frozen into a soft and hard ice cream. Ice cream is a popular among people worldwide. Nowadays, the popularity of ice cream has led to many variety of flavours being produced. Besides that, the demands on ice cream flavoured with natural fruits and plants sources are kept increases over the years. The flavour might be extracted from the fruits or other edible parts of the plants such as roots or leaves. Pegaga have a distinctive flavour which can be one of the flavour for ice cream as well as provides an excellent source of phytonutrients for the ice cream. Pegaga is a type of vegetable which are called as 'ulam' in Malaysia. Pegaga can be used in either dried or in fresh form, and the entire plant is edible. They are normally be eaten raw. Many reports had found that pegaga contain vitamin C and antioxidant which is good for health. However, there is lack of researches that studied the application of pegaga in ice cream. Therefore, the purpose of this project was to formulated and produced pegaga ice cream. On the earlier stage of this project, the pegaga leaves was first sorted, washed and blanched prior to the extraction of the pegaga juice exract (PJE). After that, pegaga juice extract was prepared based on the concentration of 0.20% (F1), 0.25% (F2) and 0.30% (F3) respectively. The pegaga juice was then added to the ice cream formulation. The pegaga ice cream was produced using ice cream maker and then stored at -18°C prior to analysis. Sensory analysis was conducted among 40 panellist. Based on sensory analysis, there is no significant different in term of colour, texture, flavour, sweetness and aroma between all formulations. F2 had higher score at 6.47 for overall acceptability compare to other formulation. The results indicated that panellist had higher preference towards F2, wheareas other formulations had scores within the range of 5.60 to 5.48. In conclusion, the pegaga ice cream had been succesfully produced which also had higher score for sensory of colour, flavour and aroma. Thus, it is shows that pegaga leaves migh have a potential to be produced into other marketable food product such as ice cream.

Keywords: food technology, pegaga, ice cream, sensory evaluation

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PEGAGA ICE CREAM

Mohammad Afifi bin Ismail*, 'Aina Syahirah Binti Mohd Jaman, Nur Syafiqah Binti Mohd Jafree, Adam Syarifuddin Bin Mohammad Fauzi and Najwa Husna Binti Mohd Nor
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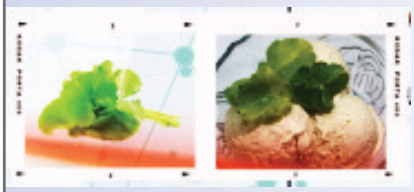
Product Background

- Pennywort (scientific name is *Cantella asiatica*) is known as pegaga in Malay.
- Pegaga is a side dish that Malaysian people call 'ulam'
- It have a lot of beneficial nutrient
- Pegaga high in antioxidant and vitamin C that good for skin development and antioxidant can help to prevent cancer slowly
- Ice cream is famous Malaysian dessert that high with fat that provide creaminess and light to be consume by all age.



Problem Statement

- Lack of pegaga uses in food product rather than culinary.
- Consumption of pegaga or "ulam" is less common among people nowadays.
- Lack of ice cream from natural sources

Objective

1. To develop and produce ice cream from pegaga leaves extract.
2. To determine the sensory properties of pegaga ice cream produced from different formulation.

Commercial Value

- Unique flavor from natural sources of pegaga extract.
- No artificial color represent in the product.

Process Flowchart

Preparation of pegaga extract

Sorting

Washing

Blanching
- 30 second

Blending
- Blend with 400ml of water and 40g honey

Processing of pegaga ice cream

Ingredients	Percentage (%)
Full cream milk	32.65
Heavy cream	32.65
Sugar	19.60
Pegaga leaves extract	13.05
Honey	1.30
Pectin	0.50
Glycerol monstearate (GMS)	0.25

Weigh

Heating
- Heat the full cream milk, heavy cream.
- Add glycerol & mixture of sugar and pectin
- Add pegaga extract 30 minutes & 60°C

Cooling
(At room temperature)

Ice cream processing
- Mix in hard ice cream machine
- 60 minutes

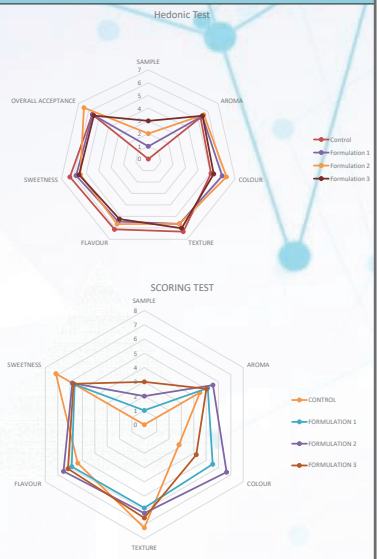
Freezing
- In blast freezer
- 60 minutes

Hardening
- In freezer

Packaging

Storing
- In freezer

Result



- Formulation 3 has the better texture.
- Formulation 2 is high in the pegaga flavouring.
- Formulation has high in sweetness due to low pegaga concentration in the formulation.
- Formulation 2 high in aroma intensity.

Innovation Highlight

- Provide a beneficial dairy product for consumer.
- Produce ice cream that potentially had higher nutrient.
- Introduce natural flavor from the pegaga in processing of ice cream .
- Innovate and develop a product from traditional dish or "ulam" into a higher demand product.

Conclusion

- In conclusion, the pegaga ice cream had been successfully produced. The pegaga ice cream had higher score for sensory of colour, flavour and aroma.
- Thus, it is shows that pegaga leaves might have a potential to be produced into other marketable food product such as ice cream.

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KOMBUSTRIP: KOMBUCHA BIOCELLULOSE WOUND BANDAGE

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Abstract.

Over the past few decades, Kombucha has emerged as one of popular health drink over the world. Normally produced from the symbiotic culture of bacteria and yeast in beverage suc as tea, this fermentation process produce another important by-product known as bacterial cellulose. This bacterial cellulose is a type of biopolymer constituting linear chains of covalently linked glucose residues between carbon 1 and 4 (β1–4), called microfibrils, with specific characteristics such as unidirectional polarity and variable thickness. Bacterial cellulose also stands out for its nanoporous structure, purity (absence of lignin, pectin, and hemicellulose), liquid sorption capacity, mechanical strength non-allergenicity, transparency, dynamic fiber forming capabilities, and moldability. Due to these outstanding yet specific characteristics, bacterial cellulose has shown great significance to the medical, pharmaceutical, and food industries. The objective of this innovation study is to develop a new medical bandage prototype as an alternative to the one currently existing in the market. This is due to the fact that some fabric used as the base of commercial wound bandage is not biodegradable hence will increase waste production in medical industry. On the other hand, other commercial wound bandage does not have a healing mechanism and just rather giving some protection to open wound. In this study, a new wound bandage prototype (Kombustrip) was produced by infusing glycerine on optimized bacterial cellulose to enhance its function as wound bandage. First, traditional tea is fermented with bacteria under specific condition (amount of sugar, volume of water and dipping time). Biocellulose produced from the fermentation activities was then harvested and heated in 10 % sodium hydroxide solution followed by continuous washing with distilled water. In the meantime, glycerine was produced from the transesterification process of waste cooking oil prior to the application on the purified bacterial cellulose. Thorough infusion of the glycerine onto the bacterial cellulose structure might ensure the efficiency of dual functions of the new wound bandage produced in terms of protecting the wound as well as improve antibacterial properties of the material throughout the healing process.

Keywords: Kombucha tea, bacterial cellulose, wound bandage, fermented tea, biopolymer modification, cellulose biosynthesis

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

Respex23-050

KOMBUSTRIP: KOMBUCHA BIOCELLULOSE WOUND BANDAGE

Muhammad 'Azim Jamaluddin, Firmansyah Sudirman, Muhammad Redzuan Harif & Suzanna Muniandy
Politeknik Tun Syed Nasir Syed Ismail

BACKGROUND

Bacterial cellulose stands out for its nanoporous structure, purity, liquid sorption capacity, mechanical strength non-allergenicity, transparency, dynamic fiber forming capabilities, and moldability. The objective of this study is to develop a new medical bandage prototype as an alternative to the one currently existing in the market. Some fabric used as the base of commercial wound bandage is not biodegradable, while others do not have a healing mechanism and just rather giving some protection to open wound. In this study, a novel wound bandage prototype (Kombustrip) was produced by infusing glycerine on optimized bacterial cellulose to enhance its function as wound bandage. Traditional tea is fermented with bacteria under specific conditions. Thorough infusion of the glycerine onto the bacterial cellulose structure might ensure the efficiency of dual functions of the new wound bandage produced in terms of protecting the wound as well as improve antibacterial properties of the material throughout the healing process.

OBJECTIVES

- To produce glycerin from waste cooking oil by transesterification process.
- To develop a wound bandage using Kombucha bacterial cellulose as the main raw material infused with glycerine produced.
- To evaluate the acceptability of the product among potential consumers by using sensory evaluation.

COMMERCIAL VALUE

Kombustrip has excellent potential to be marketed as an environmental friendly, efficient and cheaper alternative to the existing wound bandage in current market. The versatility of the use (dual-function) that act as bandage to protect the wound as well as antibacterial property of glycerine helps in healing process to become faster.

CONCLUSION

Production of a new, novel wound bandage has successfully done using Kombucha bacterial cellulose infused with glycerine. Based on sensory evaluation, the utilization of bacterial cellulose as alternative material provides similar function and quality as other wound bandage currently available in the market. However, further medical investigation should be proceeded to determine the efficiency of antibacterial action of the glycerine when applied onto real wound prior to the full development as commercial product.

PROBLEM STATEMENT

- Increasing waste cooking oil production in restaurants and household leads to environmental issues due to improper disposal as well as complex treatment methods.
- Commercial wound bandage does not have a healing mechanism rather than just giving some protection to open wound. Fabric used as the base of commercial wound bandage is not biodegradable hence will increase waste production.

INNOVATION HIGHLIGHT

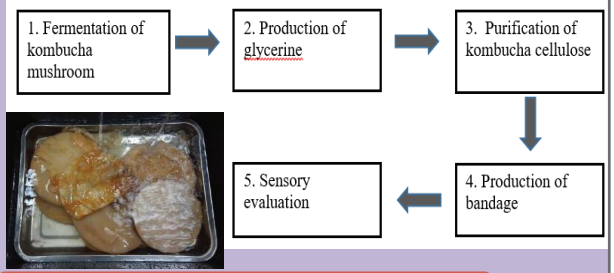

Environmental Friendly


Low Production Cost

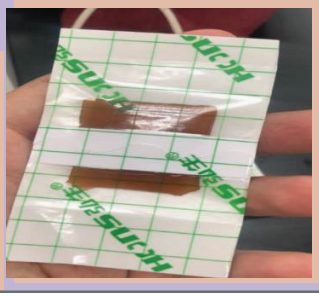

Dual Functions


Waste to Wealth

METHODOLOGY



DIAGRAM/PICTURE



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Regional Educators, Students Product's Exhibition

BANANA PEEL TOOTHPASTE

Muhammad 'Azim Jamaluddin[1,*], Nurul Elya Shafina Mohd AlBakri [1], Mohammad Hazim Mohammad Yazid [1] and Nik Faris Aiman Nik Mohd Zaid [1]

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Abstract.

With approximately 119 million tonnes consumed globally, bananas are the second most popular tropical fruit which leads to high waste generation that covers about 3.5 million tonnes of garbage produced annually worldwide. which account for around 35% of the weight of the fruit. The trash from banana peels can take up to two years to disintegrate and emit too much greenhouse gases, which aid in climate change. Too much banana peel being thrown away also might leads to environmental pollution as well as waste of resource. Contrary to popular belief, banana peels are edible and have a wide range of applications as a functional food ingredient. Protein, dietary fibre, vitamins A and C, amino acids, and potassium are all present in the banana peel. Antioxidant, anti-diabetic, anti-tumor, anti-mutagenic, and anti-ulcerogenic activities are also present in banana peels. In this study, banana peel was utilized as additional ingredient in a toothpaste formulation to observe the potential in enhancing consumer preferance towards such product. Three different formulation of toothpaste infused with banana peel in solid and liquid form were developed and tested for its moisture content and pH value. Sensory evaluation was then conducted to observe customers preferences towards the colour, texture and aroma using statistical approach. From the hedonic test results, it was shown that the toothpaste infused with liquid banana peel extract exhibits the best characteristics in terms of its colour, texture as well as smell. This innovative product provides a viable alternative to other flavoured toothpastes currently available in the market thus has high potential commercial values to be market with affordable and reasonable price.

Keywords: Banana peel, toothpaste, waste utilization, biomass

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

Respex23-069

BANANA PEEL TOOTHPASTE

Muhammad 'Azim Jamaluddin, Nurul Elya Shafina Mohd AlBakri, Mohammad Hazim Mohammad Yazid and Nik Faris Aiman Mohd Zaid
Politeknik Tun Syed Nasir Syed Ismail

BACKGROUND

With approximately 119 million tonnes consumed globally, trash from banana peels can take up to two years to disintegrate and emit too much greenhouse gases, which aid in climate change. Too much banana peel being thrown away also might leads to environmental pollution as well as waste of resource. Protein, dietary fibre, vitamins A and C, amino acids, and potassium are all present in the banana peel. Antioxidant, anti-diabetic, anti-tumor, anti-mutagenic, and anti-ulcerogenic activities are also present in banana peels. In this study, banana peel was utilized as additional ingredient in a toothpaste formulation to observe the potential in enhancing consumer preferance towards such product. Three different formulation of toothpaste infused with banana peel in solid and liquid form were developed and tested for its moisture content and pH value. Sensory evaluation was then conducted to observe customers preferences towards the colour, texture and aroma using statistical approach. From the hedonic test results, it was shown that the toothpaste infused with liquid banana peel extract exhibits the best characteristics in terms of its colour, texture as well as smell. This innovative product provides a viable alternative to other flavoured toothpastes currently available in the market thus has high potential commercial values to be market with affordable and reasonable price.

PROBLEM STATEMENT

Commercialized toothpaste in the market use synthetic chemical for its taste and flavour leads to potential chemical hazard that might affect consumer health.

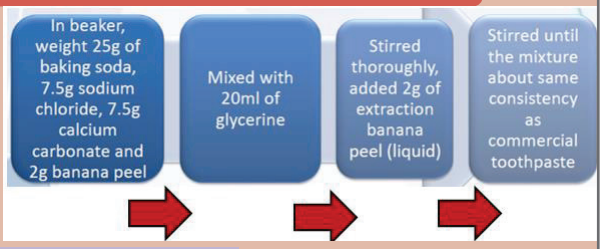
Too much banana peel being thrown away leads to environmental pollution as well as waste of resource of the energy value and nutritional benefits.

INNOVATION HIGHLIGHT

OBJECTIVES

1. To extract the banana peel.
2. To produce base toothpaste using three different formulations.
3. To check the moisture content, pH value in banana peel toothpaste
4. To conduct sensory analysis of different toothpaste formulation

METHODOLOGY



COMMERCIAL VALUE

Banana Peel Toothpaste could be marketed as an alternative to other flavoured toothpaste currently available in the market. Since it use waste as one of the ingredient, the price could be lower results in promising profit for the manufacturer.

DIAGRAM/ PICTURE

CONCLUSION

Production of a new, novel toothpaste enrich with banana peel extract has successfully done using commercialized toothpaste formulation infused with the benefits of banana peel extract. Based on sensory evaluation, it can be concluded that the utilization of banana peel extract in the formulation gives added values in terms of customer's preference of texture, aroma as well other benefits from the minerals in the extract. In addition, the formulation also provides similar function and quality as other flavoured toothpaste currently available in the market. However, further dental investigation should be proceeded to determine the efficiency of toothpaste application on human / real subjects prior to the full development as commercialized product.

RESPEx 2023
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Regional Educators, Students Product's Exhibition

BLACK MOCHI WITH BITTER GOURD ICE CREAM

Wan Ahmad Fikri[1], Munirah Binti Mustapa[2], Kayalvili A/P Murugian[3], Nur Neesha Rosiswandy[4]

[1]Wan Ahmad Fikri Bin Wan Aziz, Malaysia

[2]Munirah Binti Mustapa, Malaysia

[3]Kayalvili A/P Murugian

[4]Nur Neesha Rosiswandy

Abstract.

Black mochi with bitter gourd ice cream is innovative product from ice cream made from flash of bitter gourd and coated with black mochi. This product was innovated based on the current lack of demand for bitter gourd for people consumption. In order to overcome this issues, we come out with this product where people enjoy eating various flavor of ice cream so it maybe potential to commerciallize bitter gourd in various way. Previous research shown bitter gourd have lot of health benefit in it. Change its into ice cream may preserve most nutrient so consumer able enjoy the taste and nutrient of bitter gourd. Three formulation was been done to identify which most suitable to consume. Texture profile and Hedonic test was conducted to identify any chances occur when added bitter gourd powder into ice cream. Data from analysis was analyse by using one way ANOVA. According to result, formulation 2 are most suitable where its has bitter gourd flavor and mild bitter taste. Data shown formulation 2 got the highest score in acceptability 5.9±1.614 from respondents (100 respondents) shown this formulation can be accepted as ice cream. Increasing bitter gourd powder will increasing the flavor, bitter taste, and hardness of ice cream, meanwhile black mochi skin serve well as stabilizes the taste of bitter gourd. Too much bitter gourd powder will decrease the acceptability where formulation 3 only got 3.53±1.867 for accaptability. Contrary to what has often been assumed this product has its own marketing value, some respondent interested with its flavor.

Keywords: black mochi (bamboo charcoal mochi), bitter gourd powder (pure dry bitter gourd).

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BLACK MOCHI WITH BITTER GOURD ICE CREAM

SUPERVISOR: Encik WAN AHMAD FIKRI BIN WAN AZIZ

KAYALVILI A/P MURUGIAN , NUR NEESHA ROSISWANDY, MUNIRAH BT MUSTAPA

BACKGROUND

- Black mochi with bitter gourd ice cream is our product which is the ice cream is made of bitter gourd and the mochi layer is made of bamboo charcoal.
- The color of our ice cream is pale green and it has a mild bitter gourd taste.
- The mochi layer the color of the mochi layer is dark black and it has coconut taste too because we used coconut milk for the mochi layer.

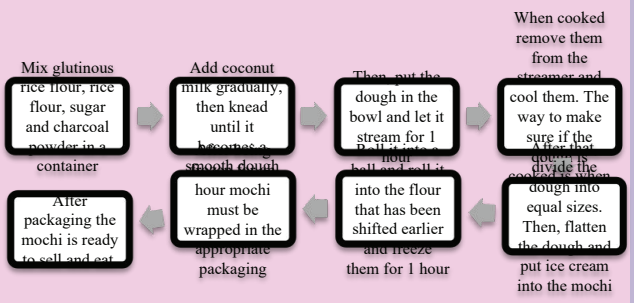
OBJECTIVE

- To produce our bitter gourd ice cream with black mochi.
- To remove the bitter taste of our product.
- To determine the best formulation of bitter gourd ice cream according to consumer acceptance.
- To measure consumer acceptance via sensory

METHODOLOGY

- **PROCESS FLOWCHART OF ICE CREAM**

- **PROCESS FLOWCHART OF MOCHI**



COMMERCIAL VALUE

- Local product
- Low cost in comparison to other local product
- Raw materials, bitter gourd is easily available

PRODUCT

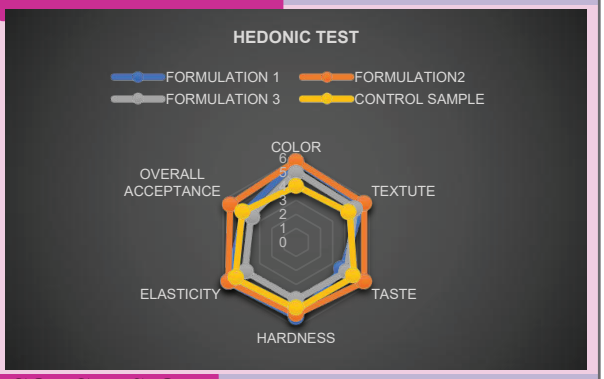
PROBLEM STATEMENT

- During the process of making the mochi skin, it becomes sticky.
- Bitter gourd has a bitter taste, which everyone can't accept the bitter taste.
- Bitter gourd is less acceptance among teenagers because of bitter taste.

INNOVATION HIGHLIGHT

- Our mochi is innovated by adding charcoal powder and coconut milk. Thus our mochi has a unique taste and color
- Our ice cream is innovated by adding bitter gourd. By mixing other ingredients the bitter taste of bitter gourd is not too prominent so our ice cream does not taste so bitter and can be accepted by everyone
- The combination of mochi with bitter gourd ice cream has its own taste and can be accepted by all ages

DIAGRAM/PICTURE



CONCLUSION

- To keep the bitter gourd ice cream from melting, place it in a blast freezer.
- Next, to make sure the mochi skin doesn't sticky, steam it for an hour.
- To remove the bitter taste in our products, we add condensed milk, whipping cream, and full-cream milk to make bitter gourd ice cream taste sweeter.
- Lastly, we can improve our product so that it is accepted by consumers.

Product : Sweetopia Pumpkin Cereal

ABSTRACT:

Sweet pumpkin is a potential fruit with several health functions, including anti-diabetic, anti-carcinogenic, and anti-microbial potentials. In addition to its abundant nutrition, pumpkin is also listed as a type of prophetic food. Both of these factors indicate the potential for pumpkin to be commercialized in Malaysia. Nowadays, there is lack of variety pumpkin products in food industry. Thus, a pumpkin base cereal has been formulated with pumpkin flour as the active ingredient. Pumpkin flour has been produced under control drying temperature to minimise the loss of nutrient. Three formulations of sweet pumpkin cereal using 20% (formulation 1), 25% (formulation 2) and 30% (formulation 3) of pumpkin flour has been used in this study. A consumer acceptance of Sweetopia Pumpkin Cereal has been analysed through a sensory evaluation test. According to sensory analysis data, for the attributes of pumpkin flavor, aftertaste, hardness, crunchiness and overall acceptance, Formulation 3 has the lowest score compared than others. Formulation 1 has recorded the highest overall acceptance in terms of taste, colour, and textures. In pumpkin flavor attributes, there is a significant difference between formulation 1 and formulation 3, while there is an insignificant difference between formulation 1 and 2. The results show the mean color of sweetopia pumpkin cereal is deep yellow to yellow brown. It shows that the three formulations are significantly different. The use of pumpkin flour can help to spread the use of pumpkin throughout the world. This innovation has extended the shelf life of pumpkin-based product.

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

SWEETOPIA PUMPKIN CEREAL

DEPARTMENT OF CHEMICAL AND FOOD TECHNOLOGY, POLITEKNIK TUN SYED NASIR SYED ISMAIL, HUB PENDIDIKAN TINGGI PAGOH 84600 PAGOH, MALAYSIA.
SUPERVISOR : PUAN NUR ADILA BINTI BASARI
NUR HAZIRAH BINTI ZULKEFLY, SITI SAKIHAH BINTI SANUSI, DAYANG NURUL NATASAHAH BINTI SIUN, ELLYA ALFEERA BINTI MUZHAFAR KALAISELVEM.

BACKGROUND

- Sweetopia is a form of cereal which can be consume during breakfast.
- Suitable for pumpkin lover and contains other superfoods such as dried banana and strawberry.
- Contains carotenoids, vitamin A, vitamin C, fibre, minerals, fat and carbohydrates as a source of nutrients in the body.

PROBLEM STATEMENT

- Lack of variety pumpkin products in the food industry.
- Drying is a common method related to significance loss of nutrients in fruits.

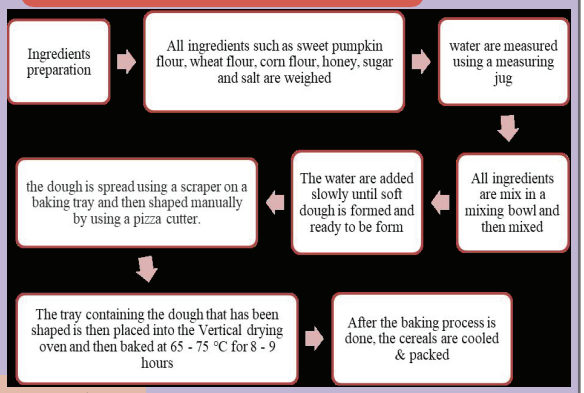
INNOVATION HIGHLIGHT

- Local and plant-based product.
- Originally made from pumpkin fruits under control condition (minimal drying and baking temperature).
- Pumpkin lovers can enjoy the cereal as an all-time favourite snack.

OBJECTIVE

- To measure consumer acceptance through a sensory evaluation test for Sweetopia Pumpkin Cereal.
- To identify the best formulation of Sweetopia Pumpkin Cereal through different percentage of pumpkin flour in the cereal.
- To extend the shelf life of pumpkin product.

METHODOLOGY



COMMERCIAL VALUE

- Low cost of production.
- Suitable for export as it has longer shelf life.
- Expand the market for pumpkin based fruit product.

CONCLUSION

Three formulations of pumpkin cereal with 20% (formulation 1), 25% (formulation 2) and 30% (formulation 3) of pumpkin flour was developed and analyzed by sensory evaluation test. The results of the sensory analysis showed that among the three formulations produced, formulation 1 (20%) received the highest overall rating for taste, color, and texture. Formulation 3 differs from the others in that it has 30% pumpkin flour, a slightly bitter taste, and a very strong aftertaste.The finished item has a dark brown color.

DIAGRAM/PICTURE

ABSTRACT

This initiative was launched to assist Malaysia's palm oil sector in reducing waste. Palm kernel cake is one of the waste products produced during the manufacturing of palm kernel oil (PKO). As a result, the objective of this research is to utilize palm kernel cake (PKC) as the primary ingredient as an alternative of conventional chicken feed in the market. PKC is not only inexpensive, but it is also high protein content and high crude fibre which is beneficial for digestibility of feeds. In addition, minor ingredients such as wheat flour, corn flour, crushed rice, and palm oil has been added as aesthetic ingredients as well as to enhance the nutritional value of the chicken feed produced. Proximate analysis is done for verification and to meet all the nutritional demands of chickens by providing them with a complete diet. An experimental approach in this research presents a unique chicken feed generated in the form of pellets for the convenience of farmers and chickens. These components are mixed together, cooked, then shaped into pellets. The final product will be a nutritious chicken feed at a cheaper cost than the market with high crude protein and fibre. Three formulations of the chicken feed have been conducted to determine the best formulation in terms of texture, colour and odour complete with statistical analysis. According to the experimental results, the product is successful produced a high protein content chicken feed from industrial waste, mainly PKC at a low cost.

Keywords: Palm kernel cake (PKC), *Gallus Domesticus*, chicken feed, crude protein, feed digestibility

FASHION & BEAUTY

Category

08

RESPEX
8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023
"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

BACKGROUND

- We don't add any chemicals to our face scrub instead
- We use food waste to manufacture it.

PROBLEM STATEMENT

- Rising commercial face scrub prices in Malaysia
- The skin can become irritate
- Too harsh and abrasive

OBJECTIVE

- To identify the usage of recycling products through natural scrub

INNOVATION HIGHLIGHT

- Packaging
- Sustain of product
- Pricing

COMMERCIAL VALUE

- Unmistakably utilizing penetration pricing

METHODOLOGY

- Primary source
- Secondary source

CONCLUSION

- Face scrubs are an essential part of every facial care programme, regardless of the skin type or problems

DIAGRAM/PICTURE

BUSINESS, MARKETING & ENTREPRENEURSHIP

Category

09

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

OSS – ONION SKIN SEASONING PRODUCT

Danish Haqeem Shah Bin Azman Shah, Nur Amirah Shahira Binti Mohamad Nasir, Nadhirah Binti Mohd Hakimi, Erin Eliena Binti Daswir, Sivaruben A/L Suresh, Nor Ariefah Hafidza Bt Kadir, Ku Ahmisuhaiti Binti Ku Ahmad
Commerce Department, Politeknik Port Dickson, Negeri Sembilan, MALAYSIA
(E-mail: akimshahahah@gmail.com, amirah.shah15@gmail.com, kxnadhkmi@gmail.com, erineliena09@gmail.com, sivaruben65@gmail.com, norariefah@polipd.edu.my, ahmisuhaiti@polipd.edu.my)

ABSTRACT

Monosodium Glutamate or MSG is widely used in the food industry, but it has been linked to negative health effects such as headaches, cardiovascular disorders, and obesity. OSS or Onion Skin Seasoning product on the other hand are going to be marketed as an eco-friendly seasoning made from discarded garlic skins. It offers unique flavors and potential health benefits, including antioxidants and anti-inflammatory properties. The segment market for OSS is by age, targeting younger people interested in healthy eating and older people who enjoy cooking and exploring new flavors. To appeal to these different groups, emphasizing OSS's versatility and unique flavor profile for those who enjoy cooking and highlighting its natural, additive-free ingredients for those looking for a natural alternative to MSG. Based on our controlled survey, it has been identified that this product will be well accepted by the public once it is commercialized, based on its taste and flavor. Overall, using garlic skin as seasoning is a sustainable and healthy option that can reduce food waste and provide unique flavors and potential health benefits. By using and promoting OSS as a natural alternative to MSG, the food industry can offer consumers a healthier and more sustainable seasoning option.

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

OSS
(Onion Skin Seasoning)
Politeknik Port Dickson

Project Member:
1. Danish Haqeem Shah Bin Azman Shah
2. Sivaruben A/L Suresh
3. Nur Amirah Shahira Binti Mohamad Nasir
4. Erin Eliena Binti Daswir
5. Nadhirah Binti Mohd Hakimi
6. Nor Ariefah Hafidza Bt Kadir
7. Ku Ahmisuhaiti Bt Ku Ahmad

BACKGROUND

OSS is a natural seasoning made from surplus garlic skin, offering a healthy and substitute of Monosodium glutamate (MSG). OSS are free alternative to traditional seasonings. It caters to health-conscious individuals who prefer natural ingredients, without compromising on taste. The seasoning is made from high-quality onion skins and can be used in various dishes such as soups, stews and marinades making it a versatile ingredient.

PROBLEM STATEMENT

Excessive use of Monosodium Glutamate (MSG) and waste of garlic skin.

Food contains an excessive amount of MSG, a chemical flavor enhancer commonly used to enhance the taste of food. OSS made of garlic skin that is often considered as waste and is usually thrown away after the garlic is peeled.

OBJECTIVE

i. Waste of garlic skin
ii. Substitute product of Monosodium glutamate (MSG) to healthier flavour enhancer
iii. Cost-Effective Material

INNOVATION HIGHLIGHT

i. Reduce food waste and promote sustainability

ii. Great way to promote sustainability and health, while reducing waste.

COMMERCIAL VALUE

OSS has health benefits to being environmentally friendly and cost of production is at minimum which is cost effective for the customer because of use wasted garlic skin

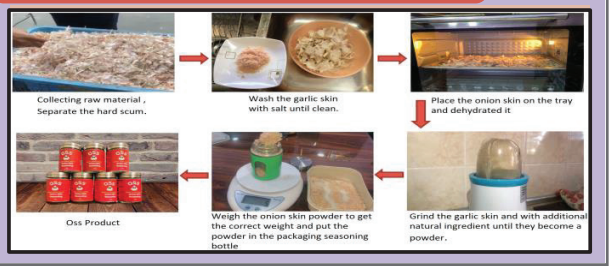
METHODOLOGY

Using descriptive method which is survey method and construct the questionnaire to 380 respondents in range of age above 17

CONCLUSION

Garlic skin seasoning is a natural and eco-friendly option that brings numerous advantages to cooking and health. It helps reduce food waste, supports sustainability, and adds a distinctive flavour to dishes.

DIAGRAM/PICTURE



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EDOF-ECO DESIGN OF FUTURE

WAN HAIKAL BIN WAN SAKRI

ANBALAGAN A/L SEELAN

FATIN IZZATI BINTI SHAHRUL AZAR

NUR FAKIAH BINTI IBRAHIM

AINUR SUFIA BINTI SUPARMA

PUAN AZIELINA BINTI MOHD

COMMERCE, POLITEKNIK PORT DICKSON

Abstract

Today world is haunted by the use of plastic as the main ingredient in most materials, but plastic material takes 400 to 1000 years to be disposed. This is because plastics are made up of repeating units called monomers that bind together to form long chains, or polymers. These chains are generally thought to be chemically inert, yet unreacted monomers and other harmful ingredients can be found in plastic. Today, people keep throwing things out even though they can recycle, reuse back the thing they throw. We can make changes to this environment by reuse and recycle all the things that've been wasted. This is because the profitability of Eco-Friendly products innovations due to brand loyalty, combined with a demonstration of social responsibility by a business, could create a powerful venue for positive social change. WAFFA Sdn Bhd will be producing a multipurpose box by using reusable egg tray. The benefits of purchasing this box for the customer are that it can be used for, any occasion such as for house decoration, container, gift box or even for weddings. The uniqueness of our products is seen in terms of the use of raw materials and our design. We recycle egg tray containers and carefully design them, according to the suitable to be filled with what customer want to made use of them as mention before, this box has multifunction purposes. We also have two options for customer to choose whether; they want this "Infinity Floral Box" to be delivered ready made or they can do it by themselves which is D.I.Y.

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RESPEX 2023

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

Product Name: Infinity Box

Institutions: Polytechnic Port Dickson

Members Name :
1) Nur Fakiah Binti Ibrahim
2) Ainur Sufia Binti Suparma
3) Wan Haikal Bin Wan Sakri
4) Fatin Izzati Binti Shahrul Azar
5) Anbalagan A/L Seelan

BACKGROUND

- Name of company: **WAFFA SDN BHD**
- Founded in **2023**
- Form in a **"Partnership"**
- Motto : **"Uniqueness - Just a Touch like Professionals"**

PROBLEM STATEMENT

- The consumption of plastic and unhealthy products for the earth is still high and getting high.

OBJECTIVE

- Produce Eco – Friendly product with various function (Multifunction)

INNOVATION HIGHLIGHT

- Using recycle egg container (paper) as material of product

COMMERCIAL VALUE

- Using eco-friendly material in products and the material was recycle material

METHODOLOGY

- Sampling
- Research Design And Procedure
- Data Collection Method & Analysis

CONCLUSION

- We create the product with Eco-Friendly concept.
- We use "floral" as our theme on our products.
- We focus on the effort to have the product with low negative impact to earth.

DIAGRAM/PICTURE

Infinity Box →

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

Egg Shell Scrub

Nurin Zulaikha Binti Roslan, Nur Syafiqah Binti Abdul Halim, Nurul Qhairunnisa Binti Yusnee, Puteri Irisha Binti Kamaruddin and Thivaneswaran A/l Devanand

Port Dickson Polytechnic, Negeri Sembilan, Malaysia

Abstract.

Egg-shell scrub is our product which is eco-friendly that uses organic ingredients. By following the current trends which are eco-friendly products that are to reduce impact on the environment. Our product which is egg-shell scrub will have more demand from consumer because we use a natural ingredients which is we use rice that is soaked until it is crushed, then mixed with natural fragrances such as pandan leaves or rose water and then sprinkled on banana leaves to dry it is traditionally used for Malay people because it can absorb excess oil, helps reduce acne, helps remove eye bags, removes dead skin cells, and brightens the face. We use a tube packaging and liquid form for our product which contains 100g. Our packaging is very convenient because it is easy to carry and easy to use . In addition, our target market is teenagers which are from age 15 until 55 years old. Our company produces products that are suitable to use by both men and women because nowadays people are aware about self care. In addition, our product can be used for people who have sensitive skin, especially eczema. Next, there is a benefit from our product which is the eggshell can gently abrasive shells will buff away the dry, dead skin that is hiding your natural glow.The organic ingredients such as rice that is soaked until it is crushed, then mixed with natural fragrances such as pandan leaves or rose water and then sprinkled on banana leaves to dry can absorb excess oil, helps reduce acne, helps remove eye bags, removes dead skin cells, and brightens the face also the eggshell can gently abrasive shells will buff away the dry, dead skin that is hiding your natural glow. The eggshell membrane prevents skin aging and also reduces damages caused by UV-light and inflammation. Our product is new in the market, people are aware about the eggshell but as a fertilizer so we took this opportunity to produce the egg shell scrub that is not yet in the market. The specialty about our product is the scrub can smoothen the skin and also clean the skin naturally since scrub can buffing away and removing the dead skin cell.

Keywords: Eco-friendly, organic, egg shell and sensitive skin

RESPEX
8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023
"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"


NURULANISYAH BINTI ASRIN (06DPR20F2031)


NUR FARISYA HANIS BINTI ABDUL RAHMAN (06DPR20F2043)


NURHAFIZULLAH BIN ABDUL RAHMAN (06DPR20F2072)


NADIRAH BINTI ABDUL RAHIM (06DPR20F2052)


NUR ARISSA AZIANIE BT AMIZAN (06DPR20F2067)

LECTURER: PUAN ROSNIYATI BT ABD RAZAK

HANANIC BEAUTY (Scrub Soap)

BACKGROUND

Dragon fruit has many benefits for health, such as anthocyanin which is a strong antioxidant content, preventing acne, smoothing the skin, and even moisturizing the skin. The aroma of vanilla is for relaxation and depression, while the aroma of Petit grain relaxes the nerves in the body and is an antidepressant. Juniper berries improve sleep quality and contain vitamin C, E and vitamin B3 which are beneficial for maintaining moisture. This scrub soap is suitable for use by everyone because it uses 100% organic ingredients and does not use chemicals.

OBJECTIVE

1. Making sure the goods produced are of a high calibre and beneficial to customers.
2. To put company policy into action.
3. To guarantee that production can be increased.

COMMERCIAL VALUE

Dragon fruit contains vitamin B3, which can help moisturize the skin and make it feel fresh when processed into a scrub soap. It also helps reduce acne by acting as an antioxidant and brightening the skin.

CONCLUSION

Consumers purchase eco-friendly products to feel socially desirable and respectable. To encourage collectivism, they should think of group as a reference group and convert conspicuous consumption into positive action according to Mason (2000).

PROBLEM STATEMENT

Our products are aimed at users with skin problems or who take care of their skin. They are made from organic ingredients, such as dragon fruit skin, and are not mixed with chemicals. This helps to protect the environment by reducing waste, energy, and chemicals during production, use, and disposal.

INNOVATION HIGHLIGHT

The soap scrub product has advantages in terms of uniqueness and packaging. It is shown in small-sized pieces compared to normal large-sized soaps, making it easier for users to use it. In terms of packaging, suitable plastic with beautiful labelling is used instead of paper.

PICTURE (OUR PRODUCT)

RESPEX
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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

PRODUCT NAME : VENTI FAN

GROUP MEMBERS
NEESHA A/P PARTHIPAN |THAVENESWARY A/P MAHENDRRAN | SUGUNESWARY A/P K.MURUGESU | THURGA A/P SUNDARARAJAN | MOHAMAD THAUFIQ BIN MOHD SHUKRI

INSTITUTIONS : POLITEKNIK PORT DICKSON

BACKGROUND

- Create awareness of using reusable innovation around the rural areas and provide production services.
- The budget for marketing expenses
- Plastic waste and spreading it among rural areas will make higher

PROBLEM STATEMENT

- The heat can become uncomfortably, hot, leading to discomfort.
- cost-effective solution for keeping your car cool
- Environmental impact of idling cars and the need of sustainable solution

OBJECTIVE

Provides users with an affordable and high-quality product by utilizing used materials.

INNOVATION HIGHLIGHT

- Energy Efficiency
- Off-grid Applications
- Cost Savings
- Environmental Benefits
- Government Incentives

COMMERCIAL VALUE

Energy Efficiency-Off-Grid Applications-Cost Savings-Environmental Benefits-Government Incentives

METHODOLOGY

Design and engineering -ground-breaking eco-friendly alternative to conventional fans.

CONCLUSION

- Product made with eco-friendly concept highlighting "Plastic"
- Beneficial for vehicle users
- Suitable for hot weather while parking

DIAGRAM/PICTURE

BACKGROUND

- is an ecofriendly soap that consist 100% of natural ingredients
- Pure aloe vera gel

PROBLEM STATEMENT

- Dry skin problem
- Uneven skin tone
- Global warming

OBJECTIVE

- To makesure nature's glow is the best solution for our customers

INNOVATION HIGHLIGHT

- packaging
- Pricing
- Natural ingredients

COMMERCIAL VALUE

- Penetration (pricing)

METHODOLOGY

- Questionnaire
- Primary & Secondary

CONCLUSION

- Nature's Glow is an ecofriendly soap that give solution for skin problem
- Uniqueness with one time use
- hygenie

DIAGRAM/PICTURE

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
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RESPEX

8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023

"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

CLouD (DENIM SANDALS)

- ZAZA NUR ADDAWIENA BINTI DIZA AMRAN
- NURUL ATHIRAH BINTI ABD JALIL
- NUR NAJIHAH BINTI MOHAMAD ZAKY
- NUR IRDINA NIESA BINTI MUHAMAD MAHASSAN
- NOOR ALYA FARINA BINTI NOBAHARUDIN

BACKGROUND

- ClouDs Sandal is a unique casual sandal crafted from used denim material.
- "the comfort of your feet" is our tagline
- ClouDs Sandal offers users a fashionable and environmentally conscious footwear option.

PROBLEM STATEMENT

- The increase in denim waste which is increasing due to the denim fabric disposal process which is difficult to do.

OBJECTIVE

i. To guaranteeing that the goods produced are of high quality and beneficial to customers.
ii. To make people aware of the advantages of eco friendly products

INNOVATION HIGHLIGHT

i. Uses used denim fabric as the main material
ii. Prevent foot pain

COMMERCIAL VALUE

RM 20.90

METHODOLOGY

Questionnaire and google form

CONCLUSION

- We choose to produce this sandal denim product to avoid denim waste.
- To aware people about eco friendly product can save our environment

DIAGRAM/PICTURE

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"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

PAPEL DE AJO

AMMAR FARHAN, POLITEKNIK PORT DICKSON
NOR FIRDAUS,DANISH FAWWAZ, NURUL SYAFIQAH,SITI NUR AINA

BACKGROUND

Papel & Co is a company that makes food packaging out of garlic skin, which is a waste product.

PROBLEM STATEMENT

Too much food packaging is made of plastic and it has a negative impact on the environment in the long run.

OBJECTIVE

"Being the best among the finest by offering consumers the greatest and highest quality services"

INNOVATION HIGHLIGHT

Designed for ease of operations scalability, modularity, flexibility and production of highest quality paper based product.

COMMERCIAL VALUE

Penetration strategy is an aggressive action taken by a company to increase the volume of sales.

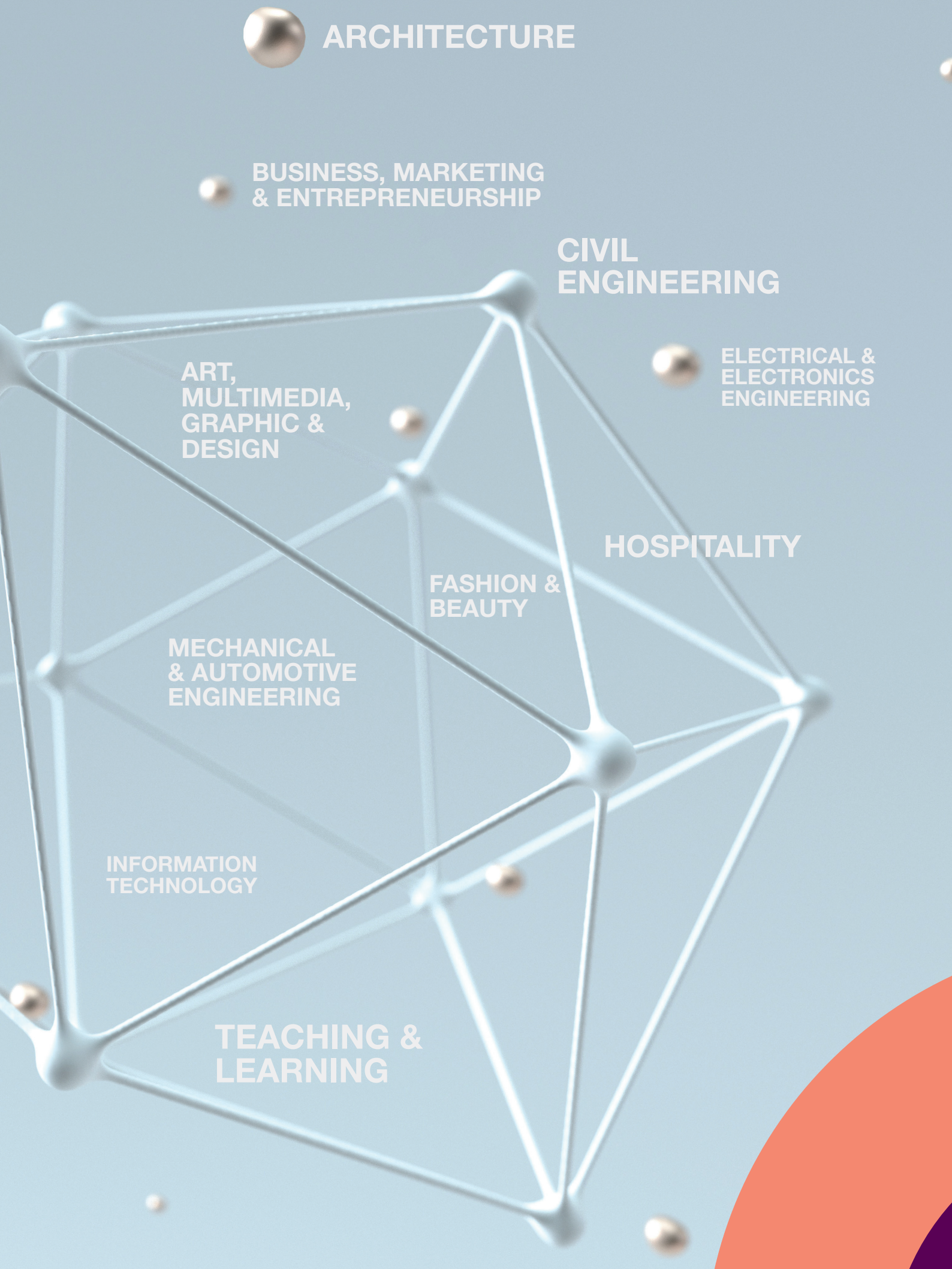
METHODOLOGY

Data collection is primary data and secondary data

CONCLUSION

Environmental or eco-friendly awareness is critical for educating and training users to reduce plastic products that will cause harm in the future.

DIAGRAM/PICTURE


ARCHITECTURE
BUSINESS, MARKETING
& ENTREPRENEURSHIP
CIVIL
ENGINEERING
ELECTRICAL &
ELECTRONICS
ENGINEERING
ART,
MULTIMEDIA,
GRAPHIC &
DESIGN
HOSPITALITY
FASHION &
BEAUTY
MECHANICAL
& AUTOMOTIVE
ENGINEERING
INFORMATION
TECHNOLOGY
TEACHING &
LEARNING

INFORMATION TECHNOLOGY

Category

10

RESPEx 2023
Politeknik Port Dickson, Negeri Sembilan, Malaysia

Regional Educators, Students Product's Exhibition

DEVELOPING WEBSITE AS DIGITAL TOOLS IN STUDENT PROGRAM IMPLEMENTATION: SHORT VIDEO COMPETITION PROGRAMME

Noor Azim Hakimie bin Noor Azli [1], Nurul Huda Akma binti Mohd Aziz [2] and Nurliyana Husna binti Ramli [3*]

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[2] Department of Mechanical Engineering, Politeknik Kota Bharu, Kelantan, Malaysia

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*Corresponding member: nurliyana@pkb.edu.my

Abstract.

Mobile technologies have increasingly become pervasive in everyday life over the past few decades. As a result of their affordability and wide availability, mobile devices have become commonly used by several people. Also receiving this development is the Education Sector. Thus, the Mathematics, Science and Computer Department (JMSK) of Politeknik Kota Bharu (PKB) took the initiative to develop a website for the implementation of the student program. The website of the Creative Short Video Competition Program organized by the DBC20012-Computer Application course is an innovation in implementing the student's program implemented by JMSK. Developed using Google Sites software, it serves as an easily accessible and complete information platform for all program participants in particular and all polytechnic citizens in general. In addition, this website can also make it easier for judges to evaluate contested videos because they have been uploaded on the platform. Developed based on the ADDIE model, it is designed as a website for student excellence programs that is more user-friendly. Also in line with the emphasis on Industrial Revolution 4.0 in educational institutions, JMSK also takes an approach to broaden the exposure of technology among students to provide a generation that has creativity and innovation as well as competence in using technology to face challenges in the future. Overall, this website is a digital application that functions as a system to facilitate the implementation of student programs and further increase the productivity aspirations of PKB students and staff.

Keywords: students program, digital technology, website

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Respex23-008

INFORMATION TECHNOLOGY

KUMPULAN - IDEAS


Penyelia
Nurliyana Husna binti Ramli


Ahli Kumpulan
Noor Azim Hakimie bin Noor Azli


Ahli Kumpulan
Nurul Huda Akma binti Mohd Aziz

POLITEKNIK KOTA BHARU

LATARBELAKANG

- Program Pertandingan Video Pendek ialah program pelajar dianjurkan oleh kursus DBC20012-Aplikasi Komputer di JMSK, PKB
- Laman web yang dibangunkan ini dapat menyediakan satu platform yang akan dapat diakses oleh semua pihak
- Informasi yang terkini dapat disediakan dan dikemaskini dengan mudah serta para peserta akan mendapat maklumat secara masa-nyata
- Pelajar didedahkan dengan teknologi digital.
- Dapat mendedahkan kemahiran pelajar PKB kepada sektor lain kerana dapat diakses oleh semua pengguna internet tanpa kekangan

PERNYATAAN MASALAH

Segala maklumat berkenaan dengan program pelajar dihebahkan secara verbal atau melalui media sosial.
Selalu terjadi maklumat tidak dapat disampaikan sepenuhnya kepada pelajar.

Pendekatan baharu dengan membangunkan satu laman web bagi program pelajar bagi menyediakan satu platform yang menyediakan maklumat secara berpusat dan lebih menarik perhatian pelajar.

IMPAK INOVASI

- Menyediakan satu platform khas untuk mengumpul segala maklumat mengenai Program Pertandingan Video Pendek
- Maklumat terkini boleh dikemaskini dari semasa ke semasa dan boleh diakses oleh warga politeknik lain tanpa kekangan.
- Penilaian semua video pertandingan dapat dibuat dengan lebih mudah.
- Boleh disebarkan kepada institusi lain kerana kebolehcapaiannya yang meluas.
- Meningkatkan pengetahuan dan kemahiran pelajar mengenai teknologi digital.

OBJEKTIF

1. Membangunkan satu platform yang menyediakan maklumat yang mudah diakses dan lengkap
2. Memudahkan semua juri untuk mengakses semua video yang dipertandingkan dan membuat penilaian
3. Menyebarluas aktiviti pelajar yang dilaksanakan kepada institusi luar
4. Mendedahkan pelajar kepada teknologi digital yang terkini

METODOLOGI

Menggunakan Model ADDIE, aliran kerja pembangunan laman web adalah:

1. Mengenalpasti keperluan pembangunan laman web
2. Merekabentuk laman web
3. Membangunkan laman web
4. Pengunaan laman web
5. Penilaian terhadap laman web

NILAI KOMERSIL

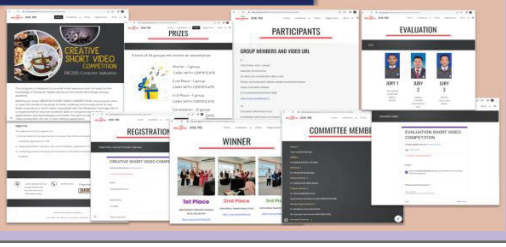
Mendedahkan pelajar mengenai teknologi digital.

Laman web yang dapat dicapai tanpa had juga dapat mengketengahkan bakat dan kemahiran pelajar kepada insitusi luar

menarik minat sektor-sektor lain terhadap pelajar lulusan politeknik

DIAGRAM /RAJAH

Alamat URL: https://sites.google.com/pkb.edu.my/shortvideo/home



KESIMPULAN

1. Membangunkan laman web untuk pelaksanaan program pelajar dapat meningkatkan keberkesanan program.
2. Membantu pelajar atau peserta program untuk mencapai maklumat berkenaan dengan program secara autonomi mengikut keselesaan.
3. Berfungsi sebagai medium promosi pelajar politeknik kepada sektor-sektor lain dengan lebih efektif.
4. Laman web yang dibangunkan ini dapat dijadikan sebagai inovasi yang berkesan dalam pendidikan.

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DESIGN AND DEVELOPMENT OF PSMZA FACILITIES MANAGEMENT AND RESERVATION SYSTEM (E-FASILITI)

Mohd Hafizil Mat Yasin[1,*], Mazudi Ramthan [2] and Syarifah Anisah Syed Othman[3]

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Abstract.

Computer-based systems for organizational management are a trend nowadays. One of the necessities offered to the faculty and students of Politeknik Sultan Mizan Zainal Abidin (PSMZA) is building and facilities accomodation services. This service is being offered by PSMZA to accomodate the staff and students to conduct the official or unofficial events, programs or meetings. Even with the use of the standard system—filling out forms to reserve the building and facilities—the redundant nature of the reservations for building and facilities cannot be quickly resolved and require quick approval to be used. To manage those building and facilities reservations, the PSMZA Facilities Management and Reservation Application (E-Fasiliti) has been built as a mobile online platform. The Management Service Unit, PSMZA, uses this system to handle user and reservation records, generate reports, and streamline operations. The system's development adopts an object-oriented methodology and makes use of the rational unified process (RUP) development model with Java Script, MySQL, PHP, and the responsive Bootstrap 4.0 user interface technology. In conclusion, the PSMZA self reliant I-Fasiliti may replace the unit's current traditional system and improve it technologically while also making it more effective and efficient.

Keywords: Facilities, reservation, PHP, Java Script, Bootstrap

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8th REGIONAL EDUCATORS, STUDENTS PRODUCT'S EXHIBITION 2023
"TECHNICAL AND VOCATIONAL EDUCATION TRAINING SUSTAINABILITY GENERATOR INNOVATION"

Design and Development of PSMZA Facilities Management and Reservation System (e-Fasiliti)

Mohd Hafizil Mat Yasin[1]*, Muhammad Haiqal Azmi [2], Muhammad Izzul Nizam Mohamad Nazri[2], Muhammad Azrol Mohd Jaafar[2], Muhammad Akmal Zikry Mohd Zamri[2]

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[2]Department of Mechanical Engineering, Politeknik Sultan Mizan Zainal Abidin, 23000 Dungun, Terengganu
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BACKGROUND

PSMZA administration has recently faced a few obstacles related to the availability of buildings and facilities, as well as difficulty in accessing user data. These flaws have caused disagreements and inconveniences among regular users, including PSMZA personnel and students. The main source of concern is the time-consuming procedure of accessing user data, which frequently necessitates staff workers searching through heaps of paper documents. This antiquated method is not only time-consuming, but also wasteful of resources.

OBJECTIVE

The purpose of this study is to develop an online building and facility management and reservation system. PSMZA staff and students enjoy using the buildings and facilities of PSMZA, however there is no computerized online reservation system. Therefore, the system was created to make it easier for PSMZA staff and students to book buildings and facilities online.

COMMERCIAL VALUE

•The e-Fasiliti system enables users to make online bookings for buildings and facilities in the PSMZA area.
•JavaScript and PHP programming languages were used to develop the system, along with the MySQL database system.
•The system effectively stores and organizes reservation and user data as well as generating monthly reports throughout the year.

CONCLUSION

1. e-Fasiliti Reservation System enables users to book approved buildings and facilities near PSMZA.
2. It manages user reservations and supports PSMZA administration.
3. The system is exclusive to PSMZA buildings, facilities, and users.
4. It streamlines PSMZA management and enables quick and convenient reservations, eliminating the manual

PROBLEM STATEMENT

1. Inefficient Reservation Process
2. Transparency:
3. Inadequate Communication Channels
4. Challenges with Resource Allocation
5. Limited Accessibility and Flexibility
6. Manual administrative burden
7. Inadequate Integration
8. Inadequate Data Analysis and Reporting
9. Concerns about security and privacy

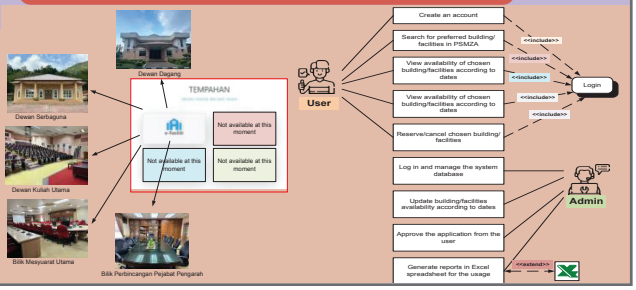
INNOVATION HIGHLIGHT

1. Users can easily browse and reserve spaces, rooms, equipment, or resources through a user-friendly web interface.
2. Fast confirmation is provided for the reservations.
3. Real-time availability updates and preventing multiple reservations.
4. The system provides a user-friendly web interface, real-time availability updates, and seamless calendar integration.

METHODOLOGY

•e-Fasiliti reservation system was developed using the Rational Unified Process (RUP) approach.
•RUP comprises four stages: inception, elaboration, building, and transition.

DIAGRAM/PICTURE



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I-KENDERAAN: PSMZA VEHICLES MANAGEMENT AND RESERVATION SYSTEM

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[2] Automotive Technology Center (ATeC), Politeknik Sultan Mizan Zainal Abidin, Dungun, Malaysia

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Abstract.

Vehicle services is one of the neccesities provided for the staff and student at Politeknik Sultan Mizan Zainal Abidin (PSMZA). PSMZA has provided this service to facilitate staff and student's travel to official visits or meetings. However, the redundancy of the vehicles reservation cannot be solved immediately, even though the application of the conventional system; filling the forms to reserve the vehicles. Therefore, the PSMZA Vehicles Management and Reservation Application (I-Kenderaan) has been developed to provide a mobile web based platform helps manage vehicle reservation. This system manages user and reservation records, as wellas generates reportes with the aim of streamlining processes at the Inventory and Asset Management Unit, PSMZA. The system development follows an object-oriented approach and uses the rational unified process (RUP) development model with PHP, MySQL Database and Java Script technology system user interface using Bootstrap 4.0 technology which is responsive to small or larger devices. In conclusion, the PSMZA Vehicles Management and Reservation Application (I-Kenderaan) can replace the current conventional system at the unit and make it more effective and efficient, benefiting all users technologically.

Keywords: web based, vehicle reservation, PHP, MySQL Database

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e-Kenderaan: PSMZA Vehicles Management Reservation System

Mazudi Ramthan [1]*, Muhammad Zul Fitri Mohd Zamri [2], Dalili Fahimah Zainal Abidin [2]
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[2] Department of Mechanical Engineering, Politeknik Sultan Mizan Zainal Abidin, 23000 Dungun, Terengganu
***Corresponding author E-mail:** mazudi@psmza.edu.my*

BACKGROUND

PSMZA management has recently had difficulties with vehicles availability and accessing user data, resulting in arguments and problems among regular users, including PSMZA workers and students. The main source of concern is the time-consuming process of accessing user data, which frequently requires staff workers to search through heaps of paper papers. This antiquated practice not only wastes time, but it also wastes resources

PROBLEM STATEMENT

- The system is often inefficient and time-consuming, leading to user frustration.
- Making a reservation request is a time-consuming process, and waiting for the request to be completed further adds to the time commitment.
- The system's manual nature increases the risk of errors and inaccuracies.

OBJECTIVE

The aim of this study was to create an online vehicle management and reservation system to overcome PSMZA's lack of a computerised online reservation system. PSMZA workers and students have access to PSMZA cars, although they experience difficulties due to a lack of an efficient reservation system.

INNOVATION HIGHLIGHT

1. e-Kenderaan employs PHP and MySQL
2. Users can easily browse, track, and reserve vehicles via a user-friendly web interface.
3. The system updates the database in real-time to ensure accurate car availability and prevent double bookings.

COMMERCIAL VALUE

1. Vehicle Management Reservation Systems (VMRS)
2. Ride-Sharing and Carpooling Services
3. Corporate Fleet Management
4. Providers of Mobility-as-a-Service (MaaS):

DIAGRAM/PICTURE

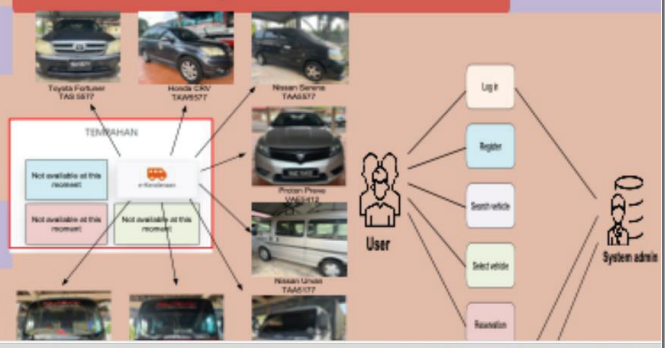

Figure 1: Application of e-Kenderaan: PSMZA Vehicles Management Reservation System

METHODOLOGY

- PSMZA's e-Kenderaan system was developed using the Rational Unified Process (RUP) approach.
- RUP helps reduce risks and improve the quality of the system.
- Effective communication and engagement were maintained throughout each stage of development.

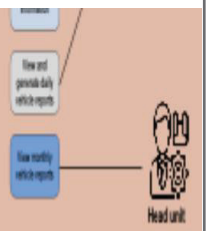

Figure 2: PSMZA's e-Kenderaan Flow diagram

CONCLUSION

The PSMZA's e-Kenderaan system is a completed and convenient system designed for PSMZA users to reserve approved vehicles with efficient booking capabilities and aid in managing and tracking user bookings.

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Regional Educators, Students Product's Exhibition

PLANT ASSISTANT APPLICATION

Siti Nursaadah Binti Mat Yusoff [1,*], Ong Chin Wei [1], Terence Mah Tick Yen and Hoe Kang Sun[1]

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*Corresponding member

Abstract.

The Plant Assistant Application is a comprehensive gardening application developed to cater to the needs of inexperienced plant enthusiasts. With limited knowledge and guidance available, newcomers often struggle to provide proper care for their plants, resulting in wasted time and effort. Existing plant-based apps lack comprehensive information and detailed care guides, while physical guidebooks are expensive and hard to come by. This project aims to address these issues by creating a user-friendly application that grants easy access to plant care information, delivers guidance on optimal plant care practices, and incorporates an innovative snap feature for plant identification. The Waterfall methodology was employed throughout the project, involving phases such as requirement gathering, design, implementation, testing, and maintenance. The findings indicate that the snap feature successfully identifies plants using TensorFlow and SerpApi, providing accurate scientific names and comprehensive search results. The application boasts a minimalist and intuitive user interface, consolidating all essential plant care information in a single location. Moreover, a beginner-level guide on gardening fundamentals is included to support novices in their endeavors. The Plant Assistant Application is freely available for download on the Google Play Store. By catering to the needs of new gardeners, this application aims to cultivate a passion for gardening while offering valuable assistance in plant care, ensuring a seamless and gratifying gardening experience.

Keywords: machine learning, gardening application, TensorFlow, SerpApi, snap feature

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Respex23-013

PLANT ASSISTANT APPLICATION

CATEGORY: INFORMATION TECHNOLOGY

Siti Nursaadah Binti Mat Yusoff
Ong Chin Wei
Terence Mah Tick Yen
Hoe Kang Sun

POLIMAS

BACKGROUND

Amid the Covid-19 lockdown, people had increasing leisure time but limited activities. Gardening became a popular choice during this period, as highlighted by a Statista survey. However, the lack of plant-related mobile applications prompted the development of the Plant Assistant Application. This mobile application aims to provide accurate information and guidance on raising plants, focusing primarily on plant species suitable for Southeast Asia.

Users can access essential knowledge and tips to cultivate their plants successfully. By addressing the need for plant-related information on mobile platforms, the Plant Assistant App seeks to empower individuals in their gardening endeavors.

OBJECTIVE

The objectives for developing Plant Assistant Application project are:

i. Snap feature that will identify details of plants.
ii. To create an easy way of finding information on how to take care of plants.
iii. To create an application that contain information about plants.
iv. Provide guidance on how to properly take care of plants.

COMMERCIAL VALUE

i. Gardening enthusiasts
ii. Beginner gardeners
iii Homeowners with gardens
iv. Urban dwellers with limited space

CONCLUSION

The Plant Assistant Application caters to novice gardeners, offering user-friendly assistance and guidance. It aims to help users develop a fulfilling gardening hobby and experience the joy of nurturing plants. Plant identification feature using image recognition technology applied Artificial Technology features. Users can capture or upload a photo of an unknown plant and the application will provide accurate identification along with relevant care information. This feature assists users in identifying and caring for plants they encounter in their surroundings.

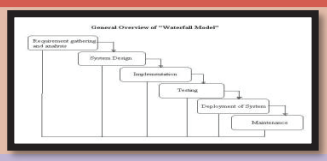
PROBLEM STATEMENT

Many people lack proper knowledge and guidance on raising plants, requiring extensive internet searches for specific information. Inadequate plant care can result in failure and wasted time, posing challenges for newcomers. Plant-based applications often lack comprehensive plant information and care guides, while physical guidebooks in the market are often overpriced. There is a need for a solution that provides accessible and comprehensive information on plant care, addressing knowledge gaps and empowering individuals to successfully nurture plants. Thus, this application is developed to overcome this problems.

INNOVATION HIGHLIGHT

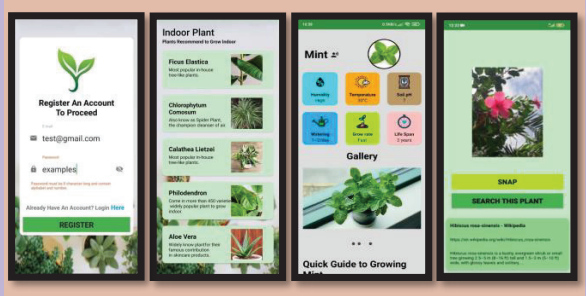
i. Plant Identification Feature
ii. Plant Care Guidance
iii. Comprehensive Plant Information
iv. Categorized Plant Database

METHODOLOGY



Waterfall Model

DIAGRAM/PICTURE



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Regional Educators, Students Product's Exhibition

E-SEWAAN LZNK

Siti Nursaadah Binti Mat Yusoff [1,*], Azib Lutfil Hadi Bin Abd Hamid [1], Muhammad Nabil Izzat Bin Ibrahim[1], Muhammad Adha Bin Abdullah[1] and Mohd Fadzil Bin Zainol [2]

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Abstract.

The E-SEWAAN LZNK system is an innovative online reservation platform designed to address the limitations of manual reservation processes for seminar halls and VIP rooms Lembaga Zakat Negeri Kedah (LZNK). The absence of an online system at LZNK necessitates customers to manually fill out reservation forms lacking essential room details, such as maximum capacity, pricing, and visuals. Current procedures involve lengthy waiting times for postal notifications regarding reservation status, while reservation records are stored using a time-consuming filing system. In response, the E-SEWAAN LZNK system was developed with the objectives of creating an online reservation system, establishing a systematic database for efficient information storage, and providing detailed room information. The Waterfall methodology was employed, including phases such as requirement gathering, design, implementation, testing, and maintenance. Findings indicate that the system significantly improves reservation times, enabling online submissions and real-time approval checks. Moreover, it enhances data security, eliminates manual processes, and provides customers with comprehensive room details. In this digital era, where speed and convenience are valued, the E-SEWAAN LZNK system meets public preferences for easy and efficient reservation methods. It improves the organization and storage of reservation information, eliminates the need for manual bookings, and ensures data confidentiality. Customers can easily access room details, including photos and pricing, simplifying the reservation process. Overall, the system offers a modern and user-friendly approach, and user-centric solution for reserving seminar halls and VIP rooms at LZNK.

Keywords: online reservation system, manual reservation, room reservation system

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E-SEWAAN LZNK

CATEGORY: INFORMATION TECHNOLOGY

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[1] POLIMAS [2] LZNK

BACKGROUND

The E-Sewaan LZNK system is an online reservation system designed for seminar halls and VIP rooms at Lembaga Zakat Negeri Kedah (LZNK). Its primary purpose is to provide a convenient and efficient way for the LZNK to store booking data securely. By implementing the E-Sewaan LZNK system, the management of reservations in LZNK will become more proper and smarter. This system streamlines the entire reservation process, ensuring that all bookings are properly recorded, organized and easily accessible. With improved efficiency and effectiveness in reservation management, LZNK can enhance its overall operations and provide a seamless experience for its customers.

OBJECTIVE

i. To develop an online system for reserving seminar halls and VIP rooms at LZNK.
ii. To create a systematic database to store all information regarding the reservation of seminar halls and VIP rooms at LZNK.
iii. To provide detailed information about the seminar halls and VIP rooms available for reservation.

COMMERCIAL VALUE

i. LZNK
ii. Event Management Companies
iii Educational Institutions
iv. Hospitality Industry

CONCLUSION

This E-SEWAAN LZNK has successfully helped improve the efficiency of room and auditorium reservations at LZNK. Applicants only need to make their reservation online and can check the status of their applications periodically through the online platform.

The LZNK management is able to develop a more efficient database system to access past reservation records made by users, categorized by user, organization, room, date etc.

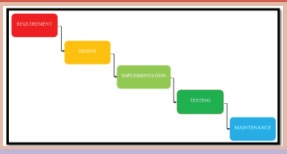
PROBLEM STATEMENT

LZNK currently lacks an online reservation system for seminar halls and VIP rooms. Reservations are manually made through a form, which lacks important details such as room capacity, price and pictures. After submission, customers must wait for a letter from LZNK to know if their reservation is approved. Reservation records are stored using a traditional filing system, making it time-consuming to track previous reservations. The E-Sewaan LZNK system is developed to address these issues, providing a solution for efficient online reservations and improved record management.

INNOVATION HIGHLIGHT

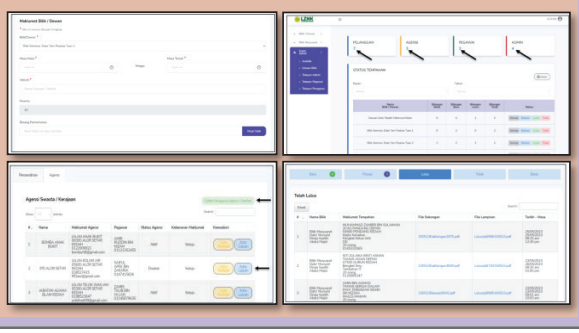
i. Online reservation platform
ii. Create database for room information
iii. Instant reservation confirmation
iv. Efficient record management
v. Enhanced user experience

METHODOLOGY



Waterfall Model

DIAGRAM/PICTURE



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LAA PAR

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Abstract.

LAA PAR is a web-based system and application that provides an online service to manage food ordering. This initiative was developed to replace manual methods for ordering food and avoid mistakes when placing orders by staff. This project used the Waterfall model during the project development. We choose the waterfall model as our methodology because the project is divided into sequential phases, with some overlap and splashback acceptable between phases. The project's objectives are to convert a manual system to be more systematic to manage food ordering and notification information. This project involved two users' scopes including admin and customer. This system enables customers to make an online payment and the system will send a notification status. This system has been developed using PHP as its language programming, Javascript as its scripting, and MySQL as its database platform. To conclude, the system helps make online food ordering and notification well-organized, ready, and easy to access.

Keywords: LAA PAR, web-based system, food ordering.

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SUPERVISOR: MADAM MAZLINA BINTI MUSTAPHA

LAA PAR

BACKGROUND

LAA PAR is a web-based system and application that provides an online service to manage food ordering. This initiative was developed to replace manual methods for ordering food and avoid mistakes when placing orders by staff. This project involved two users' scopes including admin and customer. This system enables customers to make an online payment and the system will send a notification status. This system has been developed using PHP as its language programming, Javascript as its scripting, and MySQL as its database platform.

PROBLEM STATEMENT

1. **Avoid Mistakes Order** - manual system
2. **Weakness Management** - mistakes occur
3. **Track all the sales reports and current trends using the application and website** – difficult to calculate the sales report and no service for using the mobile application

OBJECTIVE

- To identify the requirement for LAA PAR online food ordering system.
- To design, develop and conduct testing for LAA PAR online food ordering system.
- To create a simple and common application to manage orders and make online payments.

INNOVATION HIGHLIGHT

Online food ordering system is current trend and popular innovation in the food service industry that allow customer to order just using a website or application by using their devices such as a desktop computer, tablet, laptop and smartphone.

COMMERCIAL VALUE

This system has the potential to be marketed for use in other stalls that have the same process of ordering food. This application is an advantage in the accuracy of information than smart, portable, flexible, and cost-efficient.

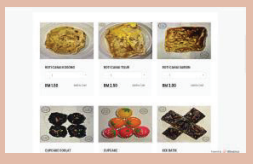
METHODOLOGY

This project used the Waterfall model during the project development. We choose the waterfall model as our methodology because the project is divided into sequential phases, with some overlap and splashback acceptable between phases.

CONCLUSION

This project will bring more benefits and advantages to Kedai Mat Yie Roti Canai. It is easy to use and this system is user-friendly to use and understand this system. This system can list the menu and reduce high errors when ordering food. Employees can also access the system via computer or mobile more quickly which makes it easier for employees to manage orders. This system helps manage those orders based on demand and order volume.

DIAGRAM/PICTURE



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