iStAP 2024

INTEGRATED STUDENT ASSESSMENT PROJECT

e-Posters

Theme:
Leveraging Innovations for SDGs

14th MAY 2024

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POLITEKNIK PORT DICKSON

POLITEKNIK MALAYSIA
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UNIT PENYELIDIKAN, INOVASI & PENGKOMERSIALAN,
POLITEKNIK PORT DICKSON

Theme: Leveraging Innovations for SDGs

UNIT PENYELIDIKAN, INOVASI & PENGKOMERSILAN,
POLITEKNIK PORT DICKSON,
KM 14 JALAN PANTAI,
71050 SI RUSA, PORT DICKSON
NEGERI SEMBILAN
TEL: 06-6622000
06-6622023

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iStAP 2024
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Theme: Leveraging Innovations for SDGs

Isi Kandungan

POLITEKNIK MALAYSIA PORT DICKSON

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Prakata

Ketua Unit Penyelidikan, Inovasi dan Komersialan (UPIK)

Pertama dan terutamanya, izinkan saya mengucapkan tahniah yang ikhlas kepada ahli jawatankuasa yang telah mendedikasikan masa dan usaha mereka untuk menjayakan *Integrated Pelajar Assessment Project* 2024 (i-StAP 2024). Kejayaan ini hanya dapat dicapai dengan usaha tanpa henti daripada jawatankuasa. Saya juga berbesar hati mengalu-alukan semua peserta i-StAP 2024 yang merupakan projek pelajar yang dipilih daripada pelbagai jabatan.

Selaku Ketua Unit Penyelidikan, Inovasi dan Komersialan (UPIK), Politeknik Port Dickson, saya teruja untuk menjemput semua pembaca menerokai kecemerlangan dan keunikan produk inovatif yang dipamerkan dalam kompilasi poster peserta i-StAP 2024. Kompilasi ini adalah bukti dedikasi dan kreativiti para peserta, merangkumi intipati pelbagai idea pembangunan produk merentasi pelbagai bidang.

Pendidikan dan latihan teknikal dan vokasional (TVET) adalah nadi kepada pembangunan negara kita. Ia bukan hanya menyediakan peluang pekerjaan kepada para pelajar, tetapi juga melahirkan tenaga kerja yang kompeten dan berdaya saing dalam pelbagai industri. Program seperti ini adalah bukti komitmen kita untuk meningkatkan kualiti dan inovasi projek pelajar dalam bidang ini.

Inovasi tidak hanya sebagai pendekatan kreatif dalam menangani masalah tetapi juga mengilhamkan idea-idea baru yang segar dan inovatif untuk meningkatkan pencapaian negara kepada tahap yang lebih tinggi, menjamin kebolehkekalan daya saing dan relevansi di era globalisasi yang pesat.

Oleh itu, buku produk ini juga sebagai pengiktirafan terhadap sumbangan peserta dalam berkongsi idea produk inovatif dengan semua pembaca. UPIK merakamkan setinggi-tinggi penghargaan kepada semua peserta yang telah mendedikasikan semangat dan kepakaran mereka untuk menghasilkan projek-projek inovatif ini.

Terima kasih.

Dr. Rosmilawati Binti Ab Rahman
Ketua Unit Penyelidikan, Inovasi dan Komersialan (UPIK)
Politeknik Port Dickson

Prakata

Pengarah Program

Tahniah kepada semua ahli jawatankuasa yang telah dengan penuh komitmen menyumbang masa dan usaha untuk menjayakan Integrated Pelajar Assessment Project 2024 (i-StAP 2024). Sumbangan mereka yang berterusan amat penting dalam mencapai kejayaan ini. Kepada semua peserta i-StAP 2024, yang telah menyampaikan projek-projek terpilih mereka dalam pertandingan akhir ini, syabas dan tahniah diucapkan.

Program i-StAP 2024 adalah sebagai satu pertandingan projek pelajar diperingkat Politeknik bagi memilih projek yang mempunyai potensi dan layak untuk dianugerahkan sebagai projek terbaik. Terdapat 2 kategori projek yang telah dipertandingkan iaitu kategori Teknikal bagi projek-projek kejuruteraan dari Jabatan Kejuruteraan Elektrik, Jabatan Kejuruteraan Mekanikal, Jabatan Kejuruteraan Awam, dan bagi kategori Bukan Teknikal bagi projek-projek dari Jabatan Perdagangan dan Program Senibina.

Sebanyak 46 bilangan projek terbaik telah dipilih dari setiap jabatan melalui program pertandingan projek di peringkat jabatan iaitu 12 projek dari EsltEX Jabatan Kejuruteraan Elektrik, 9 projek terbaik dari Mecha Day, Jabatan Kejuruteraan Mekanikal, 5 projek Kejuruteraan Awam dan 12 projek Senibina terpilih melalui RIDeC Jabatan Kejuruteraan Awam dan 8 projek dari MaPPP Jabatan Perdagangan. Melalui program i-StAP 2024, projek-projek terbaik yang dipertandingkan, dinobatkan mengikut anugerah seperti Anugerah Projek Terbaik Keseluruhan, Anugerah Projek Tempat Pertama, Kedua, Ketiga bagi kategori Teknikal dan Bukan Teknikal, Anugerah Poster Terbaik, Anugerah Persembahan Terbaik dan Anugerah Rebentuk Terbaik.

Hasil kreativiti setiap peserta yang menetengahkan produk-produk terbaik mereka, inisiatif penganjur mewujudkan buku produk pertandingan projek pelajar ini. Ianya adalah sebagai wadah rujukan kepada semua pembaca agar menjadi sumber cetusan idea yang kreatif kepada bakal-bakal inovator agar mampu melonjakkan pencapaian sesebuah institusi ke tahap yang lebih cemerlang dan terus kekal berdaya saing.

Terima kasih.

Ts. Dr. Norhanani Binti Abd Rahman
Pengarah Program
Integrated Student Assessment Project 2024 (i-StAP 2024)

Theme: Leveraging Innovations for SDGs

Jawatankuasa i-StAP 2024

Penasihat
Tn. Hj. Hasan Bin Mohd Sarif

Pengerusi
En. Abdul Rahim Bin Ibrahim

Timbalan Pengerusi
Dr. Rosmilawati binti Ab Rahman

Pengarah Program
Ts. Dr. Norhanani Binti Abd Rahman

Setiausaha
Dr Isha Baizura Bt Ismail (JKA)

JK Panel Penilai / Liason Officer
Dr. Sivanandan a/l Balakrishnan
Ts. Mohammed Farid Bin Ishak
Dr. Mohan Kumar a/l Manikam

JK Pembentangan Projek
Ts. Dr. Baharin Ahmad
Ts. Mohd Norhazree Easa
Siti Ruziati Binti Tomin
Nor Hashimah Ab. Hamid

JK Persiapan Tempat & Booth
Zuraidi Bin Md Tahir
Izwan Kamal bin Abdul Wahab
Aman Zaki bin Mamat

Jawatankuasa i-StAP 2024

JK Cenderahati & Sijil
Amilia @ Emil Binti Hasan
Amiza binti Yaman

JK Jamuan
Noor Fadzlin binti Abu Bakar
Norelissa binti Mohd Shahir
Azielina binti Mohd

JK Penerbitan
Sharifah Enne Suhaini Binti Syed Mohd Zahari
Nor Hafidzah Binti Mohd Husni

JK Majlis Penutup
Norul Fazlina Bt Khashim
Rafidah Binti Suib
Ts Nur Farhana Binti Mustahidin
Ahmad Qusyairi Bin Ahmad Khairiri
Hj Shahrul Kamil Bin Yunus
Nornawar Laili Binti Nordin

JK Multimedia & Tugas-Tugas Khas
Zulkurnain Bin Hassan

JK Perolehan
Noor Darliza Binti Mohamad Zamri

JK Rekabentuk
Ts. Dr. Norhanani Binti Abd Rahman

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INTEGRATED STUDENT ASSESSMENT PROJECT

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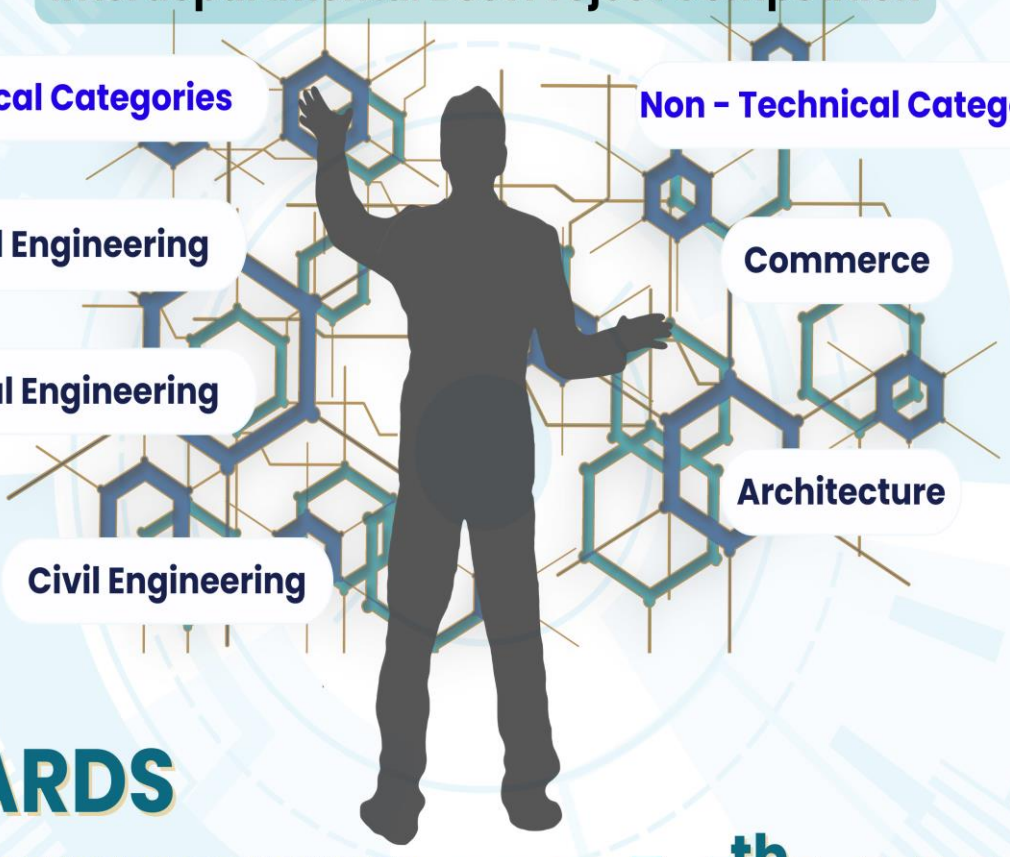
Interdepartmental Best Project Competition



Technical Categories

- Electrical Engineering
- Mechanical Engineering
- Civil Engineering

Non - Technical Categories

- Commerce
- Architecture

AWARDS

- TECHNICAL CATEGORY AWARD (1st, 2nd & 3rd Placed)
- NON-TECHNICAL CATEGORY AWARD (1st, 2nd & 3rd Placed)
- BEST PROJECT POSTER AWARD
- BEST PROJECT PRESENTATION AWARD
- BEST PROJECT DESIGN AWARD
- BEST OVERALL PROJECT AWARD (Sponsored by: ALUMNI PoliPD)

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Theme: Leveraging Innovations for SDGs

Keputusan i-StAP 2024

(Anugerah Keseluruhan)

Projek Terbaik:

- **Mini Solar Boat Lake Cleaner**

Poster Terbaik:

- Lunar Boutique Hotel

Pembentang Terbaik

- Dormitory Guard Student Entry and Exit Management System

Rekabentuk Terbaik:

- Crystoa Drink

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Theme: Leveraging Innovations for SDGs

Keputusan i-StAP 2024

(Anugerah Projek Kategori Bukan Teknikal)

Tempat Pertama:

- Lunar Boutique Hotel

Tempat Kedua:

- Crystoa Drink

Tempat Ketiga:

- Ayem Tentrem Boutique Hotel

(Anugerah Projek Kategori Teknikal)

Tempat Pertama:

- Auto Spring Absorber Installer

Tempat Kedua:

- Mini Solar Boat Lake Cleaner

Tempat Ketiga:

- Palm Oil Boiler Ash As Walkaway

KATEGORI BUKAN TEKNIKAL

ID	TAJUK	PINGAT
i-StAP'24 01	The Ashrial Boutique Hotel	GOLD
i-StAP'24 02	Heritage Haven Boutique Hotel	GOLD
i-StAP'24 03	Inap Desa	GOLD
i-StAP'24 04	The Andapung	GOLD
i-StAP'24 05	Lunar Boutiqe Hotel	GOLD
i-StAP'24 06	The Lures	GOLD
i-StAP'24 07	The Umpan	GOLD
i-StAP'24 08	Ayem Tentrem Boutique Hotel	GOLD
i-StAP'24 09	Samarlingga	GOLD
i-StAP'24 10	Vertex Boutique Hotel	GOLD
i-StAP'24 11	Naturespaces	GOLD
i-StAP'24 12	Mangrove Haven Boutique Hotel	GOLD
i-StAP'24 31	Kurkis Chips	SILVER
i-StAP'24 32	Crystoa Drink	GOLD
i-StAP'24 34	Aegris	SILVER
i-StAP'24 35	Averrhoa Bilimbi Powder	SILVER
i-StAP'24 36	Twistcatch	GOLD
i-StAP'24 37	Pomelle Clay Mask	SILVER
i-StAP'24 38	Drypod Boost	GOLD
i-StAP'24 39	Neemstick	SILVER

Theme: Leveraging Innovations for SDGs

i-StAP'24 01

Tajuk

The Ashrial Boutique Hotel

Penyelia

Rafidah binti Suib

Pelajar

Muhammad Fazrick Ashraf bin Mohd Faisal

(06DSB21F2047)

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ASHRIAL
BOUTIQUE HOTEL

INTRODUCTION

Ashrial Boutique Hotel
is a travel accommodation boutique hotel, located in Kuala Selangor. The ideology of this project vision is to build a travel accommodation building that can provide a comfortable service quality for everyone, especially guests. Introduce environmentally friendly technologies and processes to

AIM

To propose an industrial boutique hotel that fulfill needs, and also create a unique and memorable space

OBJECTIVE

1. design of industrial buildings is the preparation of design documentation based on the unity of economic and functional feasibility of the project and the creation of an optimal, aesthetic exterior composition of the building

themselves in the market and attract their target audience. This could involve consistent branding

ACTIVITIES

USER TARGET

Concept

In this concept, I have chosen the green element concept because it can cool the building, besides this green element can also absorb the heat in the room and other environments and also it can attract the end of sorting with a calm atmosphere

FORM DEVELOPMENT

The proposed site in the center part of kuala selangor directly to connected to the to jetty sky mirror

proposed to arrange the program with the zonning in the order to systematic circular of space and view

proposed building for allow natural lighting into the building in the middle part

facade inspired by one of the geometrik pattern. natural shed for the building.

SITE PLAN
SCALE 1:250

ISSUE SITE

Hotel Ashrial as well know lack of security
Wild animal in this site and also lack of attraction around jetty kuala selangor

Case Study

Text description provided by the architects. Thalia Boutique Hotel is a breakthrough urban project where cultural heritage meets the modern world by utilizing non-conventional construction techniques. Blocks are floating in the air, fishnets connect between blocks of rooms for people to hang out and relax while there is 50% interior void space making this visually fun and entrancing

The challenge was that the investor wanted a nostalgic feeling of traditional value while creating an open-spaced fun place for people to interact and totally relax. Also required was a break from the boxlike, boring construction going on everywhere. Currently, most accommodation projects in this area prioritize investing and designing to maximize the floor area to optimize commercial efficiency by having as many rooms as possible

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i-StAP'24 02

Tajuk

Heritage Haven Boutique Hotel

Penyelia

Rafidah binti Suib

Pelajar

Farah Anisah binti Kamarul Ariffin

(06DSB21F2049)

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KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
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INTEGRATED STUDENT ASSESSMENT PROJECT

HERITAGE HAVEN

To proposed an travel accommodations boutique hotel for the town as a means of lodging. A travel accommodations boutique hotel is suggested to be built in Kuala Selangor's Kota Malawati. The site is advantageous because it is not just near a commercial district but also well-liked and has lovely surroundings. Travel accommodations boutique hotel named "HERITAGE HAVEN" inspired by the concept of "HERITAGE". The imaginative and creative concepts are transferred from this concept to produce the spaces and forms needed for the structure to realize its physical and conceptual design. The site itself "two lands separated by a river" provided the idea for this travel accommodation boutique hotel. Travelers are a boutique hotel's main target market, along with families, employees, people with disabilities, and many more.

NIPPON PAINT — OW 1082 · NP N 443 P · NP N 728 T · NP N 1324 D

KEY PLAN
SCALE : NTS

LOCATION PLAN
SCALE : NTS

OBJECTIVES

- Utilizes heat-blocking components while constructing buildings, such as vibrant colors, increased natural ventilation, and wind-directional apertures.
- To maintain green elements between nature and buildings with a heritage concept.
- Improving thermal comfort and natural lighting.

ISSUES

Community

Most members of the local community are visitors who come to Kuala Selangor is renowned for housing various monkey species. The majority of visitors feed the habitat, which has an impact on the locals when the habitat remains in a public space and disturbs them. Although MPT Kuala Selangor has issued a warning not to feed the habitat, many vendors continue to offer animal food to visitors to Kuala Selangor.

Social Issues

State of Soil

Existing sites, when the proximity of marshes to the site area causes the soil to become muddy. Furthermore, the site lacks drainage, which could complicate construction if it depends on the weather.

Site Condition

Climate Action

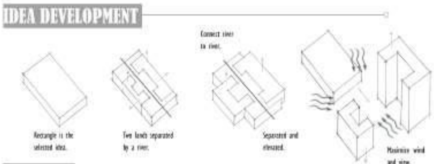
Sea level rise causes the sea water to surge to the Malawati plain, which faces the site area, and some nearby places to flood with ankle-deep sea water. This is where the problem of sea water tides comes into play.

Architecture Issues

CONCEPT

The "HERITAGE" helps us examine our history and traditions and enables us develop an awareness about ourselves.

IDEA DEVELOPMENT



USER STUDY

Using the "HERITAGE" concept in the design of a boutique hotel offers a chance to turn the page for visitors and locals alike who come to Kuala Selangor to take in the region's historic buildings.

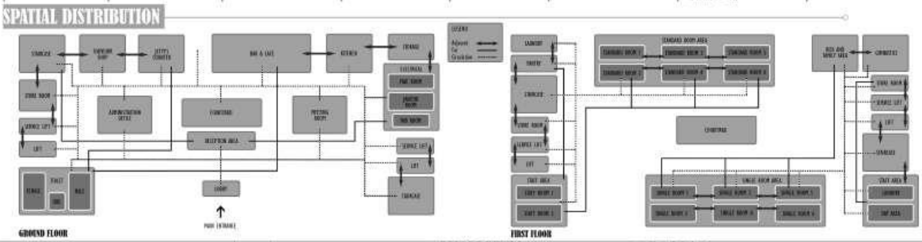
	WORKERS	FAMILY	TOURISM	DISABLED PERSON
Community	Lecturer, Scientist, Doctor, Employee	Adult, Child, Teen	Travellers	Old person, Disability Person
Why	Boost work productivity / Conduct endless research / Get access to internet resources	Unrestricted vacation days / Family time / Stress relief	Ambiance of historical sites / Historical locales / Time management	Opportunity for those with disabilities / Benefits for senior citizens

SITE VIEW

CIRCULATION PEDESTRIAN

EXISTING MAIN ROAD	EXISTING MAIN ENTRANCE	EXISTING EXIT	PROPOSED SITE	BUKIT MALAWATI	DATARAN MALAWATI	MALAWATI TOWN	MASJID RAJA LUMU
• The site's main entrance from different route directions	• Access from the main entrance of the site.	• The main exit from the site.	• Location area with the river at the rear.	• This location is at the top of the hill and offers views of the site. • 20 Minute from site	• This section faces the site. • 5 Minute from site	• This section one of the surrounding attractions. • 10 Minute from site	• This section is near to the site. • 10 Minute from site

SPATIAL DISTRIBUTION



GROUND FLOOR

FIRST FLOOR

SITE PLAN

SCALE 1:250

SPATIAL DIVISION

PUBLIC SPACE / OPEN SPACE
Courtyard, Souvenir Shop, Gymnasium, Kid and Family Area, Spa and Sauna

DISTRIBUTION SPACE
Cafeteria, Kitchen

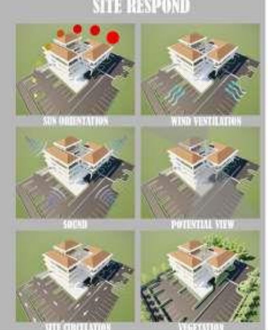
ACCOMMODATION SPACE
Single Room, Standard Room, Deluxe Room, Double Deluxe Room, Staff Changing Room

WORK SPACE
Meeting Room, Administrative Office, Receptionist, Jetty's Counter

PRIVATE SPACE
Toilet, Storage, Store Room, Laundry, Pantry

MECHANICAL SPACE
M&E Room, Janitor Room, TNB Room, Water Tank Room

SITE RESPOND



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i-StAP'24 03

Tajuk

Inap Desa

Penyelia

Norul Fazlina binti Khashim

Pelajar

Muhammad Anas Hakimi bin Raub

(06DSB21F2017)

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The land heals us, when we heal it!

The intention is to design a boutique hotel that **celebrate the fusion or urban living with the natural environment** through the elevated beauty of combination structure **(K.A.M.P.U.N.G)**. The components of food, entertainment, farming activites that **bring people together in kampung** will be readapt into design program. The **provision of meeting place**, hall, public square, roof garden and cafeteria are essential in this project to activate the development.

By providing extensive greenery for resident to dwell and urban farming area for public also **is a respond to macro site context** which is the massive concrete jungle in the urban nowadays have cause urban heat island and climate change. Provision of greenery and edible plants in urban farming will introduce microclimate which will cool the surrounding developments and provide comfort to occupants.

SITE CONTEXT

REGIONAL CONTEXT

KEY PLAN N.T.S

Low carbon city, and kampung are archetypes of urban contigency, and part of Kuala Selangor's Identity.

DETAIL OF STUDY AREA

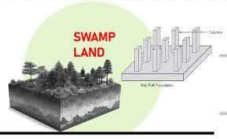
LOCATION PLAN NTS

Its located nearby to Bukit Malawati where to have a better connectivity that connected various people from significant spot.

PROBLEM STATEMENT

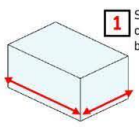
Kuala Selangor known as a Tourisme city which are rich with their historical value and focussing on Low Carbon City for development. There are 2 issues that we should considering in to make sure the site are in a good condition for the comfort of the users.

-Innovation for outdoor facilities
-Deploy an electronic sound repellent

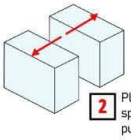


-Use Raft Foundation
-Use Piles Foundation

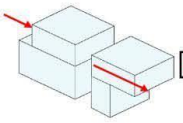
FORM DEVELOPMENT



1 Started from a cubic mass to be extrude next.



2 Planning of the space for the public and hotel user.



3 Carving the mass by extruding some space to create the building form.

LITERATURE REVIEW

UNDERSTANDING CONCEPT

Kampung is defined as cluster of human settlements often located within cool shady environments with an abundance of greenery and resources within their vicinity.

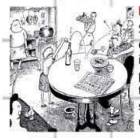
SHADY ENVIRONMENT
+
ABUNDANCE OF GREENERY
+
RESOURCE

- Farming & plantation: paddy, daily herbs lemon grass, curry leaves, pandan leaves and etc.
- Livestock: goat, cow, chicken

LAND

COMMUNITY & SPIRITS

What bring people together?



FOOD

Stall, warung and eateries is important program to inject the kampung spirit into development.

ENTERTAINMENT

Large compound to play. Dance and performance space. Wayang Pacak (film)

FARMING / PLANTATION

Extra land for community to do communal gardening or plant herbs/vegetation.

SOCIAL CLUB

(JKK Kampung, Persatuan Kompang and etc) Implemented into function room & meeting place.

AIM OF DESIGN

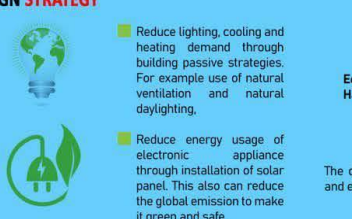
To assist the building toward sustainable development and relevance to the Malaysia Tropical weather, environmental context, cultural and social need which related to the Kampung vibes concept itself.

OBJECTIVE OF DESIGN

-To increase user connectivity to the natural environment.
-To create a productive, comfort and similarity space to a "Kampung" vibes which can increase the visitor experience.
-To transform the built environment and reduce the environmental impact of development.

DESIGN STRATEGY

- Reduce lighting, cooling and heating demand through building passive strategies. For example use of natural ventilation and natural daylighting,
- Reduce energy usage of electronic appliance through installation of solar panel. This also can reduce the global emission to make it green and safe.



The design focussed and responds to the climate and environmental conditions of the tropical region.

MATERIAL / METHOD

- Hempcrete is a mixture of sand, hemp fibres and lime. Its super lightweight and easy to work in.

- Recycle Wood work as aesthetically pleasing, easy to use and fells like nature. Lower environmental impact than harvesting new timber.

- Recycle steel doesn't lose it properties when recycled. Its strong and durable.

SDG ELEMENT

- Sustainable and reliable source of energy integrated within the design.
- Hiring local workers and highlighting local works.
- Combating climate change by using more green energy. Natural Ventilation and Lighting.
- Promote sustainable energy by using a solar energy.

TARGET USER

TOURIST

As we known Kuala Selangor is famous as tourism city. This can attract tourist as well.

DISABLE PERSON

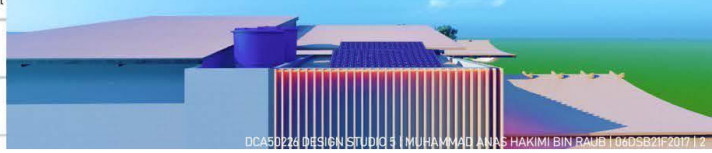
Every people have the rights, not to forget the disability person.

EDUCATOR

Educator, students nowadays love to explore by visitting place to gain ideas or desire.

ACHIVEMENT

- Mitigate the heat gain in a building.
- Encourages air movement through the rooms of a home or building to achieve a desired thermal comfort
- Lower negative impact on our environment.



Theme: Leveraging Innovations for SDGs

i-StAP'24 04

Tajuk

The Andapung

Penyelia

Shahrul Kamil bin Yunus

Pelajar

Nur A'Liah A'Tirah binti Rosdi

(06DSB21F2014)

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JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
PORT DICKSON

iStAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

ANDAPUNG

BOUTIQUE HOTEL

DCA500226 DESIGN STUDIO 5 SESSION 2 2023/2024
SUPERVISOR : TUAN HAJI SHAHRUL KAMIL BIN HAJI YUNUS

D E S I G N S T A T E M E N T

"The design of the tropical fishing concept for our boutique hotel aims to create a mesmerizing tropical oase, combining the natural beauty and richness of marine culture in a tropical destination. By harnessing the color palette inspired by the seas and beaches, as well as the natural textures that reflect underwater life, we will create a soothing and alluring space. Through the integration of decorative elements such as fish motifs, coral, and tropical plants, we will create an authentic and refreshing atmosphere, offering an enriching and inspiring experience for our guests Our design will also reflect our commitment to sustainability, prioritizing the use of environmentally friendly materials and supporting local marine conservation initiatives. Thus, we will create a unique and memorable resting place for guests seeking a different and meaningful stay in a tropical paradise

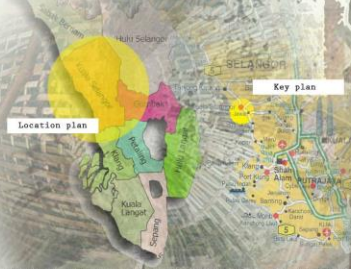
A I M

To Proposed commercial and tourism hotel buildings with a Fisheries concept with the theme of sea world fishing and tropical style is to create a unique, effective, and harmonious stay with nature. This building aims to be an attractive destination for tourists who want to merge with the beauty of underwater nature and the warmth of the tropics. Beside that, This hotel aims to introduce visitors to marine biodiversity as well as the importance of preserving the marine ecosystem. In addition, the traditional fisherman's bubu concept was chosen to respect the local cultural heritage while creating an authentic and environmentally friendly feel.

O B J E C T I V E

1. To Provide a tourism resting place as a boutique hotel for tourism, student, staff, and etc
2. To Organize the courtyard at center space planning that apply "Bubu fish catcher design" for landmark selangor river fishing center.
3. To provide commercial workshop " menganyam buloh " and art gallery inside building.
4. To Utilize the green Design strategies such as solar panel, grey water harvesting, water elements and open space for sustainability.

SITE CONTEXT OF PROPOSED



The name selangor originates from Kuala Selangor which is a town along the side of the Selangor River. The word "kuala" means estuary odf river. Hence the estuary of sungai selangor is called Kuala Selangor. In the old day, it is common for a place to be named after a river which is the main of made of transportion for people living by river banks.

LOCATION
Kuala selangor is located about 54km to north west of Kuala Lumpur and is the second largest district in Selangor.
(Sabak Bernam, Hulu Selangor, Klang, Straits of Malacca)

ISSUES

A stronger and safer foundation with researched land
-Piling Foundation
-Muddy Foundation
-Foundation Pile

- Use of Voice Capture
- Consult a wildlife expert
- Restrictions on Access to Food

- Routine Care and Preservation every month
- provide good ventilation. The drain has good ventilation to ensure smooth air flow.

TARGET USER

The target users of this boutique hotel are tourists, disabled guests, sailors, educators, and fishing enthusiasts

CONCEPT

My concept is themed Andsapung, which means ocean fisheries. I inspires the fishing tool " Bubu " which is a traditional tool, as well as related to the circumstances surrounding the proposed site, and I intend to make it a historic landmark in Kuala Selangor. as well as giving tourists a taste of nature's atmosphere

STYLE

Tropical
create a relaxed, natural, and open atmosphere, in line with the surrounding environment. such as the use of natural colors and the wide veranda around the hotel to provide a comfortable open space for relaxation or a view of nature.

IDEA DEVELOPMENT

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Theme: Leveraging Innovations for SDGs

i-StAP'24 05

Tajuk

Lunar Boutiqe Hotel

Penyelia

Norul Fazlina binti Khashim

Pelajar

Muhammad Azzirzur Zairi bin Mohamad Aznin

(06DSB21F2003)

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○ *Overview* INTRODUCTION

#Lunar Boutiqe Hotel project is a solution for the temporary overnight lodging of the travelling public that beautifuly embbed beside the Selangor River surrounded with historical Dutch style architecture from 1700s.

The ideology of this project vision is to build a travel accommodation building that can provide comfortable service quality for everyone, especially guest with help local flora & fauna. Introduce environmental friendly technologies and processes to remain in balance with nature and meet the needs of society.

#Lunar project explore the creative innovation of green technology & sustainable boutiqe hotel guide by Bioclamatic Design Concept to achieve project vision.

It seamlessly weaves high tech architecture elements with identity of Kuala Selangor which is 'Kelip-Kelip'.

○ DESIGN INTENTION

Design a building by using Bioclamtic Concept guide by local climate that support cognitive funtion, physical health and physical well-being. Making nature as focal view to make sure countinoues interaction between human & nature. In order to reach zero carbon emmisions & reduce energy consumptions through recylable energy source as Malaysia 's target toward utilizing Green Building Index (GBI) by year 2030.

○ OBJECTIVE

> To proposed bioclamatic design concept for sustainable building.

> To apply central organization into building layout to provide different experience for user.

> To harvest natural lighting into building space whille still maintain privacy using recycable polycarbonate translucent panel as building skin.

> Add values and enhance living for user.

○ SDG INTEGRATION

> Effort to transform our energy systems, increase energy efficiency, and broaden the use of renewable energy sources.

> Effort to create sustainable cities and communities that are inclusive, safe, resilient, and sustainable.

> Effort to create a resilient infrastructure, promote sustainable industrialization, and foster innovation. However, achieving these targets requires substantial investment and international cooperation.

Sustainable Development Goals

○ *Who ?* USER STUDY

Family | Couple | Boomer |

Providing Accommodation that fulfill their needs and privacy. These people traveling with multiple generations, leading to competing priorities and different travel styles. Some may require more easily accessible spaces that can accommodate a disability or special need.

Business Traveller | Green Traveller | Backpackers |

Focus on efficiency and self-service (contactless options) so that they can have greater control over their experience while also focusing on eco-friendly accommodation as certain people want to minimze carbon foot print.

Student | Digital Nomad |

Undestanding & fulfill their needs such as affordable rooms, free access to internet connectivity and social gathering space for their flexibilities and well-being. These people want to dive into community around them and explore .

Who they are & What they expect

○ *Understanding* ISSUES

Monkeys are intelligent and adaptable, and they can become a nuisance in urban areas, getting into homes and businesses in search of food. This can lead to conflicts between humans and monkeys.

Close contact between humans and monkeys can also increase the risk of disease transmission.

Urban development often leads to habitat fragmentation, which can be particularly challenging for arboreal species like monkeys that rely on tree canopies for movement.

Due to Malaysia's humid island climate, architecture often needs to mediate between interior and exterior spaces. This can include design elements that promote natural ventilation, and incorporate green spaces.

Urban planning in Malaysia is also adapting to address climate change challenges. This includes considerations for infrastructure development, carbon dioxide emission targets, and the provision of clean and treated water.

WILDLIFE "
Safety & Hygiene Issue

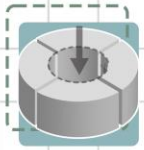
CLIMAXE "
Responsive Architecture

○ *Synthesis* IDEA DEVELOPMENT

> An inspiration to make something stand out from the rest but still reflecting something from location identity.

> An idea to devolop a building using funtion follow form.

> Public, semi public & private space placement base on landscape context around the site.



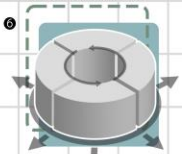
> Central plane push down to allow open courtyard.

> Inward intimate view.

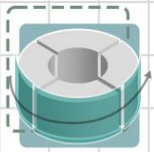
> Roof skylight are considered into building.

> Clear axis for entrance/exit.

> Looping the programme.



> Circular shape and circulation inside & outside building allow intuitive way finding.



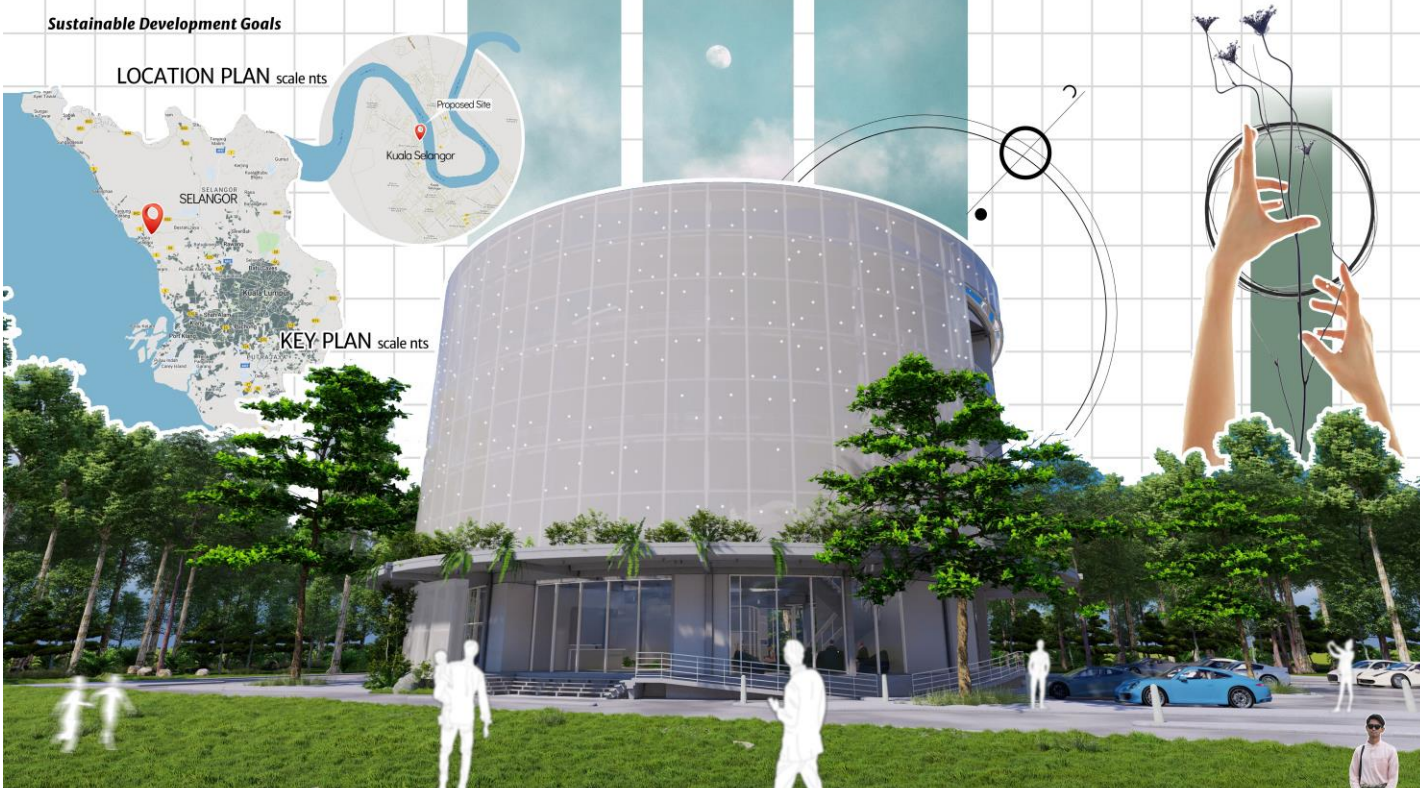
> Green technology building skin.

> Outward panoramic view.

> Green are integrated into building facade to reach thermal comfort, visual and acoustic environment.

LOCATION PLAN scale nts

KEY PLAN scale nts



i-StAP'24 06

Tajuk

The Lures

Penyelia

Shahrul Kamil bin Yunus

Pelajar

Muhammad Syaqeer Syahmi bin Rihoodin

(06DSB21F2022)

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DESIGN BY SYAQEER

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2024 iSTAP
INTEGRATED STUDENT ASSESSMENT PROJECT

THE LURES

KEY PLAN
NOT TO SCALE

LOCATION PLAN
NOT TO SCALE

DESIGN STATEMENT

THE LURES BOUTIQUE HOTEL WAS PROPOSED AT BUKIT MALAWATI SELANGOR.THIS HOTEL USE A ECO MODERN AND NATURE STYLE.COCEPT OF THIS BUILDING IS BUTTERFLY FROM THE TOP VIEW.THIS CONCEPT IS BUTTERFLY BECAUSE AT THE SITE IN BUKIT MELAWATI HAVE A BUTTERFLY BLEND WITH NATURE.THIS BOUTIQUE HOTEL THEME IS FISHING BECAUSE I WANT TO DELIVER THE ANGLER VERY LOVE THE NATURAL EVIROMENT AND PRESERVED THE NATURAL ENVIROMENT AND ALSO CAN PROTECT THE NATURE. IN ADDITION, THIS BOUTIQUE HOTEL CAN NOT ONLY BE USED TO STAY BUT THIS BOUTIQUE HOTEL HAS VARIOUS ATTRACTIVE SPACES SUCH AS, FISHING SHOP, RETAIL ,HAVE MAY TYPE OF ROOM,LOUNGE AREA TO SEE THE VIEW FROM THE RIVER AND THE BRIDGE AT BUKIT MALAWATI SELANGOR AND MORE ATTRACTIVE SPACE.THE USER CAN USE THE BOUTIQUE HOTEL IS TOURIST COME TO BUKIT MALAWATI AT KUALA SELANGOR.IN ADDICTION TOURIST IN KUALA SELAGOR ALSO CAN ATTEND TO THIS BOUTIQUE HOTEL TO DO VARIOUS ACTIVITIES.

SITE ANALYSIS

THIS AREA DOES NOT HAVE A LOT TREESBAND **SUNLIGHT** DIRECTLY FACING THE SITE.

HAS **POSITIVE NOISE** FRROM THE BEACH WHILE **NEGATIVE SOUND** COME FROM VEHICLES ON THE ROAD

IN MORNING **WIND** COME FROM THE SEA AND NIGHT WIND COME FROM THE ROAD

BEUTIFUL **VIEW** FROM BEACH

SITE SYNTHESIS

ADD TREE TO BLOCK THE BUILDING FROM MORNING SUNLIGHT AND CREATE SHADOWS

MAKE A **LANDSCAPE AREA FACING THE SEA** BECAUSE IT HAS A POSITIVE SOUNDS LIKE THE SOUND OF THE SEA

IN THE MORNING THE **COASTAL BREEZE** IS VERY STRONG THOUGHT THIS BUILDING

THE PUBLIC SPACE IN THIS BUILDING ALL FACE TO THE BEACH BECAUSE THEY HAVE A **BEUTIFUL VIEW**

DESIGN AIM

TO PROPOSE A BOUTIQUE HOTEL IN KUALA SELANGOR WITH ECO MODERN DESIGN TO SHOW THE NATURAL VIBE IN THIS HOTEL.

OBJECTIVE

- PROPOSED A COURTYARD IN THIS BUILDING
-USE NATURAL MATERIAL SUCH AS TIMBER.
-PROPOSE A SOLAR PANEL FOR BACKUP IN THIS BUILDING
-HIGHLIGHT THE SUSTAINABALITY AND PASSIVE DESIGN.

DESIGN CONCEPT/STYLE

THIS HOTEL USE THE ECO MODER CONCEPT TO SHOW THE ATURA VIBE.THIS HOTEL HAVE A BAMBOO ROOF FOR ROOFTOP
AND HAVE A SHAPE OF THE BUTTERFY.

DESIGN STRATEGIES

TO MAKE THIS HOTEL USER CAN FEEL THE NATURAL AND FISIHING VIBE.THIS HOTEL WANT TO SHOW THE USER FOR THE FISHING ATIVITIES ADVANTAGES.

TARGET USER

STUDENT AND CHILD

WORKER AND PUBLIC

TOURISM AT KUALA SELANGOR

SUSTAINABLITY

NATURE LIGHTING

NATURAL VENTILATION

WATER CONSERVATION

SITE PLAN
SCALE 1: 250

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INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 07

Tajuk

The Umpan

Penyelia

Norul Fazlina binti Khashim

Pelajar

Muhammad Alif Firdaus bin Mazhar

(06DSB21F2019)

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THE UMPAN

ADVENTURE MEETS RELAXATION

DESIGN STATEMENT

THE UMPAN Is more than just a place to stay, it is a destination for those who seek to immerse themselves in the rich culture of the locals in Kuala Selangor and the adventure in Fishing.

AIM & OBJECTIVE

To create a Boutique Hotel with staggered design concept and embraces elements of nature - inspired style for the locals and international tourist.

The objective is to propose a fishing theme where "relaxation meets adventure" with a staggered and cantilever building form. Sustainable design such as rain water harvesting system, solar panel, green roof, rooftop garden and bamboo facades as shading device.

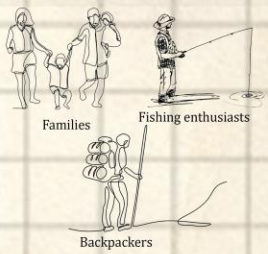
As for commercial and tourism, proposing a fishing workshop, a gallery, a small kiosk a boat trip to watch firefly activity, jetty fishing activity for children and

SITE ISSUE

Monkeys may pose a safety risk to occupants and visitors of architectural structures, especially in areas where they are accustomed to seeking food or shelter.

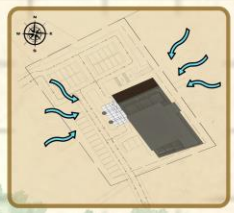
Improper disposal of food waste and litter around architectural sites can attract monkeys, leading to increased human-monkey interactions and potential environmental degradation.

TARGET USERS



SITE SYNTHESIS

Orientate the building east-west to avoid a long of the building side to face the sun. Added shading devices such as vertical bamboo as facade



Designing a building with a significant number of openings is essential to harness the power of natural ventilation. the natural ventilation came from the river

Designing a building with a significant number of openings on east side to maximise the positive view towards the Kuala Selangor River.

PRECEDENT STUDY

Evaluate the environmental benefits of using bamboo as a building material, focusing on its renewability, carbon sequestration, and low embodied

Adding open spaces to create a connection with the nature of Kuala Selangor and maximizing the natural ventilation

SITE PLAN
1:250

MUHAMMAD ALIF FIRDAUS BIN MAZHAR 06DSB21F2019 | DESIGN STUDIO 5 | DCA50226 | PN. NORUL FAZLINA BINTI KHASHIM

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INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 08

Tajuk

Ayem Tentrem Boutique Hotel

Penyelia

Nornawar Laili binti Nordin

Pelajar

Ahmad Akmal bin Kamisly

(06DSB21F2032)

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"spend your quality time with the love one"

Ayem Tentrem Boutique Hotel

iStAP 2024 INTEGRATED STUDENT ASSESSMENT PROJECT

JABATAN KEJURUTERAAN AWAM

NAME : AHMAD AKMAL BIN KAMISLY
SUPERVISOR : PUAN NORNAWAR LAILI BINTI NORDIN

DESIGN STATEMENT

The proposed building program is a **boutique hotel** which **provide a space for family, travelers, fisher or community** in proposed site **to holiday, fisher make income to the public restaurant, relaxing and vacation.**

The boutique hotel built up area is **800sqm** with lobby, cafe, swimming pool, restaurant for public enjoy the scenery and room

KEY PLAN NTS

LOCATION PLAN NTS

ISSUE OF DESIGN

40% of the population in Kuala Selangor is **struggling with finances**

A lot of interest places in Kuala Selangor but **not link to each other**

Lack of **sustainable energy resources**

USER STUDY

FAMILY **LEISURE TOURIST** **TRAVELERS**

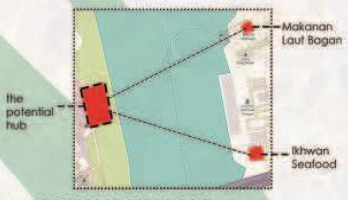
DESIGN INTENTION

OBJECTIVES OF DESIGN

• To generate **sosioeconomic of local people** by designing a boutique hotel **with jetty (business tourism)** in corporates with hotel, **a seafood restaurant to collect seafood, and open spaces like plaza to foster business opportunity of local products.**

• To create a **melting pot/hub** of a point of interest by designing a boutique hotel with **seafood hub, with many social activities at the plaza also the jettty.**

• To **intergrate nature in design** by **designing a sustainable and passive design** boutique hotel **by applying traditional combines with modern styles.**



CONCEPT OF DESIGN

The Bugis themselves represent the inspiration of the concept, which is to respect the location. For Bugis architecture, the concept **blends modern and traditional design characteristics.** This building includes a number of elements located over.

- The objective for developing **this concept is to convey the characteristics of bugis** and **their culture**.
- To **memorizing** about the environment of **unique bugis architecture.**
- To introduce Bugis such as their **culture and the art.**

IDEA DEVELOPMENT

1. Basic **rectangle** form.
2. Push and pull for **drop off space.**
3. **Cutting** the form to make a plaza
4. Extrusion adjusted to deliver equal **angles of view** and **shaded against sunlight.**
5. An additional panel for **enhancement of accessibility** and **design.**
6. Final form.

STRATEGIES OF DESIGN

Providing a location were the fishermen can **earn funds while exploring employment possibilities**

Adding solar energy systems may assist in **ensuring electronic devices utilize less electricity.** The structure itself **will reduce worldwide carbon emissions. Adding grey water haversting**

In addition to **allowing natural air to enter the building's interior,** an open facade may assist in **reduce energy consumption.**

Incorporate sustainable design practices **to minimize the hotel's environmental footprint.** This could include **energy-efficient systems, water conservation measures, locally sourced materials, and green spaces.**

ACHIEVEMENT

Got 2nd place on Research Innovation & Design Competition (RIDEC)

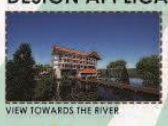
Got 1st place on designing a bridge and 2nd place on structure bridge in "BUILD AND BREAK COMPETITION"

MATERIAL/METHOD

Adding special detail of Arch column to drop-off

3D VIEW

DESIGN APPLICATION



VIEW TOWARDS THE RIVER

VIEW TOWARDS BALCONY

VIEW TOWARDS LEFT VIEW OF THE BUILDING

Theme: Leveraging Innovations for SDGs

i-StAP'24 10

Tajuk

Vertex Boutique Hotel

Penyelia

Norul Fazlina binti Khashim

Pelajar

Yahya bin Che Harun

(06DSB21F2013)

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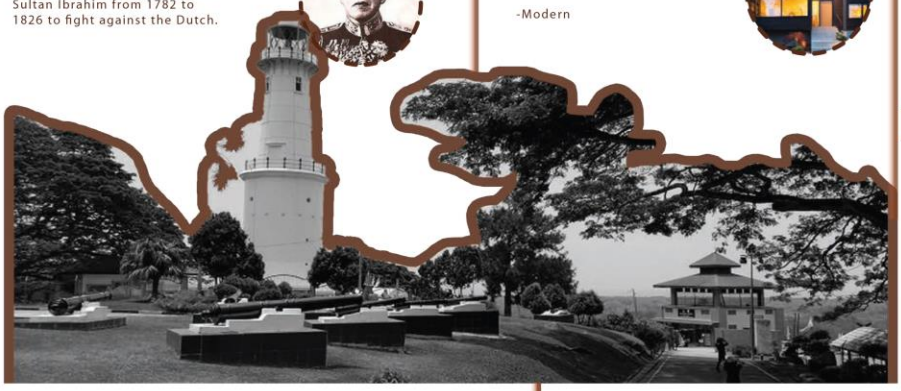
Site History

Kuala Selangor received it is name from it is location by the river estuary. It is said the name "**SELANGOR**" (Kuala Selangor) had existed since the early 15th centuary.

Kota Malawati was the administrative center and stronghold of the Selangor Sultanate in the late 18th and early 19th century.

It was built during the reign of Sultan Ibrahim from 1782 to 1826 to fight against the Dutch.



Aim

To proposed an boutique hotel with geometric Minimalist design.

Concept

-Minimalist
-Geometric

Architectural Style

-Modern

Objectives

-creating a **CLEAN SPACE** such as the use of materials in builidng , furnished floor and furniture.

-using **GEOMETRIC** patterns on the facade to make a first impression to the audience.

-create feel free with the use of **CLEAR WINDOW** everywhere

Objectives

-Digital entertaiment

-entertainment experience
-create content to upload on social media

Target User

-Men,Female

come to the vertex boutique hotel for a business meeting, conference, or seminar.

-Oku

By providing these facilities, vertex boutique hotels can ensure that all guests, including those with special needs, can enjoy a pleasant and comfortable stay.

-Tourist

With hotels that are easily accessible, tourists have a variety of accommodation options to stay during their trip.

-Tourist

vertex boutique hotel has various facilities and services designed to meet the needs and wishes of every member of your family.

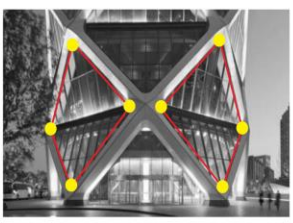
Idea Development

The shape found on the facade of the vertex boutique hotel consists of an area that is the local focus on the site, so this point is called the vertex.

Case Study

The structural exoskeletal "diagrid" system creates an open, column-free work environment. With spans between diagrid nodes of approximately eighteen meters, views from the interior will be expansive.

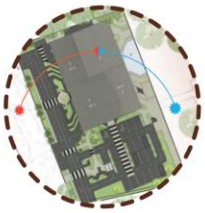
-POLY International Plaza,



Site analysis

-Sun path

-Geometric facade can reduce the Sunlight enter in building.



-Wind

-Geometric facade can reduce the Sunlight enter in building.

-Sound

-By using the right materials and designs, we can reduce the level of noise entering the room, creating a quiet and comfortable environment for our guests.

Yahya Bin Che Harun

i-StAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 11

Tajuk

Naturespaces

Penyelia

Nornawar Laili binti Nordin

Pelajar

Muhamad Adly Afiq bin Abdul Rahman

(06DSB21F2027)

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POLITEKNIK MALAYSIA

NATURESPACES

INTRODUCTION

To proposed a boutique hotel at kuala selangor. Target user for family and couple. To provide facalities for family and couple having vacation, can see the scenery of the river and hills visiting

AIM

- To create a building in kuala selangor that cool and has a beautiful view
- To create a family oriented boutique hotel
- Keep the site area as natural

OBJECTIVE

-Create diffirent zones for various activities
- Embrace biophlic element green area
- To design building that incorporate, natural and accomandation

ISSUE

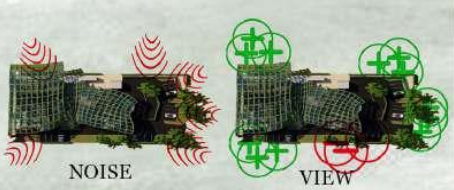
- Competition between the sky mirror appartment and proposed building
- wild animal

TARGET USER

COUPLE

FAMILY

SITE ANALYSIS

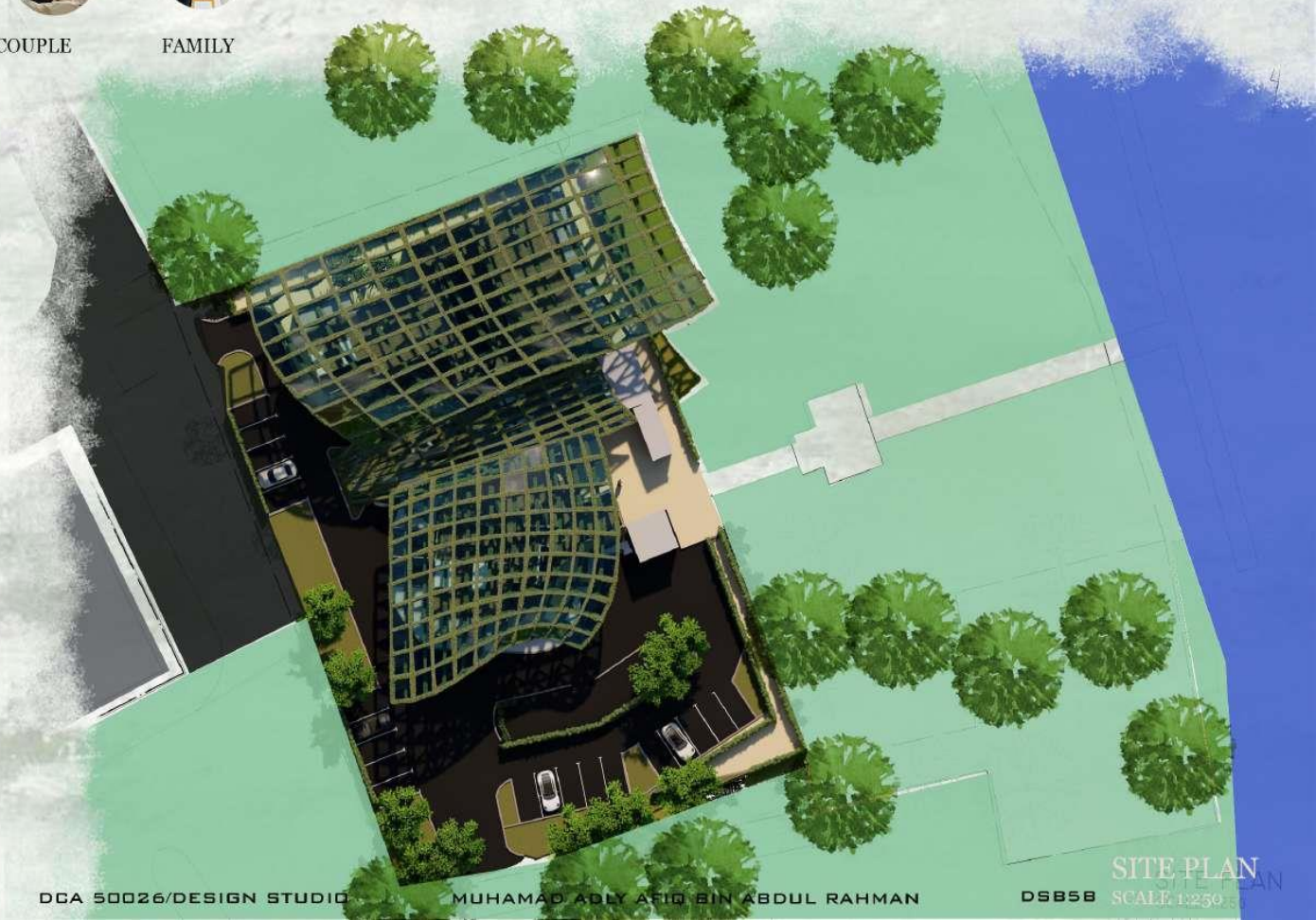


SITE SYNTHESIS

Create decorative, informative facade while keeping privacy. provide decking and terrace to proerct agaist sloping areas

LOCATION PLAN

KEY PLAN



SITE PLAN
SCALE 1:250

i-StAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

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Tajuk

Mangrove Haven Boutique Hotel

Penyelia

Rafidah binti Suib

Pelajar

Muhammad Syafri Nismal bin Mohd Shukor

(06DSB21F2044)

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DESIGN DEVELOPMENT

BY FOLLOWING THE SETBACK LINE TO CREATE A BASIC FORM

DIVIDING 3 PART TO LOCATED A SUITABLE PLACEMENT

MAKE EDGING TO EXPOSE THE VENTILATION TOWARDS THE OUTSIDE

Subtration and addition are applied to create sense of dynamic and gives out lively ambience.

Stacking up allows the visual connections towards the upper floor.

CONCEPT

ENERGY EFFICIENCY

ENVIRONMENTAL PROTECTION

FLEXIBLE

AIM

TO PROPOSED AN HOTEL THAT RECREATED THE TOPICAL FOREST WITH GEOMETIC DESIGN AND TO ATTRACT FAMILY AND TOURIST

A WORLD WHERE WETLANDS ARE TREASURED AND NURTURED FOR THEIR BEAUTY, THE LIFE THEY SUPPORT AND THE RESOURCES THEY PROVIDE.

TO INSPIRE AND MOBILISE SOCIETY TO SAFEGUARD AND RESTORE WETLANDS FOR PEOPLE AND NATURE.

OBJECTIVE

CREATING A CLEAN SPACE SUCH AS THE USE OF MATERIALS IN BUILDING, FURNISHED FLOOR AND FURNITURE

USING GREEN ELEMENTS AND PATTERNS ON THE FACADE TO MAKE A FIRST IMPRESSION TO THE AUDIENCE

CRETE A FEELING OF NATURAL VENTILATION THROUGH EVERY OPENING IN BUILDING

TARGET USER

FAMILY

- get a closer look on mangrove coastal biodiversity
- hands-on activities
- gain new informations & knowledge

TOURISTS

- get to know more on mangrove
- a transit point
- history of kuala selangor

RESEARCHERS

- proper space to carry out experimental investigations
- mangrove restoration
- collect specimen

MUHAMMAD SYAFRI NISMAL BIN MOHD SUKOR | DSB58 | 06DSB21F2044 | PN.RAFIDAH BINTI SUIB PUAN NORNAWAR LAILI BINTI NORDIN

i-StAP'24 31

Tajuk

Kurkis Chips

Penyelia

Rehan binti Berhanudin
Hasrul Nizam bin Mamat

Pelajar

Wan Mohamad Faris bin Che Wan Ghazali
(06DPR21F2058)

Muhamad Shaid Aiqqal bin Shamsul Kamar
(06DPR21F2015)

Wan Arisya Sofia binti Wan Khairul Hisyam
(06DPR21F2012)

Nur Aliaa Natasha binti Muhammad Rahimy
(06DPR21F2052)

Krisanth a/l Sivan
(06DPR21F2072)

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LEVERAGING INNOVATIONS FOR SDGS

TITLE OF PROJECT : KURKIS CHIP

SUPERVISOR NAME : PUAN REHAN BT BERHANUDIN

- WAN MOHAMAD FARIS BIN CHE WAN GHAZALI (06DPR21F2058)
- MUHAMMAD SHAID AIQQAL BIN SHAMSUL KAMAR (06DPR21F2015)
- NUR ALIAA NATASHA BINTI MUHAMMAD RAHIMY (06DPR21F202)
- WAN ARISYA SOFIA BINTI WAN KHAIRUL HISYAM (06DPR21F2012)
- KRISANTH A/L SIVAN (06DPR21F2072)

INTRODUCTION

- Kurkis Chips were made with 100% natural ingredients to deliver 100% nutrition for our consumers.

PROBLEM STATEMENT

- Kurkis Chips: A fruit-based snack targeting individuals seeking to manage or prevent high blood pressure, aid weight loss, support bone health, and prevent anemia.

OBJECTIVES

- Their flavoury also allows you to diversify your diet, ensuring a mix of nutrients.

METHOD

- Kurkis Chips, consist of dates, raisins, almond flour, nestum wholegrain, honey and corn flour that providing distinct value to the consumer.

CONTRIBUTIONS & SDG ELEMENT

- Nutrition labelling
- Food safety regulations
- Allergen labelling
- Halal certification(JAKIM)

ACHIEVEMENT

- Joint MAPP

PRODUCT APPLICATION

- Does not use any artificial coloring or any chemical impurities where the product uses only natural ingredients in the manufacturing process

PICTURE

INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 32

Tajuk

Crystoa Drink

Penyelia

Mohd Salihin bin Jamian
Mohd Fouzi bin Mustafa

Pelajar

Asna Zainab binti Mohd Fadzil
(06DPR21F2043)

Muhammad Ikmal Haziq bin Mohd Rashe
(06DPR21F2049)

Kugen a/l Renganathan
(06DPR21F2061)

Nurul Adani Rahwani binti Suhaimi
(06DPR21F2064)

Muhammad Amir Hamizan bin Muhamad
(06DPR21F2066)

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Leveraging Innovations for SDGs

CRYSTOA DRINK

SUPERVISOR :
Encik Mohd Salihin Bin Jamian

PROJECT MEMBERS :
Asna Zainab, Ikmal Haziq, Kugen, Adani Rahwani, Amir Hamizan

COMMERCE DEPARTMENT

1 INTRODUCTION

Matoa fruit-based drink that innovated into cube shape that has three tastes in one fruit. It is also rich in nutrients.

2 PROBLEM STATEMENT

- People didn't have awareness about matoa fruit
- Convenience for users to consume our products

3 OBJECTIVES

- Attract the interest of consumers,
- Highlight matoa fruit so they are aware of the benefits.

4 MATERIAL/METHOD

- Matoa fruit
- Molasses syrup
- Plain water
  - *Blend matoa fruit as puree*
  - *Dry other half of matoa*
  - *Melt molasses syrup with 1 teaspoon plain water*
  - *Place liquid into cube mold*
  - *Put the fruit into mold and coated with liquid*
  - *Kept at room temperature*
  - *Matoa cube is ready to pack*

5 CONTRIBUTIONS & SDG ELEMENT

Convenience
Crystoa Drink offers packaged in easy-to-open, convenient to keep on hand without taking up valuable refrigerator space. A convenient choice for people looking for easy, versatile, and long-lasting drink options.

Good Health & Well Being
Crystoa Drink offers not only a delicious taste but also prevents people from sickness such as preventing cancer cell development, reduce the stress, against virus infection and many more.

Cost Effective
Crystoa Drink saves money by the combination of refreshing cordial and also a healthy drink and its natural ingredients offer sustainable and developed to lead a healthy lifestyle.

6 ACHIEVEMENT

Won **The Best Group Presenter** for Marketing Proposal & Prototype Presentation **(MaPPP '2024)**

7 PRODUCT POTENTIAL MARKET/ PRODUCT APPLICATION/ DESIGN APPLICATION

- Health Conscious Consumer
- Versatility
- Online Sales Channel
- Mocktails
- Tea Flavoring
- Breakfast Boost
- Label design
- Packaging
- Point of Sales Display
- Digital and Social Media
- Advertising Material

8 PICTURE/DRAWING INNOVATION

"crystalize your thirst with crystoa"

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INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 34

Tajuk

Aegris

Penyelia

Nor Hashimah binti Abd Hamid
Ku Ahmisuhaiti binti Ku Ahmad

Pelajar

Roslinda binti Roslen
(06DPR21F2009)

Nurul Iffah binti Mohd Faizal
(06DPR21F2018)

Muhammad Zulizani Daniel bin Zulkurnain
(06DPR21F2028)

Muhammad Aizad bin Azizan
(06DPR21F2031)

Premaselvam a/l Subramaniam
(06DPR21F2037)

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AEGRIS (FACIAL MIST)

PREPARED BY:
NAME
ROSLINDA BINTI ROSLEN
NURUL IFFAH BINTI MOHD FAIZAL
MUHAMMAD ZULIZANI DANIEL BIN ZULKURNAIN
MUHAMMAD AIZAD BIN AZIZAN
PREMASELVAM A/L SUBRAMANIAM

REGISTRATION NUMBER
06DPR21F2009
06DPR21F2018
06DPR21F2028
06DPR21F2031
06DPR21F2037

SUPERVISOR: PUAN NOR HASHIMAH BINTI ABD HAMID
PUAN KU AHMISUHAITI BINTI KU AHMAD

Introduction/Background

Introducing Aegris, a revolutionary facial mist infused with the potent **benefits of betel leaves.**

Aegris, have 7 benefits in 1 product.

Problem Statement

- Lack of Comprehensive Solution
- Limited Availability
- Inefficient Skincare Routine
- Need for Portability
- Safety and Efficacy Concerns

Objectives

Our **objective** is to become the go-to solution for individuals seeking holistic skincare solutions, offering a **multifunctional product** that simplifies

Materials

Ingredients:
Aqua, Tetra Edta, Niacinamide, Glycerin, Piper betel, Vitamin e, Sabowax EL-H40, Betel leaves Ingredients Sharomix EG-10

Niacinamide

SDG element

- Good Health and Well-being -
Aegris have non-toxic ingredients that promote skin health and well-being.

- Responsible Consumption and Production -
Aegris have refillable containers to minimize environmental impact

- Life on Land-
Eco-Friendly, Aegris use non-toxic ingredients to minimize pollution of soil and water resources.

Achievement

Aegris once got the best ranking in the best overall category in the marketing plan presentation program

The market potential extends to:

1. Teenagers and young adults experiencing acne issues.
2. Consumers interested in holistic wellness and natural skincare solutions.
3. Ethnic communities with cultural ties to traditional skincare practices involving betel leaves.
4. Individuals with sensitive skin or skin conditions.
5. Those looking for multipurpose skincare products that offer convenience and versatility.

The design of Aegris Facial Mist

- Packaging
- Bottle Design
- Labeling
- Brand Identity

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INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 35

Tajuk

Averrhoa Bilimbi Powder

Penyelia

Damaisari binti Mohd Nawi
Hasrul Nizam bin Mamat

Pelajar

Prema a/p Ganesan
(06DPR21F2060)

Nur Aminullah bin Roduan
(06DPR21F1032)

Muhammad Ataullah bin Mohd Nazri
(06DPR21F1065)

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A'S ORIGIN

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AVERRHOA BILIMBI POWDER

INTRODUCTION :

Averrhoe powder is a product created by drying and crushing the fruit of the bilimbi tree into a fine powder.This powder can be used to taste foods, as a souring ingredient in cooking, or as a nutritional supplement.

PRODUCT TITLE & DESCRIPTION

Product Title: Averrhoa Bilimbi Powder

Product Description This product is specially created to make food taste better and people will enjoy their meal because it tastes better than usual.

OBJECTIVE :

This product is specially created to make food taste better and people will enjoy their meal because it tastes better than usual.

MATERIAL / METHOD :

1. AVERRHOA FRUIT
2. SALT
3. SUGAR

- Dry the fruit under the sun 7-12 hours
- Blend the dry fruit with salt and sugar

CONTRIBUTION

- Averrhoa bilimbi powder can be used in a wide range of culinary application
- Using unique fruits
- Can cure certain sickness

ACHIEVEMENT :

- Individual best presenter
- Selected to the I-STAP

PICTURE OF INNOVATION :

UNLEASH NATURE'S TANGY ESSESNCE !!

PRODUCT POTENTIAL MARKET/ PRODUCT APPLICATION/ DESIGN APPLICATION

- Culinary enthusiasts
- Can be used in a wide range of culinary application
- Convenience store, supermarket, hypermarket
- Label design
- Packaging
- Digital and Social Media
- Advertising Material

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INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 36

Tajuk

Twistcatch

Penyelia

Rasidah binti Kassim
Mohd Fouzi bin Mustafa

Pelajar

Norfazlina binti Abdul Hafiz
(06DPR21F2017)
Neerisa Judith a/p Joseph Edward
(06DPR21F2021)
Mohamad Azwan bin Zainuddin
(06DPR21F2027)
Nurjannah binti Ahmad Bunali
(06DPR21F2030)
Hani Nadzirah binti Hamdan
(06DPR21F2045)

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i-STAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

TWISTCATCH

SUPERVISOR :

PUAN RASIDAH BT KASSIM

PROJECT MEMBERS: COMMERCE DEPARTMENT

1. NORFAZLINA BT ABDUL HAFIZ
2. NEERISA JUDITH A/P JOSEPH EDWARD
3. MOHAMMAD AZWAN BIN ZAINUDDIN
4. NURJANNAH BT AHMAD BUNALI
5. HANI NADZIRAH BT HAMDAN

INTRODUCTION :

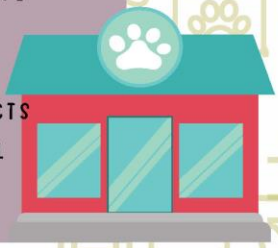
TwistCatch uses thick plastic earth-friendly compost bags with 1.1cm diameter filter holes to fast-filtrate pet waste. In addition, it comes with strong and durable drawstring handle features on the side to easily tie the plastic when you want to throw it away. Finally, it comes with plastic that smells good.

PROBLEM STATEMENT :

- TIME EFFICIENCY
- ENVIROMENT
- COST SAVING

OBJECTIVE :

- OFFERS PRODUCTS THAT SOLVE CLEANING PROBLEMS
- GIVE CONSUMERS CHOICES ABOUT INNOVATION PRODUCTS
- MARKET THE PRODUCT TO ALL PET STORES



MATERIALS / METHOD :

- BIODEGRADABLE PLASTIC BAG
- BIO-BASED SOURCES : CORN & SUGARBEETS

CONTRIBUTION & SDG ELEMENTS :

- ENVIROMENTAL PROTECTION
- CLIMATE ACTIONS

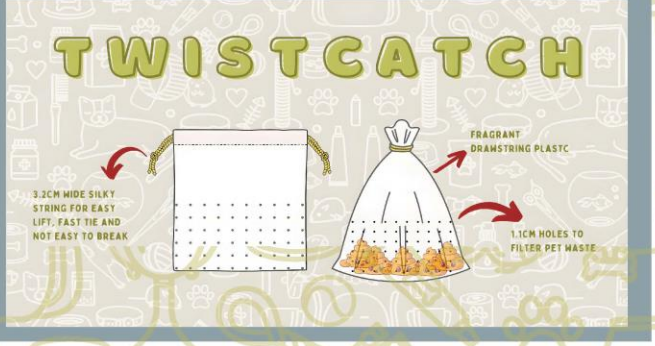
ACHIEVEMENT :

- SELECTED TO i-STAP PROGRAM.

MARKET POTENTIAL :

- Increasing Pet Ownership
- Growth of E-commerce

DRAWING OF INNOVATION :



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Theme: Leveraging Innovations for SDGs

i-StAP'24 37

Tajuk

Pomelle Clay Mask

Penyelia

Rehan binti Berhanudin
YM Raja Nazima binti Raja Ahmad

Pelajar

Muhamad Mustakiem bin Bedol
(06DPR21F1076)

Nurain Hafiza
(06DPR21F2065)

Mohammed Iskandar Zulkarnain bin Ishak
(06DPR21F2039)

Nur Haizawani binti Hamzan
(06DPR21F2048)

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POMELLE CLAY MASK
BY SKINSERENE

PN.REHAN BINTI BERHANUDIN(SV) — **YM RAJA NAZIMA BINTI RAJA AHMAD(SV)**

NURAIN HAFIZA (06DPR21F2065)
NUR HAIZAWANI BINTI HAMZAN (06DPR21F2048)
MUHAMMED ISKANDAR ZULKARNAIN BIN ISHAK (06DPR21F2039)
MUHAMAD MUSTAKIEM BIN BEDOL (06DPR21F1076)

INTRODUCTION

Using the benefits of three nutrient-dense natural ingredients of pomegranate, aloe, and Roselle the "Pomelle Clay Mask" is the latest advancement in skin care. Roselle is known for its high antioxidant content, which helps protect the skin from free radical damage and to improve skin elasticity and brightness. Pomegranate, which is high in antioxidants and vitamin C, adds hydration and natural brightness to the skin while also helping to minimize signs of aging.

In addition, with a combination of all the best ingredients for facial skin, this Pomelle Clay Mask treats problematic skin, fades acne scars, shrinks pores, soothes the skin, and absorbs oil from the facial skin.

PROBLEM STATEMENT

The problems that caused the SkinSerene company to create 'Pomelle Clay Mask' are:

- To make people aware of the properties of roselle and pomegranate which are excellent for skin care.
- To make it easier for customers to take care of their facial skin, SkinSerene provides a packaging tube with a brush ready to spread the clay mask on their face.

OBJECTIVES

- **To be the brand of choice for individuals looking for radiant and healthy skin through natural ingredients.**
- **Increase customer satisfaction and expand our market reach.**
- **Establish SkinSerene Company as a trusted authority in the beauty industry, while promoting personal care and awareness of environmentally friendly ingredients.**

MATERIALS AND METHOD

White kaolin powder, roselle powder, pomegranate powder, aloe vera and aqua.

1. Add 40g white koalin powder.
2. Next, add 10g of roselle powder and pomegranate powder.
3. One tablespoon aloe vera
4. Add 40ml of Aqua
5. Lastly, is mix well

CONTRIBUTION/SDG

- **Ease of use**

Because the textured easy apply at face.

- **Affordable Price**

The price is worth it, comparable to the quantity and quality provided. RM45.00 for 50ml for 1 tube pomelle clay mask.

- **Portability**

Allow user to carry the mask everywhere or travelling, sometime take care of their skin anywhere.

ACHIEVEMENT

SELECTED TO i-STAP PROGRAM !!!

PRODUCT POTENTIAL MARKET/ PRODUCT & DESIGN APPLICATION

Product Potential Market:

- Natural Ingredients
- Skin Benefit
- Easy to use
- Quality and Reputation
- Uniqueness

Product And Design Application:

- **Easy packaging tube because there is a brush to spread the clay mask on the face while not having to mix the clay mask and dirty your hands.**
- **Using natural ingredient to making safe and envirinment friendly option.**
- **save time, and affort by applying because the texture its liquid.**

PICTURE OF INNOVATION

i-StAP'24 38

Tajuk

Drypod Boost

Penyelia

Abdol Razak bin Abdul Aziz
YM Raja Nazima binti Raja Ahmad

Pelajar

Muhammad Izzat bin Mohd Abd Rahman
(06DPR21F2070)
Lokman Hakim bin Ab Razak
(06DPR21F2047)
Nur Huda Nadia bint Mustapha
(06DPR21F2076)
Nurul Nurshyafiza binti Mohd Faizal
(06DPR21F2010)
Yamuna Sri a/p Perumal
(06DPR21F2001)

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Leveraging Innovations for SDGs

DRYPOD BOOST ELECTRONIC MULTI PURPOSE DRYER

- MUHAMMAD IZZAT BIN MOHD ABD RAHMAN — 06DPR21F2070
- LOKMAN HAKIM BIN AB RAZAK — 06DPR21F2047
- NURUL NURSHYAFIZA BINTI MOHD FAIZAL — 06DPR21F2010
- NUR HUDA NADIA BINTI MUSTAPHA — 06DPR21F2076
- YAMUNA SRI A/P PERUMAL — 06DPR21F2001

SUPERVISOR: ENCIK ABDOL RAZAK BIN ABDUL AZIZ. / YM PUAN RAJA NAZIMA BINTI RAJA AHMAD

Introduction

DryPod Boost: Compact, efficient clothes dryer for small spaces, camping, and RVs. Uses heat, airflow, UV lamps, and power-saving design for eco-friendly drying.

Problem statement

DryPod Boost tackles traditional laundry inconveniences for compact living, offering efficient drying without space-hogging appliances or frequent trips to the laundromat.

Materials

The DryPod Boost features an acrylic exterior, ensuring a sleek, contemporary look and robust protection for the interior. Acrylic, valued for its strength, durability, visual appeal and transparency, is a common choice in consumer goods. Its lightweight and customizable nature helps in the DryPod Boost's compact design.

Objective

Introducing DryPod Boost: The Ultimate Portable Clothes Dryer. Revolutionize your garment care with our compact, efficient dryer. Say goodbye to laundry hassles, hello to freshness on the go!

Design application

A compact and versatile clothes dryer for modern life. Suitable in various spaces, minimalist design, simple and portable.

SDG element

DryPod Boost supports the Sustainable Development Goals with clean energy and safety compliance, meeting the regulations set by the Standard & Industrial Research Institute of Malaysia (SIRIM)

Picture

DRYPOD BOOST

Achievement

Gold medal award in MAPPP

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INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 39

Tajuk

Neemstick

Penyelia

Nor Ariefah Hafidza binti Kadir
Ku Ahmisuhaiti binti Ku Ahmad

Pelajar

Rohan a/l Chellaperumal @ Kumar
(06DPR21F2016)
Mohamad Harith bin Rahmat
(06DPR21F2029)
Noor Sabrina binti Shahrom
(06DPR21F2050)
Ain Faridah binti Azha
(06DPR21F2056)

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"LEVERAGING INNOVATIONS FOR SDGS"

Supervisors:

MADAM NOR ARIEFAH HAFIDZA BINTI KADIR
MADAM KU AHMISUHAITI BINTI KU AHMAD

Project Members:

AIN FARIDAH BINTI AZHAR	**(06DPR21F2056)**
NOOR SABRINA BINTI SHAHROM	**(06DPR21F2050)**
ROHAN A/L CHELLAPERUMAL @ KUMAR	**(06DPR21F2016)**
MOHAMAD HARITH BIN RAHMAT	**(06DPR21F2029)**

COMMERCE DEPARTMENT

Neemstick

"Protect your skin from sun and bugs with one swipe!"

INTRODUCTION/BACKGROUND

Neemstick, a revolutionary 2-in-1 sunscreen and insect repellent. This innovative product combines the natural power of neem extract with effective sun protection and bug repellent properties. It offers broad spectrum protection against harmful UV rays, preventing sunburn while keeping pesky bugs at bay. Perfect for outdoor enthusiasts and travelers, our formula is gentle on skin and suitable for all ages. Our target market includes individuals of all ages who prioritize natural skincare solutions and enjoy outdoor activities. The unique selling proposition lies in its dual-action protection, harnessing the proven benefits of neem in a convenient, eco-friendly product suitable for the whole family.

PROBLEM STATEMENT

In Malaysia, urban areas are expanding due to population growth, leading to **urban heat** islands. Additionally, there is a **growing need for insect repellent and sunscreen when outdoors** due to **increasing dengue cases** and sun rays, respectively. However, currently there is **no product** that combines sunscreen and insect repellent in one.

Skin-applied repellents are effective against insect bites and disease vectors. Evidence supports their use, such as **reducing malaria transmission from lemon eucalyptus** and **controlling dengue fever.**
(Sarah J. M., Anne J. M. & James G. L. (2012).

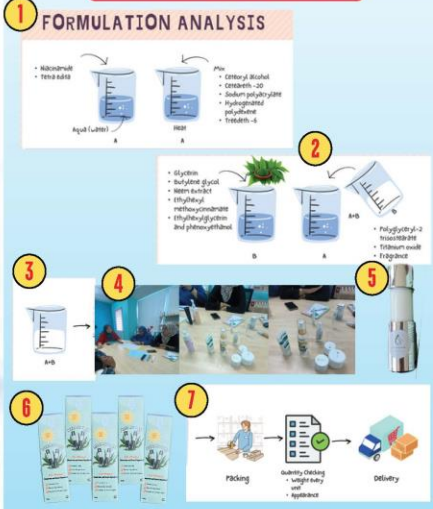
Combining **insect repellent and sunscreen did not change protection times**, but reapplying sunscreen over repellent reduced protection, suggesting using a **combined formula for effective mosquito protection.**
(Cameron E. Webb and Richard C. Russell, 2009)

OBJECTIVES

Neemstick
One Solution, Many Benefits!

- **Raise awareness** about Neemstick's versatile features and benefits.
- **Generate new market demand** with its cost-effective nature.
- **Increase customer acceptance** and **retain existing customers.**

MATERIALS/METHOD



CONTRIBUTIONS & SDG ELEMENT

Convenience

- Neemstick offers a **convenient 2-in-1 solution for sunscreen and insect repellent**, eliminating the need to carry multiple bottles or tubes.

Effective Protection & Eco-friendly

- Formulated with **pure neem leaves** and **eco-friendly** packaging, Neemstick provides reliable protection against UV rays and insects, ensuring peace of mind during outdoor activities.

Cost Effective

- Neemstick **saves money** by combining sunscreen and insect repellent and its natural ingredients offer a **sustainable, eco-friendly alternative** to chemical products, promoting long-term cost savings and **environmental preservation.**

BUATAN MALAYSIA
MADE IN MALAYSIA

GMP CERTIFIED

ACHIEVEMENTS

- **Best Marketing Proposal Award**
- **Best Prototype Award**
- **Gold Medal Award**

Collaboration with VNI Scientific Sdn Bhd

PRODUCT POTENTIAL MARKET / PRODUCT & DESIGN APPLICATION

Survey done all over Malaysia: **350** respondents

96.6% Will buy this product
Income range RM1.5K - RM3.5K

81.1% Students and Young Adults

Product & Design Application

- Convenient **stick cushion foundation design** for **easy carry** and **quick touch-ups** while **hands stay clean.**
- Provides **dual protection** against harmful UV rays and pesky insects.
- **Save time, money and effort** by applying just a single product instead of two.
- Using natural ingredient making it a **safer and environmentally friendly** option.
- **Non-greasy (water based) and lightweight,** providing comfortable wear without leaving a sticky residue on the skin.

PICTURE OF INNOVATION

KATEGORI TEKNIKAL

ID	TAJUK	PINGAT
i-StAP'24 13	PALM OIL BOILER ASH AS WALKWAY	GOLD
i-StAP'24 14	INTELLIGENT WARNING SYSTEM	BRONZE
i-StAP'24 15	PENGGUNAAN HAMPAS KELAPA UNTUK MENGHASILKAN ECO FIBER CEILING (EFC)	SILVER
i-StAP'24 16	SMART ROAD HUMP	BRONZE
i-StAP'24 17	G-SOLVE	SILVER
i-StAP'24 19	MINI SOLAR BOAT LAKE CLEANER	GOLD
i-StAP'24 20	MOTORCYCLE SECURITY SYSTEM USING NFC CARD	BRONZE
i-StAP'24 21	PORTABLE SOLDERING STATION	BRONZE
i-StAP'24 22	HOME ELECTRICITY USAGE MONITORING SYSTEM (HEUMS)	BRONZE
i-StAP'24 23	CHILDCARE CENTER ATTENDANCE MONITORING SYSTEM	SILVER
i-StAP'24 24	INTELLIGENCE HOME MONITORING AND SECURITY SYSTEM (i-HoMSS)	BRONZE
i-StAP'24 25	SMART HOMESTAY SYSTEM (SHOMES)	BRONZE
i-StAP'24 26	SOLAR TRAINER SYSTEM WITH IOT	GOLD
i-StAP'24 27	EZ-CALL	BRONZE

KATEGORI TEKNIKAL

ID	TAJUK	PINGAT
i-StAP'24 28	INTERACTIVE MURAL (ANIMAL SOUND)	BRONZE
i-StAP'24 29	DORMITORY GUARD STUDENT ENTRY AND EXIT MANAGEMENT SYSTEM	GOLD
i-StAP'24 30	GLASSES FADH FOR BLIND PEOPLE	BRONZE
i-StAP'24 40	AQUA HOME GUARD : IOT BASED HOUSEHOLD WATER USAGE MONITORING SYSTEM	SILVER
i-StAP'24 41	AUTO SPRING ABSORBER INSTALLER	GOLD
i-StAP'24 42	BRAKE PUMP PUSHER	SILVER
i-StAP'24 43	CIRCULAR COOLING FAN	GOLD
i-StAP'24 44	CYLINDER HEAD STAND	SILVER
i-StAP'24 45	OPTIMIZING LITHIUM BATTERY PERFORMANCE THROUGH ADVANCED THERMAL MANAGEMENT SYSTEM: HYBRID APPROACH	BRONZE
i-StAP'24 46	GRIND VALVE MACHINE	SILVER
i-StAP'24 47	RESCUE AIR DROP KIT	BRONZE

i-StAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 13

Tajuk

Palm Oil Boiler Ash As Walkway

Penyelia

Dr. Mohan Kumar a/l Manikam

Pelajar

Amiera Syamirah binti Idris

(06DKA21F2035)

Daphanie Easter binti Ramsami

(06DKA21F2046)

Izzah Nadhirah binti Awang Damit

(06DKA21F2004)

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iSTAP 2024 INTEGRATED STUDENT ASSESSMENT PROJECT

LEVERAGING INNOVATIONS FOR SDG's

DEPARTMENT OF CIVIL ENGINEERING

PENYELIA
DR MOHAN KUMAR A/L MANIKAM

AHLI KUMPULAN
DAPHANIE EASTER BINTI RAMSAMI
06DKA21F2046

AHLI KUMPULAN
AMIERA SYAMIRAH BINTI IDRIS
06DKA21F2004

AHLI KUMPULAN
IZZAH NADHIRAH BINTI AWANG DAMIT
06DKA21F2004

PALM OIL BOILER ASH AS WALKWAY

LATAR BELAKANG

- Menggunakan sisa pertanian "bio fuel" seperti kelapa sawit
- Palm Oil Bottom Ash (POBA)
- Palm Oil Fly Ash (POFA).
- Menggantikan pasir kepada POBA dan POFA mengikut peratus yang telah ditetapkan.

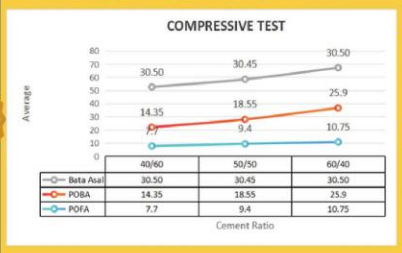
OBJEKTIF

- Menghasilkan bata interlock daripada sisa kelapa sawit.
- Mengenalpasti nisbah yang optimum untuk menghasilkan bata interlocking yang terbaik .

PENYATAAN MASALAH

- Di dalam industri belum ada nisbah yang optimum diketahui bagi menghasilkan bata interlocking yang terbaik menggunakan sisa pertanian kelapa sawit .
- Penambahan longokkan POBA dari kilang boleh dikhuatiri menjejaskan alam sekitar .

METODOLOGI

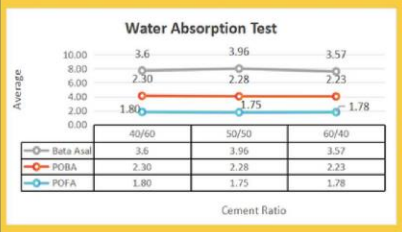


Palm Oil Fly Ash

Ratio	Reading 1 (MPa)	Reading 2 (MPa)	Average	Percentage %
40/60	7.7	7.7	7.7	7.7
50/50	9.4	9.4	9.4	9.4
60/40	10.7	10.8	10.75	10.75

Palm Oil Bottom Ash

Ratio	Reading 1 (MPa)	Reading 2 (MPa)	Average	Percentage %
40/60	13.5	15.2	14.35	14.35
50/50	17.8	19.3	18.55	18.55
60/40	25.7	26.1	25.9	25.9

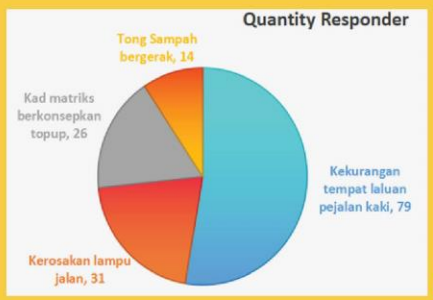


Palm Oil Fly Ash

Ratio	Weight before (kg)	Weight After (kg)	Average	Percentage %
40/60	1.82	1.77	1.80	1.80
50/50	1.80	1.71	1.75	1.75
60/40	1.76	1.81	1.78	1.78

Palm Oil Bottom Ash

Ratio	Weight before (kg)	Weight After (kg)	Average	Percentage %
40/60	2.32	2.28	2.30	2.3
50/50	2.34	2.23	2.28	2.28
60/40	2.30	2.17	2.23	2.23



PENCAPAIAN

- JOHAN ANUGERAH PROJEK HARAPAN PELAJAR PEMBENTANG TERBAIK

MATLAMAT PEMBANGUNAN MAMPAN

PASARAN POTENSI PRODUK

SHARES ENGINEERING MATTERS

SHAR ENGINEEERING SERVICE ingin berkerjasama dengan pihak Politeknik Port Dickson dalam membuat kajian lanjutan bagi melihat kebolehan pasaran produk dan mengikut spesifikasi yang ditetapkan oleh badan berkuasa kerajaan.

KOS PRODUK

HARGA PASARAN POBA	
BILANGAN	HARGA / PIECES
1	RM1.60
480	RM1.40
680	RM1.40

HARGA PASARAN POFA	
BILANGAN	HARGA / PIECES
1	RM1.20
480	RM1.00
680	RM1.00

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INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 14

Tajuk

Intelligent Warning System

Penyelia

Salmiah binti Husain

Pelajar

Muhammad Aidid Nuriman bin Mohd Jamil

(06DKA21F2037)

Muhammad Iskandar Zulkarnain bin Zaidi

(06DKA21F2049)

Nurul Aqiliskandar bin Mohd Yusnee

(06DKA21F2025)

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ISTAP 2024 INTEGRATED STUDENT ASSESSMENT PROJECT

CIVIL ENGINEERING & ARCHITECHTURE RESEARCH, INNOVATION & DESIGN COMPETITION

PROJECT TITLE : INTELLIGENT WARNING SYSTEM

INTRODUCTION

- Intelligent Warning System ialah mekanisme canggih dan automatik yang direka untuk mengesan, dan menyampaikan potensi ancaman atau bahaya kepada pemandu di kawasan selekoh tajam dengan menggunakan Sensor Ultrasonic & Sistem Arduino

OBJECTIVE

- Mencipta sistem amaran sensor dengan menggunakan program Arduino Uno
- mencipta sistem yang dapat mengesan kenderaan dan menukar kepada signal
- untuk mengkaji keberkesanan sensor projek pada pengguna jalan raya dari segi keselamatan

DATA & ANALYSIS

PROBLEM STATEMENT

! kemalangan

BANYAK BERLAKU KEMALANGAN DI SELEKOH TAJAM AKIBAT DARIPADA TITIK BUTA DI SELEKOH

! Kesesakan lalu lintas

KERETA AKAN MEMPERLAHANKAN KENDERAAN DI SELEKOH TAJAM DAN BOLEH MENYEBABKAN KESESAKAN LALU LINTAS

FINAL PRODUCT

SCOPE OF THE PROJECT

- Kumpul maklum balas daripada pemandu dan penduduk mengenai keberkesanan sistem amaran pintar dan buat pelarasan sewajarnya.
  - Mengumpul Data untuk analisis trafik untuk mengenal pasti kawasan di mana sensor ini diperlukan
- Memastikan projek mematuhi peraturan lalu lintas tempatan dan piawaian keselamatan.

CONCLUSION

DENGAN MENGGUNAKAN SISTEM ARDUINO , KITA DAPAT MENGHASILKAN PROJEK YANG BERKUALITI KESELEMATAN PENGGUNA JALAN RAYA AKAN MENINGKAT.

GROUP MEMBERS

F2049 MUHAMMAD ISKANDAR

F2037 MUHAMMAD AIDID

F2037 AQILISKANDAR

PENYELIA

TS. SALMIAH BINTI HUSAIN

i-StAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 15

Tajuk

Penggunaan Hampas Kelapa Untuk Menghasilkan Eco Fiber Ceiling (EFC)

Penyelia

Dr. Mohan Kumar a/l Manikam

Pelajar

Lim Jack Son

(06DKA21F2014)

Nurfatehah binti Razali

(06DKA21F2029)

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Leveraging Innovations for SDGs

ECO FIBER CEILING

DIPLOMA KEJURUTERAAN AWAM

PENYELIA:

DR MOHAN KUMAR A/L MANIKAM

AHLI KUMPULAN:

NURFATEHAH BINTI RAZALI
06DKA21F2029

LIM JACK SON
06DKA21F2014

PENGENALAN

- Siling rumah memerlukan pemahaman tentang struktur dan fungsi siling. Reka bentuk dalaman sebuah rumah bergantung pada silingnya. Untuk penyelesaian siling, papan siling plaster boleh digunakan. Ia ringan tetapi kuat, mudah dipasang, bersih dan bertahan lama.

Walaupun ciri ini mengawal suhu dan memberikan keselesaan di dalam rumah, ia juga memainkan peranan dalam penyerapan bunyi dan aliran udara, serta sebagai lapisan untuk kipas siling, lampu dan hiasan dalaman lain.

PENYATA MASALAH

- *Masalah berkaitan bahan siling mengandungi bahan berbahaya , harga kos yang terlalu mahal dan suhu rumah yang tinggi. Oleh itu kami, Mengantikan bahan daripada sisa pertanian dalam pembinaan EFC !!!!!*

OBJEKTIF

MATLAMAT 1
Menghasilkan siling daripada bahan sisa pertanian. (Eco Fiber Ceiling (EFC)).

MATLAMAT 2
Menguji tahap penyerapan haba dan menilai tahap resapan air.

MATLAMAT 3
Menghasilkan siling dengan harga yang berpatutan dan mampu milik.

BAHAN

1) Hampas Kelapa

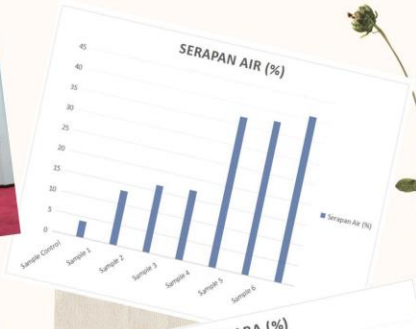
2. Casting Powder

ELEMEN SDG

PENCAPAIAN

- Menang Tempat Ketiga
- Poster Terbaik
- Booth Terbaik

DATA ANALISIS



POTENSI PASARAN

SHARES
ENGINEERING MATTERS

- Menurut analisis dan kajian pasaran yang dijalankan oleh syarikat Shares Engineering Services, produk kami adalah produk yang berkualiti tinggi dan mesra alam, dengan menggunakan sabut kelapa daripada fiberglass. Selain itu, produk ini memanfaatkan sisa pertanian menjadi produk yang boleh memberi kesan yang ketara kepada sektor pembinaan negara.

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Theme: Leveraging Innovations for SDGs

i-StAP'24 16

Tajuk

Smart Road Hump

Penyelia

Dr. Baharin Bin Ahmad

Pelajar

Ahmad Luqman Harith bin Supian

(06DKA21F2038)

Muhamad Yusri bin Nor Kasim

(06DKA21F2040)

Muhammad Danish Aiman bin Jailani

(06DKA21F2041)

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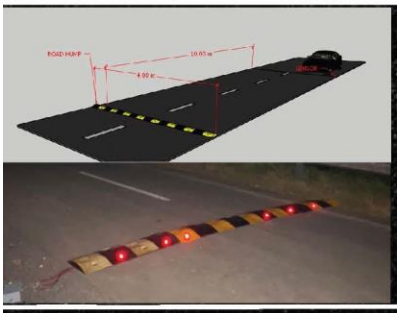
THE INTEGRATED STUDENT ASSESMENT

2024 iStAP INTEGRATED STUDENT ASSESSMENT PROJECT



SMART ROAD HUMP

The Smart Road Hump represents a significant advancement in road safety and traffic management technology. Unlike traditional speed humps, it utilizes modern sensors to dynamically control vehicle speed in off-road areas. This product aims to enhance road user safety and reduce the occurrence of minor incidents caused by obscure road bumps in dark areas.

BACKGROUND

The Smart Road Hump project emerges from the need for innovative solutions in transportation and road safety. Designed to raise driver awareness, the system includes light sensors that illuminate when a vehicle hits the bump, prompting more cautious driving behavior. This forward-thinking approach not only improves road safety but also contributes to the development of smarter and more adaptive urban

Let's Start!

PROBLEM STATEMENT

Controversial due to potential vehicle damage if driven over at excessive speeds and the inconvenience caused to emergency vehicles.

Can pose discomfort to individuals with spinal problems due to sudden deceleration.

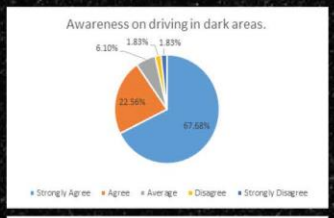
Introduction of smart road humps with built-in lights that illuminate when a vehicle approaches, enhancing visibility and awareness for drivers.

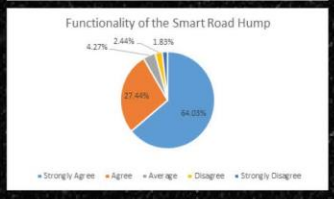
Implementation of smart road humps aims to address safety concerns while maintaining traffic flow and reducing accidents in the Kampung Sawah Sunggala area.

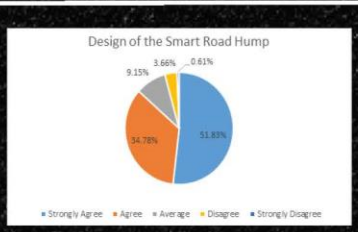
OBJECTIVE

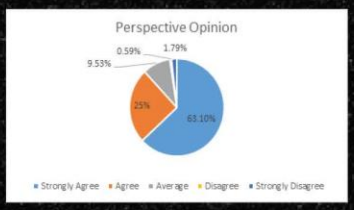
- A device to lower the speed of traffic to reduce the chances and severity of injury to drivers and pedestrians.
- Road utilities use modern technology with adding light sensor to give alert in dark areas.
- To designed in accordance with JKR specifications and legal requirements.
- To determine the level of user satisfication of the speed hump

DATA & ANALYSIS









SCOPE OF STUDY

DESIGN AND ENGINEERING
- Develop road humps be adjustable or equipped with sensor to detect vehicle speed and load

TRAFFIC AND REGULATIONS
- Data for traffic analysis to identify areas where road humps are needed
- Adjust parameters of existing humps based on traffic patterns

SAFETY AND REGULATIONS
- Ensure the project complies with local traffic regulations and safety standards.

USER FEEDBACK
- Collect feedback from drivers and residents regarding the effectiveness of smart road hump and make adjustments accordingly.

CONCLUSION

In conclusion, the Smart Road Hump epitomizes the fusion of technology and road safety, offering a dynamic solution to address irresponsible driving behavior. With its ability to adapt and regulate vehicle speed, this innovation promises to revolutionize urban traffic management, fostering safer roads and more efficient transportation systems for the future.

GROUP MEMBERS

F2038 AHMAD LUQMAN HARITH BIN SUPIAN

F2040 MUHAMMAD YUSRI BIN NOR KASIM

F2041 MUHAMMAD DANISH AIMAN BIN JAILANI

SUPERVISOR

DR. BAHARIN BIN AHMAD

i-StAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 17

Tajuk

G-Solve

Penyelia

Dr. Isha Baizura Binti Ismail

Pelajar

Nur Azliana binti Armaidi

(06DKA21F2015)

Siti Nor Hidayah binti Shahrudin

(06DKA21F2008)

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G-SOLVE

GEOTECHNICAL DATA ANALYSIS APP


BY:

SITI NOR HIDAYAH BINTI SHAHRUDIN (06DKA21F2008)

NUR AZLIANA BINTI ARMAIDI (06DKA21F2015)

SUPERVISED BY: DR. ISHA BAIZURA BINTI ISMAIL

DEPARTMENT OF CIVIL ENGINEERING

POLITEKNIK PORT DICKSON

INTRODUCTION

Application G-solve we are create is a calculation and graphing application. This G-solve is dedicated to helping students who take geotechnical laboratory subjects to get accurate and fast graphs without doing repeated manual calculations. This G-solve can also be used as a learning reference guide for students to overcome problems in calculations and graph sketches.

OBJECTIVES

1. G-solve Apps Application Development.
2. Data Integration from Laboratory Tests.
3. Improved Concept Understanding Geotechnical

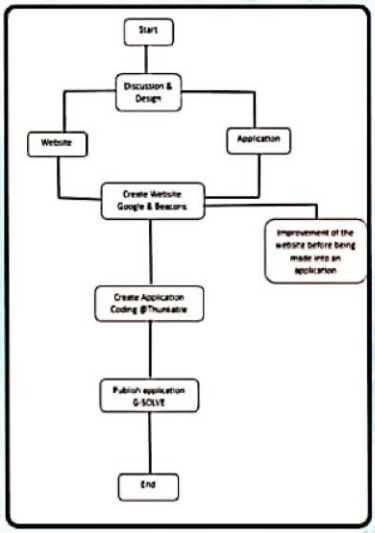
PROBLEM STATEMENTS

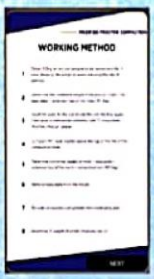
1. Difficulty in Data Collection.
2. Difficulty in Obtaining Accurate Graph.
3. Manual Processes in Counting and Drawing Graph.
4. High Risk of Errors in Calculations and Graphs.

SCOPE OF STUDY

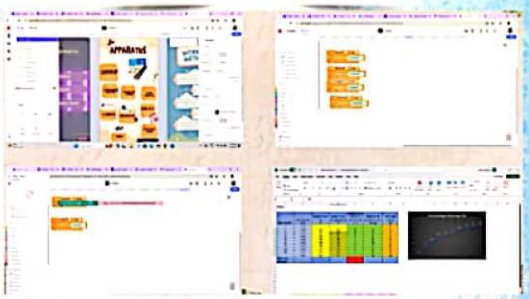
1. User Authentication.
2. Data Input
3. Calculation Module
4. Graphical Representation
5. Data Export
6. Customisation Options

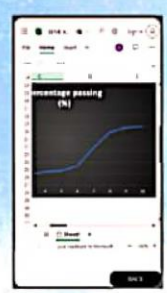
METHODOLOGY





RESULT AND ANALYSIS





CONCLUSION

In conclusion, G-solve is an application Geotechnical Data Analysis App created specifically for student geotechnical engineering laboratories. It simplify data processing, analysis, and graphing, improving the learning experience and efficiency of prospective geotechnical engineers. The software's intuitive design and detailed functions make it a useful tool for both students and educators studying geotechnical engineering.

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INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 19

Tajuk

Mini Solar Boat Lake Cleaner

Penyelia

Aidil Azhiim bin Shamsuddin

Pelajar

Muhammad Fazley bin Jamaluddin

(06DEG21F2015)

Logheswary a/p Murugan

(06DEG21F2016)

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PORT DICKSON

iStAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT
Leveraging Innovations for SDGs
14th MAY 2024

JKE
JABATAN KEJURUTERAAN ELEKTRIK

MINI SOLAR MOTORBOAT LAKE CLEANER

Supervisor
Encik Aidil Azhiim Bin Shamsuddin

Student 1
Logheswary a/p Murugan
(06DEG21F2016)

Student 2
Muhammad Fazley Bin Jamaluddin
(06DEG21F2015)

01 INTRODUCTION

- Importance of maintaining lake cleanliness to prevent pollution.
- Pollution in Malaysian lakes due to illegal dumping.
- Proposal to address the issue with electronic cleaning facilities.
- Description of Mini Solar Motorboat Lake Cleaners as a solution.
- Advantages: cost-effective, safe, and eco-friendly.
- Elimination of manual labor for lake cleaning.
- Promotion of sustainability through reduced energy consumption.
- Minimization of environmental impact.
- Initiative raises awareness about environmental protection.
- Community benefits from the implementation of such initiatives.

02 PROBLEM STATEMENT

- Dumping trash into the lake.
- Throw the oily foods into the lake
- feeding oily foods for fishes which in the lake

OBJECTIVES

- To Construct and Develop an Effective Waste Collection System
- To collect garbage and waste oil on water surface
- To functioning at all the time

03 SCOPE PROJECT

- Operate the project within a 30-meter range. Connect the product to Wi-Fi or a hotspot for movement control. Control the product via IoT system using the Blynk app. Intended for use exclusively at lakes. Can be use at night. Working hours are 1 hour or 1 and a half hours.

04 DESIGN PROJECT

INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 20

Tajuk

Motorcycle Security System Using NFC Card

Penyelia

Nurizan binti Tahir

Pelajar

Nik Abdul Hafiz bin Kamaruzama

(06DEP21F1055)

Muhammad Nazifuddin bin Mohd Razi

(06DEP21F1061)

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POLITEKNIK MALAYSIA
PORT DICKSON

2024 iSTAP INTEGRATED STUDENT ASSESSMENT PROJECT

TEAM MEBER:MUHAMMAD NAZIFUDDIN BIN MOHD RAZI
NIK ABDUL HAFIZ

SUPERVISOR:PN.IZAN

PRODUCT ID: 1635

PROJECT TITLE: MOTORCYCLE SECURITY SYSTEM USING NFC CARD

DEPARTMENT : ELECTRICAL ENGINEERING COMMUNICATION.

BACKGROUND

MOTORCYLCLE USING NFC CARD IS WE NEED TO USE NFC TAG/CARD TO START AND OFF MOTORCYCLE.IN THAT CASE,WE CAN USE IT AS REPLACEMENT FOR STARTER.

PROBLEM STATEMENT

- MOTORCYCLE EASILY GET STOLEN IF STUDENT PARK OUTSIDE COLLEGE.
- KEY EASILY LOST AND FORGOTTEN.

OBJECTIVES

- TO PREVENT THEFT AND UNAUTHORIZE USAGE.
- TO SECURE STUDENT MOTORCYLCE.

METHOD

START UP AND TURN OFF USING NFC TAG/CARD.

Contribution

Enhanced Security: NFC technology adds an extra layer of security to motorcycles, making them less susceptible to theft.

PRODUCT POTENTIAL MARKET

- MOTORCYCLE SECURITY SYSTEM USING NFC CARD/TAG IS A LARGE SCALE COMMERCIAL SECURITY SYSTEM.

DIAGRAM/PICTURE

Achivement

Significant reduction in motorcycle theft rates in areas where the system is implemented.

INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 21

Tajuk

Portable Soldering Station

Penyelia

Latenazuraini binti Saari

Pelajar

Ramzi Izzat bin Ramli

(06DET21F2017)

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2024 iStAP
INTEGRATED STUDENT ASSESSMENT PROJECT

Leveraging Innovation for SDGs

PORTABLE SOLDERING STATION

LATENAZURAINI BINTI SAARI (Supervisor)
RAMZI IZZAT BIN RAMLI O6DET21F2017
DEPARTMENT OF ELECTRICAL ENGINEERING

Introduction

Portable Soldering Station (PSS) functions as a systematic and conducive workspace to carry out the work of soldering electronic circuit. PSS is very unitary because it is a combination of three devices and is changeable in nature. The development of this PSS is to overcome the problem in the solder workspace that…

First electronic circuit soldering process will quickly produce soldering that can be harmful to the health of users if inhaled in large quantities

Second, the soldering work results are of poor quality if the position of the PCB board is not stable

As such, PSS contains Fume Extraction that works to inhale dangerous welding to ensure better quality and worker health. PCB holder is a tool available at PSS to hold the PCB board securely during soldering process, resulting in a neater electronic circuit assembly and reducing errors. Additional equipment on PSS is lighting. Adequate lighting in the soldering work area can improve visibility, accuracy, and safety during the soldering task. PSS design that is mobile and flexible in the work space environment, so it is very conducive to use.

Problem Statement

From the observation of PCB circuit soldering workspace in project workshop, JKE it was found that it was not very conducive to do soldering work.

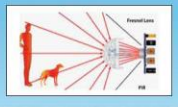
JKE project workshop not providing a fume absorption system could be potential source of health problem.

The absence of PCB holder tools to do the work or the assembly of component that is not neat and the lighting is poor when doing soldering. According to the website 'reading, adequate lighting is necessary to guarantee accuracy, safety and productivity, Rudy (2017)

Material / Method

Input → Controller → Output

PIR SENSOR



Arduino Uno

FAN

LED

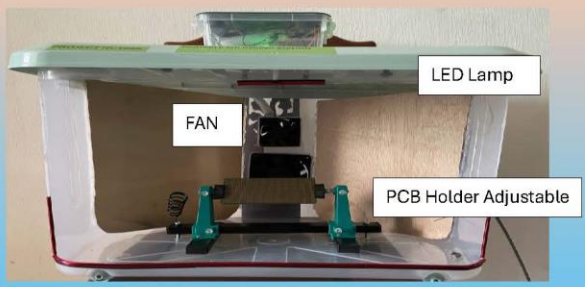
Objective

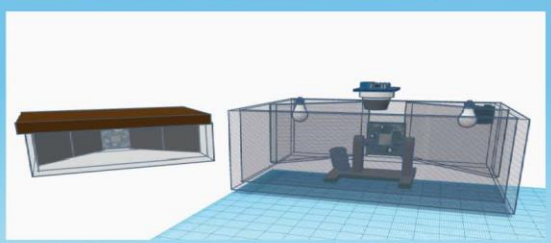
- ✓ To design a portable and soldering fume suction filter system to ensure better quality and worker health.
- ✓ To create a PCB holder to help the user during the soldering session to ensure that soldering is neater and easier.
- ✓ To develop a soldering trainer with lighting system control to improve visibility, accuracy and safety during soldering task

Contributions & SDG Element

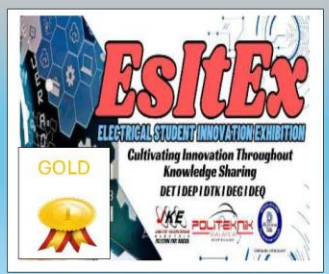
SUSTAINABLE DEVELOPMENT GOALS

Picture/Drawing of Innovation





Achievement



Product Application

BEFORE

AFTER

i-StAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 22

Tajuk

Home Electricity Usage Monitoring System (HEUMS)

Penyelia

Ts. Fauziah binti Che Mat

Pelajar

Muhammad Kharul Nizam bin Mohd Nazaruddini

(06DET21F2009)

Daniel Adlie bin Hozaimee

(06DET21F2019)

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Leveraging Innovations for SDGs

HOME ELECTRICITY USAGE MONITORING SYSTEM (HEUMS)

MUHAMMAD KHARUL NIZAM BIN MOHD NAZARUDDIN
Team Members
Electrical Engineering Department

Ts. FAUZIAH BINTI CHE MAT
Supervisor
Electrical Engineering Department

DANIEL ADLIE BIN HOZAIMEE
Team Members
Electrical Engineering Department

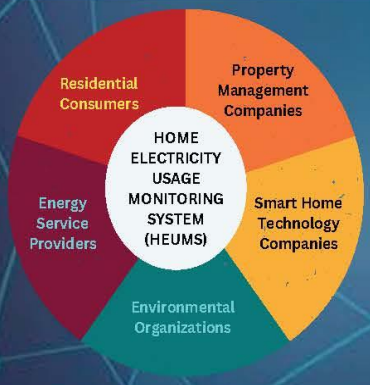
Introduction

Home Electricity Usage Monitoring System (HEUMS) is not just a simple tool for tracking energy consumption, but it is a sophisticated solution to revolutionize how we understand and manage electricity usage in households. Leveraging advanced sensor technologies integrated with coding and apps, HEUMS provides a real-time view of energy consumption patterns. This project aims to promote sustainable energy behaviors and optimize resource utilization.

Objective

1. To collect data such as Current (mA), Power (W), kilowatt-hour (kWh) using transformer sensor.
2. To produce a device that is compact, portable and easy to assemble at the IoT home

Product Portential Market



Problem Statement

Many homeowners struggle to track and manage their electricity usage, leading to high energy bills and a lack of awareness about their consumption patterns. There is a need for a reliable and user-friendly system that can monitor and analyse electricity usage in real-time, providing homeowners with valuable insights and tools to optimize their energy consumption and reduce costs

Contributions & SDG element

- 9 BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION
- 11 MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE
- 12 ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS
- 17 STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

Picture & Diagram

Diagram

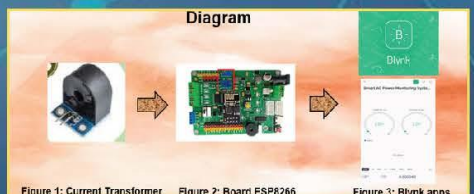


Figure 1: Current Transformer Figure 2: Board ESP8266 Figure 3: Blynk apps

Picture

Figure 4: Prototype circuit

Methadology

Define goals of monitoring system → Select type of sensor (current transformer) → Installing sensor → Develop software & coding → Set up communication protocol → Test and Validate the System

Achievement

EsItEx ELECTRICAL STUDENT INNOVATION EXHIBITION

GOLD MEDAL

i-StAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

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Tajuk

Childcare Centre Attendance Monitoring System (CCAMS)

Penyelia

Ts. Fauziah binti Che Mat

Pelajar

Arif Farhan bin Yahya

(06DET21F2015)

Muhammad Fahmi bin Azhan

(06DET21F2021)

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Leveraging Innovations for SDGs

CHILDCARE CENTRE ATTENDANCE MONITORING SYSTEMS (CCAMS)

MUHAMMAD FAHMI BIN AZHAN

06DET21F2021

SUPERVISOR

Ts. FAUZIAH BINTI CHE MAT

ARIF FARHAN BIN YAHYA

06DET21F2015

Introduction/Background

A Childcare Centre Attendance Monitoring System (CCAMS) is a comprehensive solution designed to efficiently track and manage the attendance of children enrolled in childcare facilities. This system uses RFID cards and Blynk apps to record the entry and exit times of each child in database system and send notification to parents. This system enhances accuracy, ensures child safety, and provides real-time information to parents and childcare centre.

Problem Statement

- Currently, in Malaysia there are many cases of parents who overlook sending their children to the nanny's house/childcare centre that cause death of their children.
- Childcare centre/kindergarten teachers sometimes did not alert about their student's attendance.
- Most childcare centre/kindergartens in Malaysia use the old attendance system which is using attendance papers/books.

Objectives

1. To design a childcare centre attendance monitoring system using rfid rc522.
2. To create an apps system that can record and sent notification to teachers and parents about their students' attendance.
3. To build a prototype for Rfid receiver using junction box

Materials/Method

Contributions & SDG element

Achievement

Product Potential Market / Product Application / Design Application

Picture / Drawing of Innovation

Theme: Leveraging Innovations for SDGs

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Tajuk

Intelligence Home Monitoring And Security System (I-HOMSS)

Penyelia

Dr Rosmilawati binti Ab Rahim

Pelajar

Muhammad Zulhasyim bin Zulkiefli

(06DET21F2012)

Uthayavaanan a/l Nyanasundram

(06DET21F2028)

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Leveraging Innovations for SDGs

INTELLIGENCE HOME MONITORING AND SECURITY SYSTEM (i-HOMSS)

Dr. Rosmilawati binti Ab Rahman
Supervisor
Electrical Engineering Department

Muhammad Zulhasyim Bin Zulkiefli
Team Members
Electrical Engineering Department

Uthayavaanan A/L Nyanasundram
Team Members
Electrical Engineering Department

Introduction

People often find themselves away from home due to work, travel, or other commitments. This physical distance from home can lead to concerns about the safety and well-being of the property and its occupants. Many people around the world face challenges related to home security. A study shows house fire and house robbery cases are the one of serious issues faced by Malaysian citizens. Home robbery is a category under the crime division while a house fire is an unexpected thing that can cause much property damage and even can cause death.

Problem Statement

01 TNB in a statement explained that an increase in energy supply of 19,716 Megawatts (MW) was recorded on May 11 2023 contributed by the use of energy for equipment such as air conditioning and fans (Sinar Harian, 2023).

01 A total of 2.15 cases of burglary were reported in Selangor in 2023 (Astro Awani). Non-automated security systems were found non-reliable. Doors were fitted with a lock and key system which can be opened easily.

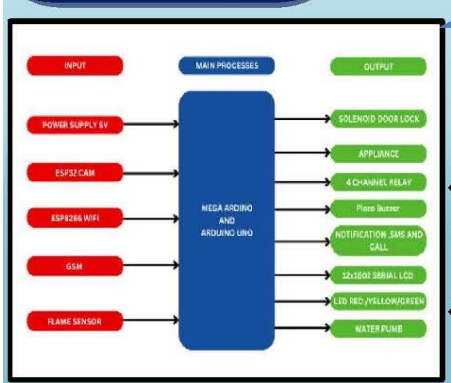
01 Statistics throughout 2023 show a total of 2,490 residential and premises fire cases were recorded compared to only 1,462 in 2022 with an increase of 70 percent (Majlis Keselamatan Negara, 2024).

Home is a place where security is must, to keep all the valuables and appliances safe. The owner should have the confidence to step out of the house with the feel that nothing can happen to the Home. This feel will **only arise when the home is equipped with a reliable security system.**

Objective

i. To design an intelligent home Monitoring and Security System(i-HoMSS) that will give full access to the user's ability to monitor the home remotely as well as control certain electrical appliances present in the home.
ii. To create a higher and more personal security system based on face recognition.
iii. To design i-HoMSS that will notify the user via messaging notification through smartphone if the security system is triggered by external factors such as theft or fire.

Methadology



Potential Market

- IoT-based i-HOMSS **have revolutionized the way we interact with our living spaces,** creating a connected ecosystem that enhances convenience, comfort, and energy efficiency.
- With the integration of IoT devices, smart homes are equipped with interconnected devices, sensors, and intelligent systems that enable **automation, remote control, and data-driven decision-making.**

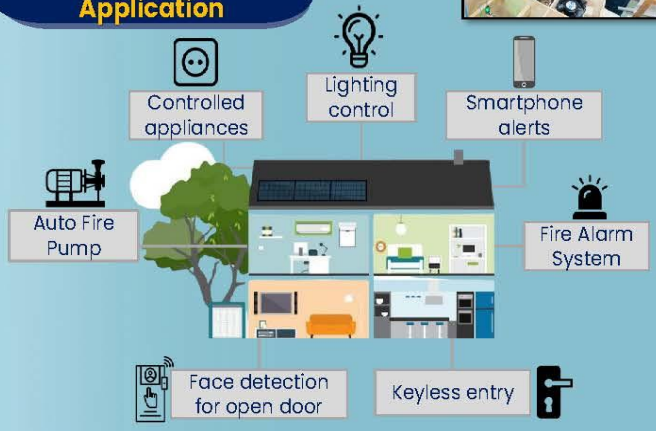
Contribution & SDG Element

- BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION
- MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE
- ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

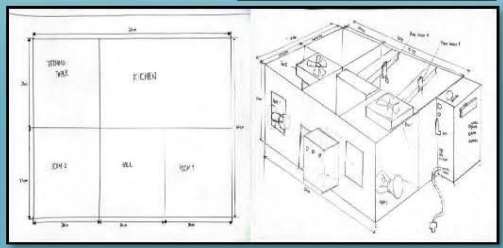
Achievement

Gold Medal in Electrical Student Innovation Exhibition (EsItEx)

Product & Design Application



Picture & Drawing of Innovation



Theme: Leveraging Innovations for SDGs

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Tajuk

Smart Homestay System (SHOMES)

Penyelia

Dr Rosmilawati binti Ab Rahim

Pelajar

Haziq Farhan bin Nijal Bahari

(06DET21F2016)

Ahmad Aiman bin Abdul Halim

(06DET21F2034)

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iStAP 2024 INTEGRATED STUDENT ASSESSMENT PROJECT

Leveraging Innovations for SDGs

SMART HOMESTAY SYSTEM (SHomeS)

Dr. Rosmilawati binti Ab Rahman
Supervisor
Electrical Engineering Department

Ahmad Aiman Bin Abdul Halim
Team Member's
Electrical Engineering Department

Haziq Farhan Bin Nijal Bahari
Team Member's
Electrical Engineering Department

Introduction

Homestay is a public house that provides space or rooms for rent to tourists or people who want to stay outside. Homestay is one of the alternatives for people to stay and spend the night because the cost of renting it is cheaper than a hotel and it is provided complete with furniture and cooking equipment. In addition, this homestay method is also to accommodate the absence of hotels in some remote places. Despite this advantage, there is concern about home burglaries, especially homestays that are far away and most use manual locks that are easily imitated by criminals. The risk of cooking gas leakage may also occur due to lack of maintenance. As a homestay owner, one assumes the responsibility to ensure the safety of the occupants, with an important focus on preventing potential hazards such as fires due to gas leaks.

Problem Statement

- Thefts and break-ins occur because this homestay is located in a quiet village area. Homestay owners worry because they don't realize when their homestay is invaded.
- Safety performance at the homestay. The lock system practiced by homestay owners usually places the key in a place such as a mailbox during check in and check out. Risk of criminals watching for access to this key position.
- In addition, the risk of fire caused by gas leakage can also occur if not managed properly.

Objective

1. To design Smart Homestay Sistem (SHomeS) with a smart door lock system using an access code that can be changed at any time using a smartphone.
2. To design SHomeS with gas leakage detector system that sends a warning notification message to the homestay owner phone
3. To develop prototype of SHomeS

Contribution & SDG Element

9 BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION

11 MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

Methadology

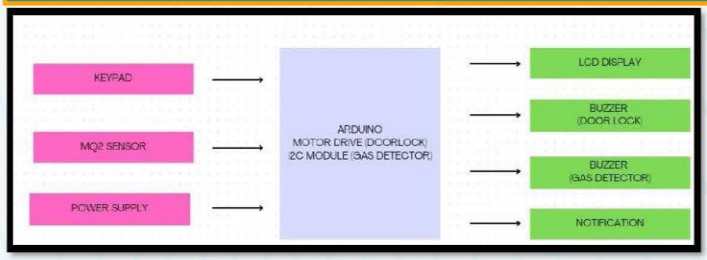

Figure 1: Block Diagram

Achievement

Electrical Student Innovation Exhibition (EsItEx)

Gold

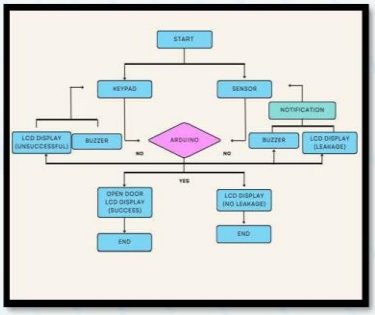

Figure 2: Flow Chart System

Product & Design Application

Potential Market

01 **Market Demand**
Can advertise to homeowners or hosts of homestays that adding security features will make their homes safer

02 **Ease of use and installation**onsumers are more likely to invest in systems that they can set up and operate without extensive technical expertise.

Picture & Drawing of Innovation

i-StAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 26

Tajuk

Solar Trainer System With IOT

Penyelia

Ts. Mohd Zaiham bin Hamzah

Pelajar

Muhammad Anas bin Mohd Zakaria

(06DET21F2032)

Muhammad Farid Hakimi bin Mohd Rawi

(06DET21F2036)

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KEMENTERIAN PENDIDIKAN TINGGI
POLITEKNIK MALAYSIA PORT DICKSON
JKE JABATAN KEJURUTERAAN ELEKTRIK

Leveraging innovations for SDGs

SOLAR TRAINER SYSTEM WITH IOT

NO ID : I-STAP'24 26
MUHAMMAD ANAS BIN MOHD ZAKARIA (06DET21F2032)
MUHAMMAD FARID HAKIMI BIN MOHD RAWI (06DET21F2036)
TS.MOHD ZAIHAM BIN HAMZAH



Introduction

Electricity is a basic requirement for every household and daily use. However, in some areas, such as indigenous homes, electricity supply is not guaranteed due to the long distance from the main grid. People in these remote communities rely on renewable energy. The most readily available and easiest to harvest renewable energy to generate electricity is solar energy, as it uses sunlight to generate electricity. By introducing the concept of solar energy and its associated technology to the next generation, the younger generation will be made aware of the benefits of using renewable energy. the need to equip people with the necessary skills to effectively manage the renewable resource of solar energy. The integration of IoT into these solar energy systems can include real-time monitoring and control capabilities. This background emphasizes the need to bridge the gap between theoretical knowledge and practical applications in real-world solar energy and pave the way for a comprehensive solar trainer system

Problem Statements

Absense of Practical Experience, Students can only depend on theory without having practical experience of how solar panels work directly. This can reduce their understanding of the actual application of solar technology.

Space limitations Large solar trainers require a lot of space in the training room or for storage in the store. This can be a problem in educational environments where space may be limited. Educational institutions in less developed areas or with limited budgets may not be able to purchase or use solar trainers, reducing their access to solar energy technology training.

Students may be less responsible in taking readings correctly without direct supervision by the lecturer, which may lead to lack of accuracy in measuring voltage readings.

Objectives

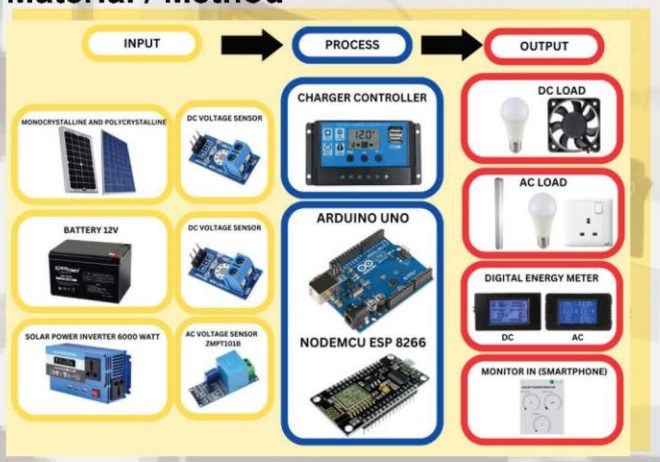
To create this solar trainer suitable for practical lesson session.

To develop a better quality solar trainer that is foldable and portable in a size that does not take up much space to store.

To monitor the reading voltage value from the smartphone.

Pictures


Material / Method



Contributions & SDG element

Product Application

Used for Lab 6 in subject DET 50093 Electricity and Repair (Port Dickson Polytechnic).

Used for DET, DEG and DEQ Students.

Achievement

i-StAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 27

Tajuk

Ez-Call

Penyelia

Rozanita binti Baharudin

Pelajar

Ahmad Normi Zainee bin Mohd Din

(06DTK21F2004)

Mohamad Syukri bin Razak

(06DTK21F2007)

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2024 StAP
INTEGRATED STUDENT ASSESSMENT PROJECT

Leveraging Innovations for SDGs

Supervisor : Pn Rozanita Binti Baharudin

Department : JKE

Product Name : EZ CALL

Product ID : 1742

MOHAMAD SYUKRI BIN RAZAK
(06DTK21F2007)
AHMAD NORMI ZAINEE BIN MOHD DIN
(06DTK21F2004)

Introduction/Background

This project, EZ CALL, is a calling system by controlling with web interface on mobile phone. The ESP 8266 that is integrated into this project is managed using the HTML programmed. At the rear of the P10 LED display, next to the Speaker circuit. After successfully uploading the code into the ESP8266 and connecting the Speaker circuit, we will create the code for the HTML to write the student or kid's name. Once successfully uploaded, the user can add the student or kid's name to the textbox that the organizer created using the HTML by putting IP Address.

Problem Statement

- It is difficult for parents to call students in the school.
- The area of the outside school is very crowd after class, causing students to be confused or difficult.
- it it hard for parents to find their kids after class outside the school.

Objectives

- To construct a system that will allow the parents call their students in easy way.
- To display the name of students on LED board that easy for them to notice the call from their parents
- To develop an application with an ESP8266 that can call the name by using smartphone

Materials/Method

- Acrylic box (32x16cm)
- ESP 8266(Micro USB)
- Wire Jumper
- LED P10 Panel SRGB X 3
- PCB Board
- Resistor
- Powerbank(Power Source)
- Speaker
- Cable tie

Contributions & SDG element

- Affordable and Clean Energy
- Industry, Innovation, and Infrastructure

Product Application

- Display the text based on what user type
- It can play the sound due the text was displayed

Achievement

- Qualified for StAP competition
- One on top project in DTK - EsltEX JKE

Pictures and Diagram

External View

Internal View

2024 i-StAP
INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

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Tajuk

Interactive Mural (Animal Sound)

Penyelia

Ts. Ong Seng Keong

Pelajar

Nur Umaira binti Samin

(06DTK21F2011)

Sharieza Haida binti Saidin

(06DTK21F2022)

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PROJECT TITLE: INTERACTIVE MURAL
PRODUCT ID: 1642
SUPERVISED BY: TS. ONG SENG KEONG
PROJECT MEMBERS: 1) NUR UMAIRA BINTI SAMIN
2) SHARIEZA HAIDA BINTI SAIDIN
DEPARTMENT: ELECTRICAL ENGINEERING DEPARTMENT

BACKGROUND

This interactive mural is designed for autistic people at PPDK to have fun while learning as they have sensory touch and love hearing sound or get to know something in detail. We also created this project to help to learn in an interesting way.

OBJECTIVES

- To develope a mural that actively engages the audience encouraging them to interact with the artwork
- To measure the effectiveness of the interaction murals to autistic person
- To ensure that the interactive elements of the mural are accessible to a wide range of people including those with disabilities

DESIGN SOLUTION

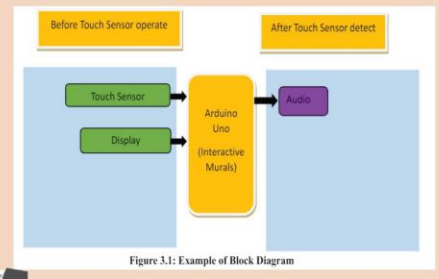

Figure 3.1: Example of Block Diagram

PICTURES

PROBLEM STATEMENT

- Social Communication
- Interaction skill
- Sensory sensitivities

MATERIAL AND METHOD

- Electronic Component
- Paper
- Recycle Drawer
- Foam

CONTRIBUTION AND SDG ELEMENT

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

10 REDUCED INEQUALITIES

ACHIEVEMENT

Gold Medalist for Electrical EsitEx (Electrical Student Innovation Exhibition)

Selected to present for i-StAP

2024 i-StAP
INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 29

Tajuk

Dormitory Guard Pelajar Entry And Exit Management System

Penyelia

Ts. Ong Seng Keong

Pelajar

Nurul Nasuha binti Mazlan

(06DTK21F2026)

Nur Nazihah binti Azmi

(06DTK21F2027)

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i-StAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

PROJECT TITILE : DORMITORY GUARD STUDENT ENTRY AND EXIT MANAGEMENT SYSTEM

PRODUCT ID : 1614

SUPERVISOR : TS ONG SENG KEONG

PROJECT MEMBERS : NURUL NASUHA BINTI MAZLAN
NUR NAZIHAH BINTI AZMI

DEPARTMENT : ELECTRICAL ENGINEERING DEPARTMENT

BACKGROUND

- Student in/out without permission
- Takes time for student to find and collect their kamsis card from a stacks of card
- Make it easy to view specific student records

PROBLEM STATEMENT

- Current practice increases the possibility of students losing their kamsis card
- Inaccurate attendance record

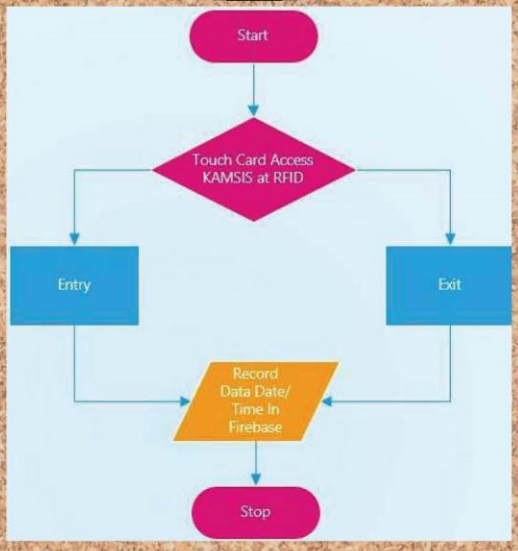
MATERIAL AND METHOD

- Electronic part
- PVC Enclosure Box
- Board

OBJECTIVES

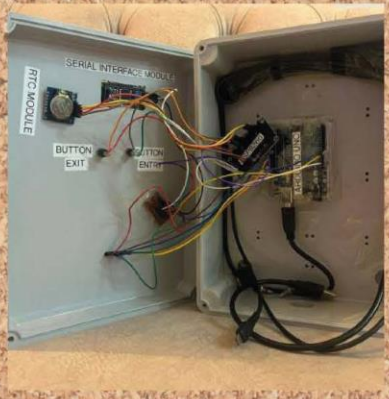
- Automate attendance tracking with RFID for efficiency
- Use RFID access control to increase dorm security
- Ensure accurate attendance records for effective management

DESIGN SOLUTION



CONTRIBUTION AND SDG ELEMENT

PICTURES



ACHIEVEMENT

- EsitEx Gold Medalist
- Chosen to give a presentation at i-StAP

INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 30

Tajuk

Glasses FADH For Blind People

Penyelia

Fadilah binti Mat Assain @ Hashim

Pelajar

Muhammad Dhia Hajid bin Hairi

(06DTK21F1026)

Faiz Syazwan bin Azman

(06DTK21F1049)

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POLITEKNIK PORT DICKSON

PRODUCT ID:1746

GLASSES FADH FOR BLIND PEOPLE

- MUHAMMAD DHIA HAJID BIN HAIRI
- FAIZ SYAZWAN BIN AZMAN

BACKGROUND

Blind people's glasses, for example, increase mobility and quality of life for the blind and partially sighted. These glasses are an example of the fast emerging field of wearable technology, and they aim to provide a novel solution to difficulties faced by the blind. When this protocol finds an item but the distance is larger than one meter, it does not perceive it; if the distance is less than one meter, it senses it and produces sound.

OBJECTIVE

- To design glasses so that it can detect obstacles near 1 meter ahead of them using ultrasonic sensor.
- To construct a coding python that can get an audio output from earphone.
- To develop glasses for blind peopl that have face recognition using Web Camera so that the user able know who is infront of him.

PROBLEM STATEMENT

Blind persons encounter significant difficulties sensing impediments in their environment. A sighted person can see the real things around them, such as walls, furniture, and steps, and may adapt their motions accordingly. This is not always practicable for blind people. They must rely on other senses to determine boundaries, such as touch and sound, which is not always precise or effective. This might lead to accidents and injuries, some of which could be serious.

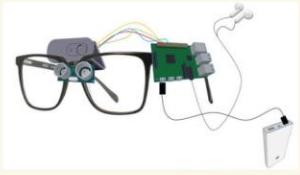
MATERIAL AND METHOD

- Glasses Frame
- Raspberry Pi 4b (microcontroller)
- Web Camera
- Raspberry Pi Casing
- Ultrasonic Sensor
- Earphone
- Jumper

COMMERCIAL VALUE

Glasses Fadh for Blind People project a game-changer with enormous market potential. These spectacles, designed to help visually challenged people, have the potential to be a game changer in the field of assistive technology. These smart glasses, designed to improve independence and include cutting-edge sensors and intuitive capabilities, allowing users to navigate their surroundings with renewed confidence. This project is at the vanguard of wearable assistive technologies due to its combination of real-time obstacle detection, user-friendly interfaces, and continual improvement methods.

DIAGRAM/PICTURE



INNOVATION HIGHLIGHT

- Obstacles Detection
- Audio Output
- Face Recognition

CONTRIBUTION & SDG ELEMENT

- Innovation
- Reduced inequalities
- Affordable & clean energy

ACHIEVEMENT

- EsitEx Silver Medal
- Chosen to give a presentation at i-StAP

PRODUCT APPLICATION

- Detect face using face recognition(Web Camera).
- Audio output(Earphone).
- Can detect obstacle in front of user.

Theme: Leveraging Innovations for SDGs

i-StAP'24 40

Tajuk

Aqua Home Guard : IOT Based Household Water Usage Monitoring System

Penyelia

Dr. Muhammad bin Abdul Jalil @ Yusof

Pelajar

Muhammad Alif Amin bin Awis Jalani

(06DEM21F2002)

Muhammad Danish bin Nazri

(06DEM21F2001)

Muslihuddin bin Muskindar

(06DEM21F2005)

Uma a/p Baskaran

(06DEM21F2003)

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POLITEKNIK MALAYSIA
PORT DICKSON

2024 iStAP
INTEGRATED STUDENT ASSESSMENT PROJECT

PROJECT ID : 1628 / ISTAP'24 40
PROJECT TITLE : AQUA HOME GUARD : IOT BASED HOUSEHOLD WATER USAGE MONITORING SYSTEM

SUPERVISOR : DR. MUHAMMAD BIN ABDUL JALIL

PROJECT MEMBERS : MUHAMMAD DANISH BIN NAZRI / M.ALIF AMIN BIN AWIS JALANI / UMA DO BASKARAAN / MUSLIHUDDIN BIN MUSKINDAR

DEPARTMENT : ENGINEERING MECHATRONIC DEPARTMENT

ABSTRACT / BACKGROUND

We're creating a system to monitor household water usage using the Internet of Things (IoT). This system will keep track of how much water is in your tanks in real-time. It uses sensors and electronics to measure the water level accurately and shows this information on a display.

The main goal is to help people manage their water better, especially in places where water is scarce. The system is easy to set up, doesn't need much maintenance, and saves energy. It's useful for homes, farms, and businesses to control water use efficiently.

This system helps prevent wastage by showing when tanks are getting full or empty. It lets users make smart choices about water, which is important for saving water in cities and the countryside.

PROBLEM STATEMENT

In Malaysia, people use a lot of water every day, more than what's recommended by the World Health Organization (WHO). This is mostly because they don't realize how much water they're using and there's no system to keep track of it. Also, leaks in water tanks add to the wastage. This is a problem because it costs people money, and leaks can damage walls and roofs, which is expensive to fix.

OBJECTIVE

- To design a telemetry system for the household water tank.
- People will be educated to save water in daily life
- Reduces water wastage

ACHIVEMENTS

- Get first place in Mechaday
- Top project for DEM For Mechaday

MATERIAL / METHOD

1 Water Level Sensor
2 Microcontroller (e.g., Arduino)
3 Relay Module
4 Display (e.g., LCD display or LEDs)
5 Power Supply
6 Wiring
7 Enclosure
8 Optional components: Wi-Fi or GSM module, buzzer or alarm, data logging components

The method involves:

1. Sensor Installation
2. Microcontroller Setup
3. Relay Connection
4. Display Integration
5. Power Supply
6. Enclosure Installation
7. Testing and Calibration
8. Optional Features Integration

CONTRIBUTION / SDG ELEMENTS

1. **Better Water Management:** It enables efficient use of water resources by providing real-time information on water levels.
2. **Environmental Protection:** By monitoring water levels, it helps protect aquatic habitats and biodiversity.
3. **Disaster Preparedness:** It aids in early warning and preparedness for floods or droughts, making communities more resilient to disasters.

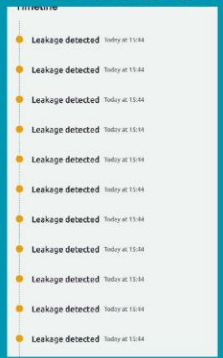
- **SDG 6: Clean Water and Sanitation:** It contributes to ensuring access to clean water and sustainable management of water resources.
- **SDG 13: Climate Action:** It supports efforts to combat climate change impacts like floods and droughts.

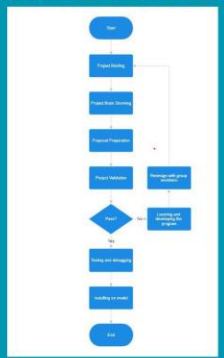
PRODUCT POTENTIAL MARKET / PRODUCT APPLICATION / DESIGN APPLICATION

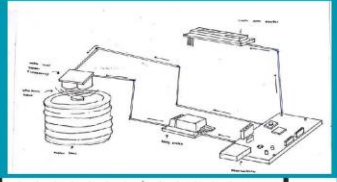
- Keep track of water levels in tanks or wells.
- Prevent flooding or leaks.
- Automate water pumps for efficiency.
- Integrate with home automation for convenience.
- Monitoring water levels in tanks, wells, or cisterns.
- Detecting leaks or flooding in basements or low-lying area
- Automating water pumps for efficient usage.

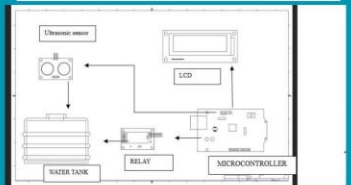
- Developing user-friendly interfaces for easy monitoring of water levels.
- Creating robust sensors capable of accurately detecting water levels.
- Designing compact and aesthetically pleasing hardware for installation in homes.

PICTURE / DRAWING OF INNOVATION









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INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 41

Tajuk

Auto Spring Absorber Installer

Penyelia

Aida Syariza binti Othman

Pelajar

Amirul Asyraf bin Aminuddin

(06DAD21F2032)

Mohamad Ikhmal Amirul bin Zulkifli

(06DAD21F2016)

Muhammad Danish Faisal bin Mohd Norisham

(06DAD21F2014)

Muhammad Syahir Aiman bin Mohd Yazid

(06DAD21F2012)

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Port Dickson

AUTO SPRING ABSORBER INSTALLER

iStAP 2024
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ABSTRAK

Coil spring compressor dicipta untuk membuka dan memasang coil spring absorber, walaupun terdapat banyak inovasi dan penambahbaikan pada alat sedia ada, namun alat yang sering digunakan di dalam bengkel adalah coil spring compressor ataupun absorber clamp yang mudah dan sering terjadi kecelakaan ketika menggunakannya dan itu adalah isu besar bagi mekanik dan pengguna yang menggunakannya

PENYATAAN MASALAH

Masalah yang dihadapi oleh mekanik semasa melakukan penukaran coil spring absorber adalah masa dan risiko yang tinggi ketika mengendali alat buka pasang coil spring absorber tersebut.



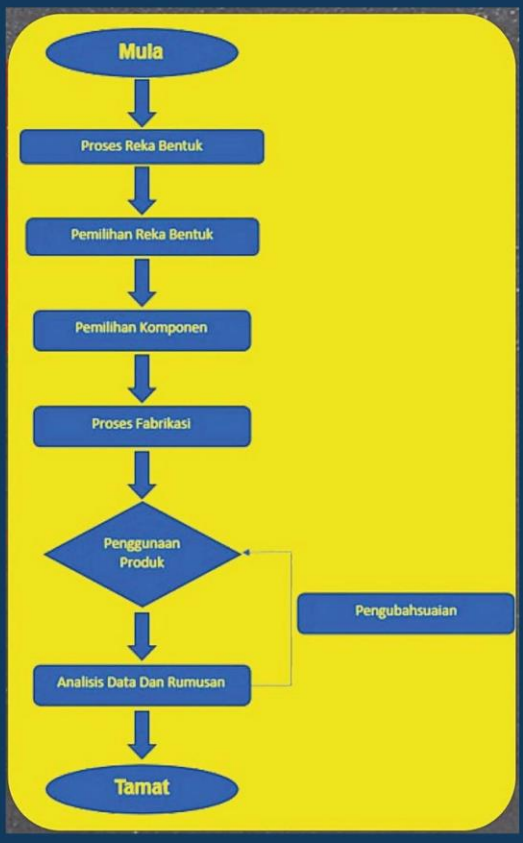
OBJEKTIF

- Mereka bentuk sebuah alat pemasangan coil spring absorber yang bermotor.
- menghasilkan alat yang dapat membuka dan memasang 2 coil spring absorber dalam satu masa yang sama.

KEBAHARUAN PRODUK DAN NILAI KOMERSIAL

- Mampu milik
- Lebih menjimatkan masa dan tenaga kerja
- mudah untuk digunakan dan dikendalikan

METODOLOGI



GAMBAR PRODUK


AHLI KUMPULAN


MOHD IKHMAL AMIRUL
BIN ZULKIFLI
06DAD21F2016


AMIRUL ASYRAF
BIN AMINUDDIN
06DAD21F2032


PENYELIA PROJEK

CIK AIDA SYARIZA
BT OTHMAN


MUHAMMAD DANISH
FAISAL
BIN MOHD NORISHAM
06DAD21F2014


MUHAMMAD SYAHIR AIMAN
BIN
MUHD YAZID
06DAD21F2012

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INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 42

Tajuk

Brake Pump Pusher

Penyelia

Izuan bin Ishak

Pelajar

Ahmad Fazilikram bin Abdullah

(06DAD21F2035)

Amirul Aiman bin Noor Azman

(06DAD21F2023)

Muhammad Khalid Nubli bin Mohd Raymie

(06DAD21F2013)

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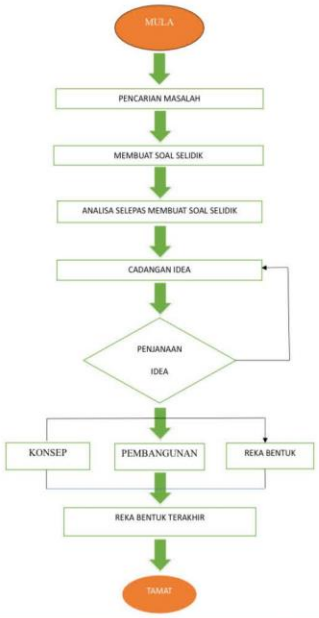
BRAKE PUMP PUSHER

Ahli Kumpulan
MUHAMMAD KHALID NUBLI BIN MOHD RAYMIE (06DAD21F2013)
AMIRUL AIMAN BIN NOOR AZMAN (06DAD21F2023)
AHMAD FAZIL IKRAM BIN ABDULLAH (06DAD21F2035)

ABSTRACT

Sepertimana yang disedia maklum proses atau cara bleeding brek perlu menggunaakan dua orang tenaga pekerja. Hal ini menyebabkan kerugian masa dan tenaga kerja yang boleh mendatangkan pelbagai masalah kepada bengkel ataupun mekanik. Oleh yang demikian, satu kajian telah dijalankan bertujuan untuk mereka bentuk sebuah alat Brake Pump Pusher dimana ianya akan memudahkan lagi proses penyelenggaraan brek dan akan menjadi lebih cepat serta mengurangkan tenaga kerja. Faktor yang telah diberi perhatian di dalam aspek merekabentuk adalah saiz, rupa, bahan dan kos untuk menekan atau memijak pedal brek. Dengan ini, terciptalah alat dimana ia membantu untuk memijak atau menekan pedal brek. Selain itu, alat Brake Pump Pusher ini mempunyai ketahanan yang lasak kerana diperbuat daripada besi dan komponen yang lain. Selain daripada itu, disini juga dapat menunjukkan setiap proses daripada awal hingga akhir untuk menghasilkan sesuatu alat membantu untuk bleeding brek kereta iaitu Brake Pump Pusher.

METODOLOGI



OBJEKTIF

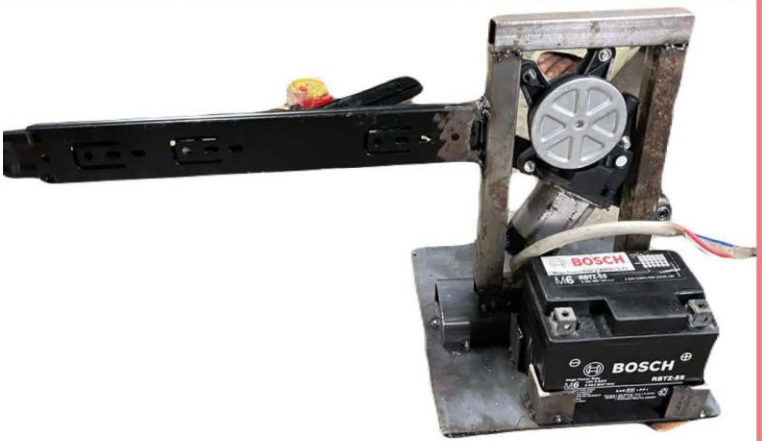
Menghasilkan alat yang direka bertujuan untuk menekan atau menahan padel brek kereta secara automatik semasa proses penjujusan dijalankan. ii. Memudahkan kerja mekanik kerana dengan adanya Brake Pump Pusher ini, proses penjujusan dapat dilakukan dengan seorang mekanik sahaja.

Contributions & SDG Element

1. Goal 4 :Memudahkan proses penjujusan
2. Meningkatkan kecekapan brek kaliper kereta

PERNYATAAN MASALAH

Proses penjujusan brek pam kaliper memerlukan sekurang-kurangnya dua orang mekanik untuk mengendalikan proses tersebut.Hal ini disebabkan seorang mekanik yang pertama perlu membuka dan menutup nipple screw untuk mengeluarkan angin yang berada didalam hos brek dan kaliper dan seorang lagi mekanik perlu menekan pedal brake secara berulang kali semasa proses dijalankan. Akibatnya,proses penjujusan mengambil masa yang lama.



KESIMPULAN

Sistem brek adalah salah satu aspek keselamatan yang paling penting di setiap kenderaan. Sebuah sistem brek yang baik adalah asas keselamatan untuk pemandu, penumpang, dan pengguna jalan raya yang lain. Selain itu, penjagaan berkala sistem brek juga adalah penting bagi memastikan pemanduan yang selamat semasa berada di jalan raya. Sehubungan dengan itu, rutin pemeriksaan terhadap minyak brek, brake pad, disc brake dan komponen-komponen lain dapat membantu memastikan kecekapan dan keberkesanan sistem brek dengan baik. Selain itu, pemandu perlu peka terhadap tanda-tanda masalah brek seperti bunyi berdecit, pedal brek keras atau lembut ketika dipijak, getaran semasa membrek atau lampu amaran brek di papan pemuka. Oleh itu, tindakan segera diperlukan jika terdapat masalah atau tanda-tanda tersebut. Di samping itu, penggunaan minyak brek dan komponen brek yang berkualiti juga adalah kunci untuk prestasi yang baik. Penggunaan bahan yang tepat meningkatkan daya tahan dan kecekapan sistem brek. Akhir sekali, sekiranya pemandu merasakan ada masalah dengan sistem brek, adalah lebih baik membawa kereta ke bengkel atau mekanik yang mahir untuk pemeriksaan dan pembaikan.

Pendek kata, keselamatan pemandu tidak boleh dipertaruhkan.

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Theme: Leveraging Innovations for SDGs

i-StAP'24 43

Tajuk

Circular Cooling Fan

Penyelia

Mohd Zawawi bin Ismail

Pelajar

Hadi Hazwan bin Mohd Nazir

(06DKM21F2016)

Muhammad Azril Azwaniel bin Hasan

(06DKM21F2003)

Muhammad Danial Tan bin Mohd Shafiq Tan

(06DKM21F2010)

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i-StAP 2024
INTEGRATED STUDENT ASSESSMENT PROJECT

PROJECT ID : i-StAP'24 - 43
PROJECT TITLE : CIRCULAR COOLING FAN
SUPERVISOR : ENCIK MOHD ZAWAWI BIN ISMAIL
PROJECT MEMBERS : HADI HAZWAN BIN MOHD NAZIR, MUHAMMAD AZRIL AZWANIEL BIN HASAN & MUHAMMAD DANIAL TAN BIN MOHD SHAFIQ TAN
DEPARTMENT : MECHANICAL ENGINEERING DEPARTMENT

LATAR BELAKANG

- Kipas ini mampu berputar 360 darjah penuh.
- Sekiranya tidak ingin menggunakan bateri, pengguna boleh juga menggunakan direct current terus daripada plug.
- Kipas ini mempunyai sistem penyejukkan tambahan iaitu semburan air.
- Pewangi ditambahkan dalam tangki air untuk lebih menyegarkan udara

PERNYATAAN MASALAH

- Kipas biasa yang tidak dapat menyebarkan udara dengan baik dan gagal memberikan keselesaan didalam kawasan bilik.
- Kurangnya sistem pengawalan dan pengurusan yang efisien menyebabkan pengunaan kipas menjadi tidak optimum.
- Rekabentuk kipas yang tidak ergonomik boleh menyebabkan keterbatasan penyesuaian ketinggian atau sudut, mengurangkan keselesaan pengguna.

OBJEKTIF

- Mencipta kipas yang mampu berputar 360 darjah penuh.
- Menurunkan suhu didalam kawasan bilik dengan efektif.
- Kipas ini mempunyai sistem penyejukkan tambahan iaitu semburan air.
- Pewangi ditambahkan dalam tangki air untuk lebih menyegarkan udara

BAHAN / KAEDAH

- Menggunakan kipas mudah alih.
- Menggunakan penyembur air untuk dijadikan sistem penyejukkan tambahan.
- Menggunakan power window untuk menggerakkan kipas berpusing 360 darjah.
- Menggunakan bateri mudah alih untuk sistem AC dan DC port untuk dijadikan sistem DC.

PENCAPAIAN


SIJIL PENGHARGAAN

sebagai tahniah kepada

KUMPULAN
K9 DKM

DENGAN TAJUK
CIRCULAR COOLING FAN

DIBAWAH PENYELIA
MOHD ZAWAWI BIN ISMAIL

atas penganugerahan

MIHATDAY
Hari Inovasi Pelajar
Sesi 2: 2023/2024
Jabatan Kejuruteraan Mekanikal

Bertempat di
Politeknik Port Dickson

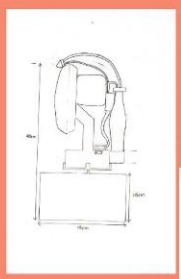
Hasan Bin Sharif
Pengarah
Politeknik Port Dickson
Kementerian Pendidikan Tinggi

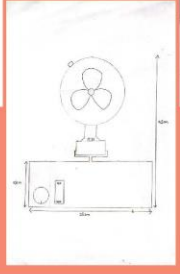
SUMBANGAN & SDG ELEMEN

Membuat penyelidikan tentang kipas yang mempunyai kebolehan untuk berpusing 360 darjah. Terdapat beberapa jenis kipas yang hampir sama seperti apa yang kami inginkan. Kami telah membuat pencarian tetang sistem yang boleh membuat kipas berpusing 360 darjah dan apa yang kami dapat adalah kipas itu hanya berpusing 180 darjah atau berpusing hanya sampai 270 darjah sahaja dan kembali berpusing kearah yang bertentangan. Selain itu, kami juga membuat pencarian di internet mengkaji tentang sistem penyejukkan yang menggunakan semburan air pada kipas. Dengan cara begini kami dapat mereka bentuk satu produk yang baru dengan menggabungkan kedua idea menjadi satu. Kami cuba menciptakan kipas yang mempunyai sistem putaran 360 darjah dan mempunyai sistem semburan air.

POTENSI PRODUK DI PASARAN

GAMBAR / LAKARAN INOVASI





INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 44

Tajuk

Cylinder Head Stand

Penyelia

Hairul Azam bin Mohd Mokhtar

Pelajar

Abhishanker a/l Sellayan

(06DAD21F2002)

Ganesh Thanachelvan

(06DAD21F2026)

Logaarajan a/l Ramakrishnan

(06DAD21F2034)

Tasindren a/l Muniandy

(06DAD21F2022)

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UNIT PENYELIDIKAN, INOVASI & PENGKOMERSIALAN (UPIK),
POLITEKNIK PORT DICKSON
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PROJECT ID: 2444

PROJECT TITLE: CYLINDER HEAD STAND

SUPERVISOR: HAIRUL AZAM BIN MOHD

PROJECT MEMBERS: ABHISHANKER A/L SELLAYAN 06DAD21F2002
LOGAARAJAN A/L RAMAKRISHNAN 06DAD21F2034
TASINDREN A/L MUNIANDY 06DAD21F2022
GANESH A/L THANACHELVAN 06DAD21F2026

DEPARTMENT : MECHANICAL ENGINEERING DEPARTMENT

BACKGROUND

The cylinder head is a critical component of an internal combustion engine, playing a pivotal role in the combustion process. Maintenance and repair tasks involving the cylinder head are intricate and demand precision. This abstract introduces an innovative Cylinder Head Stand designed to enhance the efficiency and safety of engine maintenance procedures. The Cylinder Head Stand is engineered with a focus on providing a stable and adjustable platform for supporting the cylinder head during maintenance, repair, and inspection activities. The stand accommodates a variety of engine types and sizes, ensuring versatility in its application.

PROBLEM STATEMENT

- Limited Accessibility
- Risk of Damage
- Limited angle adjustments
- Limited workspace organization

OBJECTIVES

- Adjustability
- Accessibility
- Versatility
- User-friendly design

MATERIALS

- **2X2 mild steel hollow metal**

Contributions & SDG element

- Implication on renewable energu
- solar panel

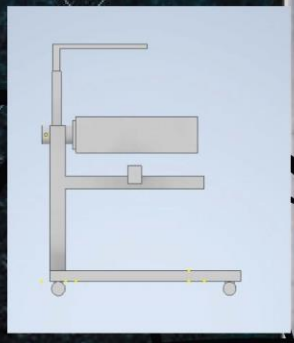
Achievement

- Bronze award in project innovation mecha day

Product Potential Market

- Automotive Manufacturing and Repair Shops
- Education and Training Institutions
- Racing and Performance Tuning Shops

Picture / Drawing of Innovation



INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 45

Tajuk

Optimizing Lithium Battery Performance Through Advanced Thermal Management System: Hybrid Approach

Penyelia

Ts. Mohd Fakhrur Razi bin Misran

Pelajar

Khairul Alamghir bin Kheirur Rejal

(06DAD21F2006)

Muhammad Fadhil bin Sunarso

(06DAD21F2019)

Muhammad Ridhwan bin Mohammad Azmil

(06DAD21F2003)

Nur Asyilah binti Saharudin

(06DAD21F2010)

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OPTIMIZING LITHIUM BATTERY PERFORMANCE THROUGH ADVANCED THERMAL MANAGEMENT SYSTEM : HYBRID APPROACH (i-StAP'24 45)

MUHAMMAD RIDHWAN BIN MOHAMMAD AZMIL, MUHAMMAD FADHIL BIN SUNARSO,KHAIRUL ALAMGHIR BIN KHEIRUR REJAL, NUR ASYILAH BINTI SAHARUDIN
Ts. MOHD FAKHRUR RAZI BIN MISRAN (SUPERVISOR)
DEPARTMENT OF MECHANICAL (AUTOMOTIVE) ENGINEERING

INTRODUCTION

The electric vehicle (EV) market for most regions all around the world has witnessed substantial growth in recent years, driven by various factors such as government support through incentives, tax exemptions, and grants for EV purchases.

Fig.1: Risks of Thermal Runaway

HOWEVER !

- Optimizing lithium battery performance is crucial for electric vehicles.
- Elevated temperatures can also trigger thermal runaway phenomenon and caused an explosion (Fig. 1).
- Many factors which induced high temperatures in battery packs reduce operational efficiency (Fig. 2).

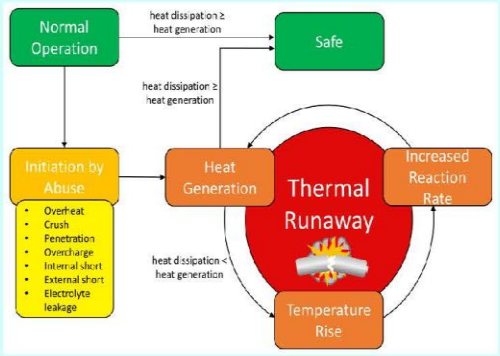

Fig.2: Factors of Thermal Runaway

H-BTMS DEVELOPMENT

Materials:

- 25Ah LifePO4 Cell 3.2V
- Daly Battery Management System (BMS)
- 4 Channel K-type Thermocouple
- Cooling Fan
- Load discharger

Methods (Fig.3):

- The BMS has been synchronized with the battery module during the preliminary stages. The battery is primed for complete charging.
- Thermocouples have been affixed to individual battery cells to monitor their temperatures.
- Several experiments have been iterated multiple times to validate the efficacy of the system operation.
- Each experiment commences with the initial battery temperature descending to 34°C.
- The load discharger applied in the experiments is varied to analyze its impact on voltage performance.

Fig.3: H-BTMS Prototype: (a) Top view, (b) Front View, (c) Side View, (d) Experimental

H-BTMS RESULTS

Fig. 4 and Fig. 5 illustrate a decline in the total module voltage over time under a consistent load, whether cooling is implemented or not.

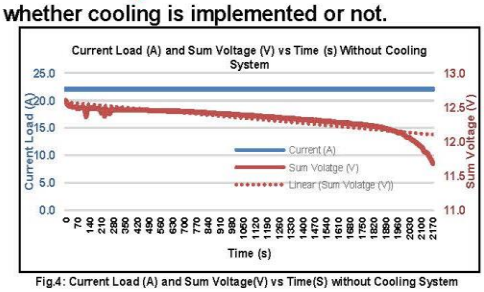

Fig.4: Current Load (A) and Sum Voltage(V) vs Time(S) without Cooling System

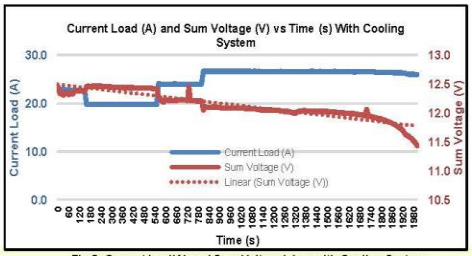

Fig.5: Current load(A) and Sum Voltage(v) vs with Cooling System

H-BTMS SUSTAINABILITY

- CLEAN ENERGY
- ENVIRONMENTALLY FRIENDLY
- IMPROVE BATTERY LIFE CYCLE
- INDUSTRY, INNOVATION & INFRASTRUCTURE

ACHIEVEMENT & IMPACT

AWARD:

- GOLD AWARD IN PROJECT INNOVATION MECHA DAY

IMPACT:

- CONTRIBUTE ON KNOWLEDGE EXPANSION IN LATEST TREND IN RESEARCH & INNOVATION
- H-BTMS DESIGN SYSTEM CAN BE APPLIED TO ANY ELECTRIC VEHICLE (E.g: Electric Bike, Electric Bicycle & etc).

This decrease is primarily attributed to the escalating temperatures of both the module and individual cells, as depicted in Fig.6 and Fig.7. Furthermore, the cell temperature remains lower and is sustained below 40°C with the cooling system, even under higher current loads, whereas without cooling, temperatures exceed 40°C (Fig.8).

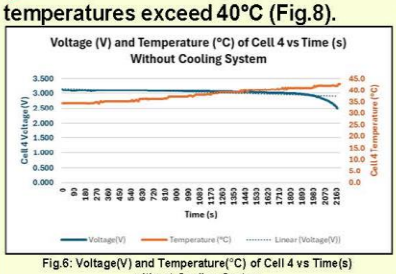

Fig.6: Voltage(V) and Temperature(°C) of Cell 4 vs Time(s) without Cooling System

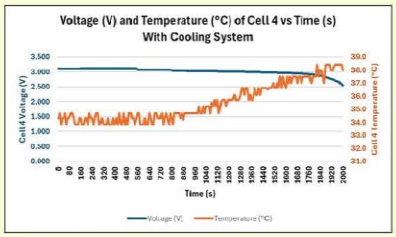

Fig.7: Voltage(V) and Temperature(°C) of Cell 4 vs Time(s) with Cooling System

Fig.8: Temperature of BMS with and without Cooling vs Temperature

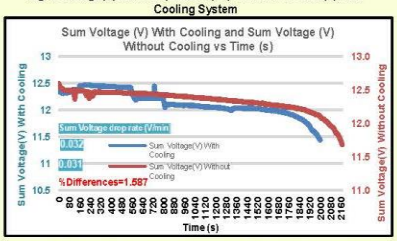

Fig.9: Sum Voltage (V) With Cooling and Sum Voltage (V) Without Cooling vs Time (s)

CONCLUSION

- The project's objectives have been accomplished successfully, marking the attainment of its goals improvement of battery performance.
- This project holds substantial promise within the electric vehicle industry, particularly concerning advancements in thermal management systems.

INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 46

Tajuk

Grind Valve Machine

Penyelia

Sufandi bin Mohd Johan
Ts. Deenesh Kumar a/l Nalathambi

Pelajar

Ameerul Alfiq bin Addarly
(06DAD21F2007)

Divesh Dass a/l Manica Dass
(06DEM21F1051)

Afie Iezwan bin A. Rahman
(06DAD21F2037)

Sri Suria a/l Murgan
(06DAD21F1107)

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POLITEKNIK MALAYSIA
PORT DICKSON

GRIND VALVE MACHINE

AHLI KUMPULAN

- Afie Iezwan Bin A. Rahman 06DAD21F2007
- Divesh Dass A/L Manica Dass 06DAD21F1107
- Sri suria a/l murgan 06DEM21F1051

PENYELIA

- En Sufandi Bin Mohd Johan
- En Deenesh Kumar A/L Nalathambi

ABSTRAK

Injap mengontrol aliran udara atau cairan dalam mesin, memungkinkan kontrol pembakaran. Proyek ini bertujuan memperbaiki proses pemelasan injap agar lebih cepat dan mudah dilakukan oleh mekanik otomotif, meningkatkan efisiensi kerja dan keselamatan di bengkel.

OBJEKTIF

I.
Merekabentuk satu alatan khas bagi memudahkan para pekerja melakukan proses mempelas injap iaitu 'Valve Grinding Machine'.

II.
Membina mesin valve grinding untuk memudahkan pengguna seperti mengurangkan beban dan menjimatkan masa

III.
Menguji kemampuan alatan yang dibina dari segi penjimatan tenaga dan masa kerja mengikut kesesuian ditempat kerja.

PERNYATAAN MASALAH

I. Cedera sering terjadi saat mempelas injap dengan tangan.

II. Alat ini, "Valve Grinding Machine", dapat menghemat biaya dan mengurangi risiko cedera saat mempelas injap.

III. Ruang bengkel yang sempit tidak masalah karena alat ini dilengkapi dengan roda untuk mobilitas yang lebih baik, meningkatkan fokus dan efisiensi kerja.

CONTRIBUTIONS & SDG ELEMENT

1. Goal 9: Enhance automotive efficiency.
2. Goal 12: Extend vehicle lifespan sustainably.
3. Goal 13: Reduce transportation emissions.

METODOLOGI

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INTEGRATED STUDENT ASSESSMENT PROJECT

Theme: Leveraging Innovations for SDGs

i-StAP'24 47

Tajuk

Rescue Air Drop Kit

Penyelia

Muhammad bin Ahmad Kamal

Pelajar

Amirul Aizam bin Abu Bakar

(06DEM21F2009)

Jagen a/l Munusamy

(06DEM21F2004)

Nurhazman bin Sidul Hafiz

(06DEM21F2007)

Raja Shazryl Daniel bin Raja Saharudin

(06DEM21F2006)

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PROJECT ID : i-StAP'24-47
PROJECT TITLE : RESCUE AIR DROP KIT
SUPERVISOR : MUHAMMAD BIN AHMAD KAMAL
PROJECT MEMBERS : RAJA SHAZRYL DANIEL BIN RAJA SAHARUDIN, NURHAZMAN BIN SIDUL HAFIZ, AMIRUL AIZAM BIN ABU BAKAR , JAGEN A/L MUNUSAMY
DEPARTMENT : MECHANICAL ENGINEERING DEPARTMENT

Background

Kajian ini dilakukan untuk menilai keberkesanan penggunaan Rescue Air Drop Kit di Jabatan Kejuruteraan Mekatronik, Politeknik Port Dickson, Negeri Sembilan, dalam meningkatkan proses pembelajaran dalam bidang mekatronik. Kajian melibatkan soal selidik, pemerhatian, dan temubual dengan pensyarah. Kit penyelamat seperti Rescue Air Drop Kit dapat mempercepat proses penyelamatan mangsa lemas, yang memberi manfaat kepada pembelajaran pelajar dalam mencapai objektif pembelajaran yang ditetapkan.

Achievement +


SIJIL PENGHARGAAN

sekalung tahniah kepada

KUMPULAN
K13 DEM

DENGAN TAJUK
RESCUE AIR DROP KIT

DIBAWAH PENYELIA
MUHAMMAD BIN AHMAD KAMAL

atas penganugerahan
PERAK
MEKHADAY
Hari Inovasi Pelajar
Sesi 2: 2023/2024
Jabatan Kejuruteraan Mekanikal

Bertempat di
Politeknik Port Dickson

Hasaan Bin Sharif
Pengarah
Politeknik Port Dickson
Kementerian Pendidikan Tinggi

Objectives

Membangunkan sistem UAV untuk meningkatkan operasi penyelamatan air, terutamanya di kawasan pantai.

- Tumpuan kepada pengenalpastian cepat dan lokasi mangsa lemas.
- Meminimakan berat pada dron untuk penerbangan yang lancar.
- Mempercepatkan proses penyelamatan dengan bantuan dron.
- Meningkatkan keselamatan mangsa lemas melalui teknologi dron yang canggih.

Problem Statement

- Mengurangkan masa yang diambil bagi proses penyelamatan
- Meningkatkan peratusan untuk mangsa dan juga penyelamat selamat

Materials/Method

1. **Motor Servo**: Mengawal pergerakan lampiran untuk melepaskan pelampung dengan tepat.
2. **Bateri Cas Semula**: Menyediakan kuasa kepada dron dan komponen-komponennya untuk operasi.
3. **Tali Nylon**: Menghubungkan pelampung ke dron untuk menurunkannya ke dalam air.
4. **Pelampung**: Menyediakan sokongan apungan untuk penyelamatan.
5. **Pita Velcro**: Menyekat komponen-komponen bersama, seperti melekatkan pelampung ke dron.
6. **Penerima Pengawal Jauh**: Menghantar arahan untuk melepaskan pelampung.
7. **Pengawal Jauh**: Mengendalikan Kit.
8. **Wayar Kabel**: Menghubungkan komponen sistem untuk komunikasi dan fungsi.

Contributions & SDG element

1. Humanitarian Aid
2. Safety and Well-being (SDG 3)
3. Reduced Inequalities (SDG 10)
4. Innovation and Technology (SDG 9)
5. Climate Action (SDG 13)

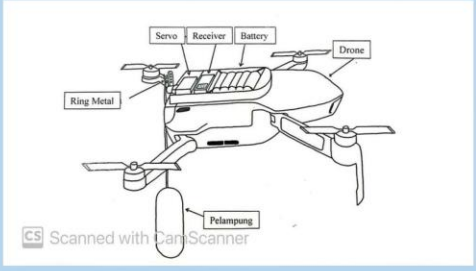
Product Potential Market / Product Application / Design Application

Potential Market:
- **Pihak Berkuasa Keselamatan Pantai**: Agensi kerajaan yang bertanggungjawab terhadap keselamatan pantai dan operasi penyelamatan.

Design Application:
- **Operasi Penyelamatan Air**: Menurunkan bantuan pelampung kepada individu yang dalam kesusahan di laut atau di sekitar pantai.

Product Application:
- **Ketahanan**: Pastikan dron dan lampiran dapat bertahan dalam keadaan marin yang mencabar.

Picture / Drawing of Innovation



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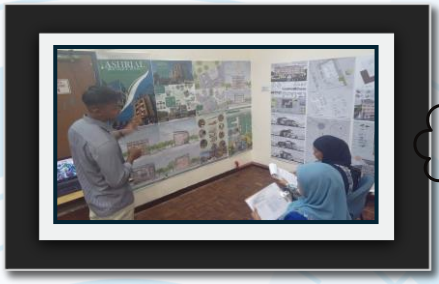





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Terima kasih

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