POLITEKNIK MALAYSIA
PORT DICKSON

JKE
JABATAN KEJURUTERAAN ELEKTRIK

KOMPILASI POSTER ESITEX

SESI I 2024/2025

ELECTRICAL STUDENT INNOVATION EXHIBITION

"BERSAMA MENUJU KECEMERLANGAN"

KOMPILASI POSTER ESITEX
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POLITEKNIK MALAYSIA
PORT DICKSON

Edisi Pertama
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PERPUSTAKAAN NEGARA MALAYSIA
KOMPILASI POSTER ESITEX SESI I 2024/2025

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JABATAN KEJURUTERAAN ELEKTRIK

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PRAKATA

Kompilasi Projek Esitex SESI I 2024/2025 dibangunkan sebagai rujukan yang komprehensif untuk pensyarah dan pelajar bagi kursus Projek 1 dan Projek 2. Kompilasi ini bukan sahaja menjadi sumber rujukan yang bermanfaat, tetapi juga berfungsi sebagai platform untuk memperkenalkan hasil inovasi pelajar kepada pihak industri. Melalui inisiatif ini, hasil projek pelajar dapat diketengahkan kepada masyarakat, sekali gus membuka peluang pengkomersialan serta memperkukuh keupayaan pelajar dalam menghasilkan idea-idea yang relevan dan berdaya saing. Usaha ini diharap dapat menyumbang kepada pembangunan modal insan yang lebih inovatif dan proaktif dalam menghadapi cabaran industri masa kini.

ISI KADUNGAN

PRAKATA

KETUA JABATAN KEJURUTERAAN ELEKTRIK
EN. IZWAN KAMAL BIN ABDUL WAHAB

Inovasi merupakan tunjang utama dalam menjadikan Malaysia sebuah negara maju dan berpendapatan tinggi. Agenda ini telah mendorong pelaksanaan pelbagai aktiviti inovasi di semua peringkat, khususnya di institusi pendidikan tinggi. Sejajar dengan aspirasi tersebut, Jabatan Kejuruteraan Elektrik, Politeknik Port Dickson dengan penuh komitmen telah menganjurkan Electrical Sudent Innovation Exhibition (EsltEX) Sesi I 2024/2025.

Program ini bertujuan untuk menyerlahkan bakat serta idea kreatif pelajar, selaras dengan keperluan Revolusi Industri 4.0. Pertandingan projek akhir pelajar ini merupakan salah satu usaha jabatan untuk memupuk kemahiran inovasi dan menyokong agenda transformasi pendidikan politeknik.

Penyertaan sebanyak 108 kumpulan projek membuktikan semangat dan komitmen tinggi dalam kalangan warga jabatan. Hasil projek yang dipersembahkan dinilai oleh panel penilai yang terdiri daripada pensyarah dan wakil industri, menjadikan program ini sebagai platform pembelajaran dan pendedahan yang komprehensif.

Jabatan Kejuruteraan Elektrik amat berbangga dengan pencapaian para pelajar yang mampu menghasilkan idea-idea kreatif, berpotensi untuk dikomersialkan dan diaplikasikan.

Semoga inisiatif ini dapat terus menyumbang kepada kecemerlangan akademik, inovasi teknologi dan melahirkan graduan yang bersedia untuk menyahut cabaran masa depan. Tahniah diucapkan kepada semua yang terlibat dalam menjayakan program ini.

PRAKATA

KETUA UNIT INOVASI & PENYELIDIKAN JABATAN KEJURUTERAAN ELEKTRIK

Ts. Dr. NORHANANI BINTI ABD RAHMAN

Unit Inovasi dan Penyelidikan, melalui program EsltEX Sesi I 2024/2025 dengan penuh dedikasi telah mengambil inisiatif untuk menghasilkan kompilasi ePoster projek tahun akhir pelajar.

Inisiatif ini adalah satu usaha strategik untuk mendokumentasikan hasil inovasi yang dihasilkan oleh para pelajar, sekaligus memberikan pengiktirafan kepada idea dan kreativiti mereka dalam menghasilkan projek yang berkualiti.

Kompilasi ini bukan sahaja menjadi bahan rujukan yang berguna untuk pelajar dan pensyarah, tetapi juga berfungsi sebagai platform bagi memperkenalkan hasil inovasi kepada pihak industri. Dengan cara ini, hasil projek pelajar dapat diketengahkan kepada masyarakat umum, seterusnya membuka peluang untuk pengkomersialan dan memperkukuhkan keupayaan pelajar dalam menjana idea yang relevan dan berdaya saing.

Selain itu, usaha ini juga seiring dengan agenda negara dalam memperkukuhkan Pendidikan dan Latihan Teknikal dan Vokasional (TVET) sebagai platform utama untuk memupuk budaya inovasi dalam kalangan generasi muda. Langkah ini sejajar dengan keperluan Revolusi Industri 4.0 yang menuntut kemahiran kreatif, berteknologi tinggi dan berdaya saing.

Ucapan tahniah dan penghargaan diberikan kepada semua pihak yang terlibat dalam menjayakan inisiatif ini, khususnya kepada pelajar yang telah menghasilkan projek-projek inovatif serta pasukan pensyarah yang membimbing mereka dengan penuh dedikasi. Semoga usaha ini terus memberi impak positif dalam dunia pendidikan dan inovasi teknologi.

PRAKATA

PENYELARAS PROJEK PELAJAR & PENGARAH PROGRAM ESITEX JABATAN KEJURUTERAAN ELEKTRIK

EN. NOR RIDZUAN BIN HASHIM

Program EsltEX Sesi I 2024/2025 telah berjaya dilaksanakan pada 24 Oktober 2024 dengan penyertaan sebanyak 108 kumpulan projek. Program ini melibatkan seramai 209 pelajar sebagai peserta dan 30 pelajar bertindak sebagai urus setia. Setiap kumpulan telah berpeluang mempersembahkan hasil projek akhir mereka kepada panel penilai yang terdiri daripada pensyarah Jabatan Kejuruteraan Elektrik dan wakil industri.

Penganjuran EsltEX ini bertujuan untuk:

1. Meningkatkan keupayaan pelajar dalam pengetahuan dan inovasi, sejajar dengan hala tuju transformasi politeknik.
2. Menjana idea-idea kreatif dan inovatif selaras dengan visi dan misi politeknik.
3. Menggalakkan penghasilan projek yang menarik, berpotensi untuk dikomersialkan, dan seterusnya dipatenkan.
4. Mendedahkan pelajar kepada dunia kejuruteraan dan teknologi dalam konteks Revolusi Industri 4.0.
5. Memenuhi keperluan kurikulum kursus DEE50102 (Projek 2) bagi pelajar semester 5 program Diploma Kejuruteraan Elektrik (DEG, DET, DTK, DEP, dan DEQ).

Kejayaan program ini mencerminkan usaha gigih dan kerjasama erat antara pelajar, pensyarah dan panel industri. Hasil projek yang dipersembahkan memperlihatkan daya kreativiti dan inovasi pelajar yang mampu memenuhi keperluan semasa bidang kejuruteraan dan teknologi. Semoga program seperti ini terus menjadi pemangkin untuk melahirkan generasi jurutera yang berdaya saing dan berwawasan tinggi.

Setinggi-tinggi penghargaan diucapkan kepada seluruh Jawatankuasa EsltEX atas dedikasi dan usaha gigih mereka dalam memastikan kejayaan program ini. Ucapan tahniah juga ditujukan kepada semua pelajar yang telah berjaya mempersembahkan projek inovasi mereka dengan cemerlang, sekaligus menunjukkan komitmen dan kreativiti yang membanggakan.

JAWATANKUASA ESITEX

PENAUNG 1
Tn. Hj Hasan bin Mohd Sharif
Pengarah

PENAUNG 2
Ts. Dr. Engku Shahrulerizal bin Engku Ab Rahman
Timb. Pengarah (Akademik)

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Ketua Jab. Kej. Elektrik

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Ketua Program DTK

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Ketua Program DEP

En. Aidil Azhiim bin Shamsuddin
Ketua Program DEG

En. Mohd Izhar bin Ahmad
Ketua Program DEQ

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En. Nor Ridzuan bin Hashim

TIMBALAN PENGARAH PROGRAM
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En. Azrul Muhairi bin Mohd Badri – DEG5A
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Pn. Noraziah binti Abu Bakar – DEQ5A
Pn. Thiruchelve a/p Ramasamy – DET5C
En. Mohd Fauzi bin Mohd Kamal – DET5A
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Pn. Noor Faznyzahuda binti Fuad
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Tn. Hj. Mohd Jahidi bin Rosdi -DET
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Pn. Noremy binti Che Azmi - DTK

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Cik Nur Afiqah binti Mohamad Amin
En. Mohd Izham bin Ahmad
En. Mohd Zaini bin Kemon

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Pn. Hasyimah binti Ahmad
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En. Nor Ridzuan Bin Hashim
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Pn. Norita Binti Alwi
Ts. Zamri Bin Zakaria
Pn. Nur Syamimi Binti Rusli
Pn. Anisah Binti Mohd Noor
Kpt. Hamrin Bin Abu Hasan

Pn. Mazita Binti Ayub
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Pn. Nursheda Binti Zainudin
En.Mohd Izham Bin Ahmad
En. Mohd Nizam Bin Samad
Ts. Mohd Nizam Bin Shamsuddin
Hj. Mohd Shafie Bin Rahaman
Pn. Rozanita Binti Baharudin
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Pn. Norhayati Binti Abdul Manaf
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Pn. Rus Nani Binti Habibi
Ts. Siti Zalina Binti Mokhtar
Pn. Noremy Binti Che Azemi
Hjh. Suhaida Binti Abdul Halim
Pn. Fadilah Binti Mat Assain @ Hashim
En. Faizal Bin Ayob
Pn. Nor Salasiah Binti Mat Rashid
Pn. Elyani Binti Abu Bakar
Pn. Hasyimah Binti Ahmad
Pn. Azlina Binti Khairi
En. Mohd Yuzi Bin Abd Kadir

ANUGERAH PROJEK TERBAIK ESITEX SESI I 2024/2025

PIALA PUSINGAN ESITEX: ANUGERAH INOVASI KETUA JABATAN

TAJUK: CHILDREN SAFETY WITH IOT
PROJEK ID: I658
PENYELIA: NUR SUHANA BINTI SUHADI
PELAJAR:
TUAN NURALYA SYAMIMI BINTI TUAN ZUZAIDI
NUR ELLYANA BINTI ANUAR

PROJEK TERBAIK ESITEX

TAJUK: CHILDREN SAFETY WITH IOT
PROJEK ID: I658
PENYELIA:
NUR SUHANA BINTI SUHADI
PELAJAR:
TUAN NURALYA SYAMIMI BINTI
TUAN ZUZAIDI
NUR ELLYANA BINTI ANUAR

TAJUK: 3 PHASE MONITORING CURRENT, VOLTAGE AND POWER FOR ENERGY EFFECIENCY TRAINNER
PROJEK ID: I775
PENYELIA: NORAZIAH BTE ABU BAKAR
PELAJAR:
WAN MUHAMMAD FATAH AIMAN BIN WAN ROSLEE
MUHAMMAD AFIQ BIN MOHD ANUAR

TAJUK: SMART DOORLOCK WITH 2 SAFETY VERIFICATION
PROJEK ID: :I748
PENYELIA: ZURAIDI BIN MD TAHIR
PELAJAR: FARZANA BINTI RASHIDI

TAJUK: WIRE MEASUREAMENT MACHINE
PROJEK ID: :I796
PENYELIA: ZURAIDI BIN MD TAHIR
PELAJAR:
MUHAMMAD IQBAL BIN MAHSUM
MUHAMMAD SAFWAN BIN JAMAL NASIR

TAJUK: OFFGRID SOLAR PV TRAINER EDUKIT USING MPPT
PROJEK ID: :I718
PENYELIA: AZRUL MUHAIRI BIN MOHD BADRI
PELAJAR:
AMELIYN BINTI HAZLI
NURUL SYAFIQAH AIYUNI BINTI SHAMSUDIN
NUR KHAIRUNNISA BINTI RUSLI

ANUGERAH PROJEK TERBAIK ESITEX SESI I 2024/2025

PROJEK TERBAIK ESITEX [PROGRAM]

TAJUK: SMART DOORLOCK WITH 2 SAFETY VERIFICATION
PROJEK ID: :I748
PENYELIA: ZURAIDI BIN MD TAHIR
PELAJAR: FARZANA BINTI RASHIDI

TAJUK: CHILDREN SAFETY WITH IOT
PROJEK ID: I658
PENYELIA: NUR SUHANA BINTI SUHADI
PELAJAR:
TUAN NURALYA SYAMIMI BINTI TUAN ZUZAIDI
NUR ELLYANA BINTI ANUAR

TAJUK: WATER POLLUTION MONITORING BY DRONE USING PH AND TURBIDITY SENSORS
PROJEK ID: : I649
PENYELIA: MOHD SHAFIE BIN RAHAMAN
PELAJAR:
MUHAMMAD HAZIM HAKIMI BIN ROSLI
MUHAMMAD ISKANDAR ZULKARNAIN BIN MOHD NAIM

TAJUK: 3 PHASE MONITORING CURRENT, VOLTAGE AND POWER FOR ENERGY EFFECIENCY TRAINNER
PROJEK ID: I775
PENYELIA: NORAZIAH BTE ABU BAKAR
PELAJAR:
WAN MUHAMMAD FATAH AIMAN BIN WAN ROSLEE
MUHAMMAD AFIQ BIN MOHD ANUAR

TAJUK: OFFGRID SOLAR PV TRAINER EDUKIT USING MPPT
PROJEK ID: :I718
PENYELIA: AZRUL MUHAIRI BIN MOHD BADRI
PELAJAR:
AMELIYN BINTI HAZLI
NURUL SYAFIQAH AIYUNI BINTI SHAMSUDIN
NUR KHAIRUNNISA BINTI RUSLI

KOMPILASI POSTER ESITEX

SESI I 2024/2025

PROGRAM DIPLOMA KEJURUTERAAN ELEKTRIK [DET]

SENARAI PROJEK & PINGAT ESITEX SESI I 2024/2025

PROJEK DET 5A

BIL.	NO PENDAFTARAN	NAMA PELAJAR	ID PROJEK	TAJUK PROJEK	PENYELIA	PINGAT
1	06DET22F1067	MUHAMMAD IQBAL BIN MAHSUM	1796	WIRE MEASUREAMENT MACHINE	ZURAIDI BIN MD TAHIR	GOLD
2	06DET22F1079	MUHAMMAD SAFWAN BIN JAMAL NASIR				
3	06DET22F1076	MUHAMMAD RADZUAN BIN ABU BAKAR	1793	WASTE MANAGEMENT PVC MACHINE		SILVER
4	06DET22F1051	LUTFIL HADI BIN AHYAR				
5	06DET22F1042	FARZANA BINTI RASHIDI	1748	SMART DOORLOCK WITH 2 SAFETY VERIFICATION		GOLD
6	06DET22F1082	AMAR ZAIM BIN AIDI ZUBAIDI	1764	HAND GESTURE CONTROL LUGGAGE	DR NUR AQILAH BINTI MOHAMAD AMIN	SILVER
7	06DET22F1012	MOHAMAD NORSHAHRUZ NIZAM BIN MOHD YAZID				
8	06DET22F1018	MUHAMMAD FAKRUSYI SYAKIRIN BIN SHAHIMI	1768	BACKPACK WATER FILTER		GOLD
9	06DET22F1070	MOHAMMAD ANIQ BIN MOHD ASAARI				
10	06DET22F1094	VEKAASHKANTAN A/L M.LORINCE	1771	PERFECT PALACE IOT CAT HAVEN		SILVER
11	06DET22F1073	MARK TERENCE A/L DAVID SELVARATNAM				
12	06DET22F1039	MUHAMMAD AMEER MUKMININ BIN NORMIZOL	1738	IOT BRACELET FALL DETECTION	AZRINAWATI BT SAMAON	GOLD
13	06DET22F1060	MOHAMAD AIMAN BIN AMRAN				
14	06DET22F1085	YANG ANTAH AFIQAH BINTI MOHD.KAMARULZAMAN	1731	UV LIGHT DISINFECTANT ROBOT / UV LIGHT DISINFECTANT WITH		SILVER
15	06DET22F1099	NUR HAZIRAH FARZANAH BINTI HISHAM AFFENDY				
16	06DET22F1002	MUHAMMAD HAZWAN BIN AZMAN	1739	BANANA PLANTATION PROTECTION SYSTEM		GOLD
17	06DET22F1030	NAZRUL NAJMI BIN NOOR HISYAM				
18	06DET22F1015	MUHAMMAD HAFIZ HAKIMI BIN MOHD ZAIN	1774	AUTO REFILLLER HAND SOAP DISPENSER WITH NOTIFICATION	NUR AFIQAH BINTI MOHAMMAD	GOLD
19	06DET22F1021	AHMAD MUSYRIF BIN KHAIRIL FAISAL				
20	06DET22F1027	IZZATUL NABILLA BINTI ZAIHAN	1735	GARLIC PEELER AUTOMATIC		BRONZE
21	06DET22F1054	NURUL AISYAH BINTI ZULLAZZAMAR				
22	06DET22F1024	MUHAMMAD HAZMI BIN MOHD ROFI	1773	TABLE TENNIS BALL VACCUM		GOLD
23	06DET22F1036	AIDIL HAKIM BIN MOHAMAD AMIN				

WIRE MEASUREMENT MACHINE

POLITEKNIK MALAYSIA Port Dickson


STUDENT 1
MUHAMMAD IQBAL BIN MAHSUM
08DET22F1067


STUDENT 2
MUHAMMAD SAFWAN BIN JAMAL NASIR
08DET22F1079


SUPERVISOR
ENCIK ZUHAIDI BIN MD TAHIR

BACKGROUND

An automatic wire cutter is widely used in industries such as electronics, manufacturing, and automation. It is designed to streamline the process of cutting wires accurately, quickly, and consistently, reducing manual labor and minimizing human error. The system is often managed by a microcontroller or a small computer, which can be programmed to cut the wire to specific lengths and quantities.

OBJECTIVE

- To consistently cut wires 1.0mm to the exact specified lengths with minimal deviation.
- To help user from wire wastage by using precise cutting techniques, reducing excess material and scrap.
- To Reduce the risk of injury associated with manual wire cutting, providing a safer working environment.
- Minimize material waste by cutting wires precisely, reducing the cost of scrap materials.

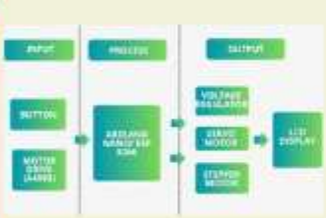
PROBLEM STATEMENT

The manual process of cutting wires, particularly for small-diameter wires like 1 mm, is time consuming, labor-intensive, and prone to inconsistencies and human error. The lack of such automation can result in operational delays, higher costs, and safety risks associated with manual handling.

INOVATION HIGHLIGHT

- Component are easy to identify if damage and easy to make a replacement because not permanently connected to the PCB board.
- Using Wireless Connectivity its allows for remote control and monitoring via a smartphone or tablet, enabling users to adjust settings and check progress from anywhere.

METHODOLOGY



PICTURE

CONCLUSION

In conclusion, An the wire measurement machine is a tool designed to speed up and simplify the wire-cutting process with precision and consistency. Its main advantages include high efficiency, reduction in human errors, and increased productivity, particularly in industries that require large volumes of wire cutting with high accuracy.

RESULT / ANALYSIS

- The wire cutter shows excellent precision, with of cuts falling within the acceptable tolerance.
- Precision in cutting, where less excess material is discarded due to inaccurate cuts. Cost savings on raw materials. Fewer physical
- interactions required with sharp objects and repetitive movements, creates a safer work environment, significantly the chance of accidental cuts or strain injuries.

COMMERSIAL VALUE

- The initial investment for an automatic wire cutter may be high, but for this project the cost is really low. The long-term savings on labor and reduced material wastage contribute to significant cost reductions. These savings make the equipment a valuable asset for companies focused on high-volume production.
- Industries such as electronics, and telecommunications rely heavily on precise wire cutting, increasing the commercial value of automatic wire cutters in these sectors.

POLITEKNIK MALAYSIA
PORT DICKSON

WASTE MANAGEMENT PVC MACHINE

PRODUCT ID : 1793

MUHAMMAD RADZUAN BIN ABU BAKAR
(06DET22F1076)

LUTFIL HADI BIN AHYAR
(06DET22F1051)

SUPERVISOR NAME :
ZURAIDI BIN MD TAHIR

BACKGROUND

The automatic PVC cutter for disposal serves as an important solution in recycling industries. PVC pipes need to be cut into smaller, manageable pieces before recycling. Traditional manual cutting methods are time consuming and can pose safety risks to workers

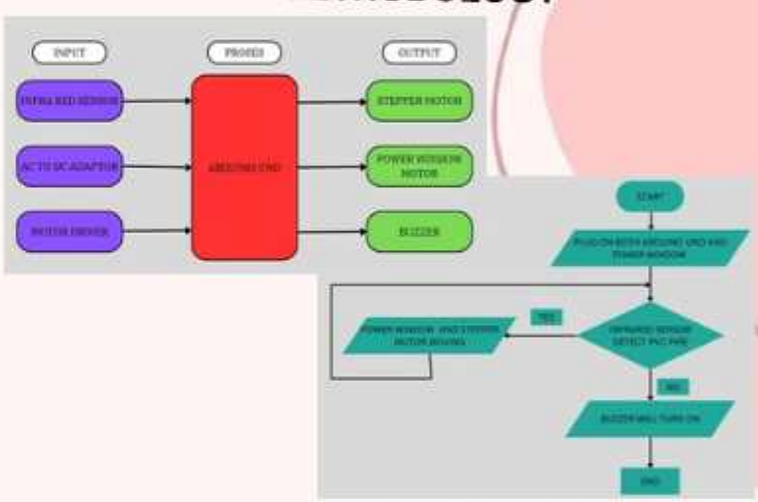
PROBLEM STATEMENT

- Manual cutting will become slow and tired and use a lot of energy.
- Need a large space to store of excess PVC pipe if its not already cut into small.
- Inefficient disposal contribute to environmental pollution.

OBJECTIVE

- To ensure compact design for space efficiency.
- To develop a recognition high efficiency accuracy for waste management pvc machine in scenarious using infra red sensor.
- To handle PVC pipes with diameters ranging from 20mm.
- To develop a more schematic way of controlling the waste management pvc machine by offering less energy to cut pvc pipe that minimizes the risk of injury.

METHODOLOGY



INOVATION HIGHLIGHT

- Implementation of automatic movement stepper motor and power window motor detection using infra red sensor.
- When the sensor not detect movement of PVC pipe, the buzzer will make a sound.

COMMERCIAL VALUE

- If the cut PVC can be sold or recycled, the ability of the cut to increase reusability can add significant commercial value. The resell or recycling price of PVC in the market will directly affect this value. Automatic
- PVC cutters significantly reduce manual labor by performing cuts faster and more consistently than hand tools. This translates into fewer labor hours required for the disposal project.

CONCLUSION

In conclusion, the automatic PVC cutter for disposal projects provides a practical and efficient solution for managing PVC waste. By automating the cutting process, the system simplifies the preparation of PVC materials for proper disposal, reducing manual labor requirements and enhancing safety by minimizing human contact with potentially hazardous materials.

PICTURE PICTURE

POLITEKNIK PORT DICKSON

PRODUCT NAME: SMART DOOR LOCK WITH 2 SAFETY VERIFICATION

FARZANA BINTI RASHIDI
06DET22F1042

SUPERVISOR
ZURAIDI BIN MD TAHIR

BACKGROUND

Nowadays, such cases can be read from newspaper headlines or through other mass media such often involving significant losses of students, kids or even family belongings. The security of the lockers depends on the lock on the door. Polytechnic Port Dickson has many amenities such as hostels, cafeterias, and etc. However, there are some problems that need to face by student living hostel at Polytechnic Port Dickson regarding to their safety of personal valuable belongings in their room.

PROBLEM STATEMENT

Currently student do not have any secure place to keep their valuable item. Some of the student have to keep their item in the locker that needed a key using physical keys that may lead to the possibilities of broken or loss the key and give high chances to other people to broke and open the locker easily. Other than that, when someone attempts to open the locker, they will not leave any traces or signs that the safety locker has been tampered with.

OBJECTIVE

To create keyless entry, using fingerprint allowing authorized individuals to open without the need for physical keys using ESP32.
To upgrade the safety locker with wireless password from mobile phone with security notification for any intruder using ESP32.

INNOVATION HIGHLIGHT

The system incorporates two secure methods of unlocking fingerprint authentication and Bluetooth password which enhances flexibility and security.

The use of LED indicators (green and red) to signify successful or failed unlock attempts provides intuitive, real-time feedback for users, enhancing user experience.

COMMERCIAL VALUE

- Each student could have their own locker secured with their unique fingerprint, ensuring only they can unlock it. This makes it harder for others to break in or misuse the lockers.
- This system could be implemented in student hostels, where managing locker security for hundreds of students can be a challenge.

DESIGN SOLUTION

PICTURE

POLITEKNIK MALAYSIA
PORT DICKSON

HAND GESTURE CONTROL LUGGAGE (1764)


MOHAMAD NORSHAHRUZ NIZAM BIN MOHD YAZID
(06DET22F1012)
STUDENT 1


AMAR ZAIM BIN AIDI ZUBAIDI
(06DET22F1012)
STUDENT 2


DR. NUR AQILAH BINTI MOHAMAD AMIN
(SUPERVISOR)

BACKGROUND

- Hand gesture luggage control.
- Move luggage using simple hand movements.
- Utilizes sensors and motion recognition.
- Travelers can direct their luggage easily.
- Offers a seamless and user-friendly way to manage luggage.

PROBLEM STATEMENT

- The physical effort and frustration of managing luggage through handles or buttons can be challenging in transit areas.
- Current laggage systems often lack usability, leading to strain and inconvenience.
- A hand gesture control system aims to provide a more intuitive, hands-free solution.

OBJECTIVE STUDENT 1

- To design a hand gesture control system for luggage that reduces reliance on physical handles using the MPU6050 sensor.
- To design and implement a remote-controlled buzzer system using Blynk, allowing users to activate a buzzer via a smartphone application.

OBJECTIVE STUDENT 2

- To develop a recognition high efficiency accuracy for hand gestures in real-world travel scenarios using BTS7960 sensor.
- To achieve the maximum rating for user satisfaction in a customer feedback survey within a month of product release.

METHODOLOGY

INOVATION HIGHLIGHT

- Gesture control, allows users to direct luggage with simple hand movements. Sensor technology, MPU6050 sensors is used for
- precise motion recognition. User friendly, intuitive interface makes it easy for anyone to use. Increased mobility, enhances
- convenience in travel environments
-

ANALYSIS

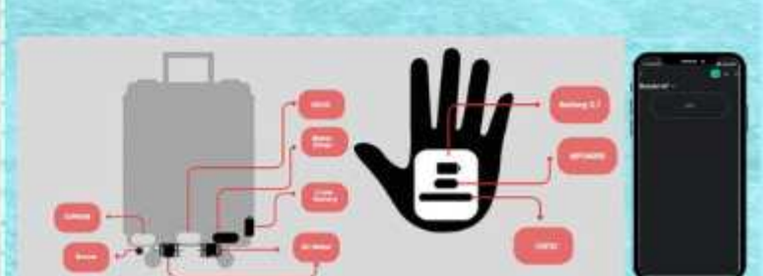
COMMERCIAL VALUE

- Unique features by allowing hands-free control through simple gestures, it offers a level of convenience that modern travelers desire.
- This innovative functionality sets it apart from traditional luggage, effectively differentiating the product in a crowded market.
- consumers increasingly seek smart travel solutions, the demand for such innovative luggage options continues to grow.

CONCLUSION

- In conclusion, hand gesture luggage control represents a significant advancement in travel technology, offering a user friendly and efficient way to manage luggage. By allowing travelers to navigate their bags with simple hand movements. As technology continues to evolve, such innovations can transform the travel experience, making it more seamless and enjoyable for everyone.

PICTURE



BACKPACK WATER

POLITEKNIK MALAYSIA PORT DICKSON

PRODUCT ID : 1768



STUDENT 1	STUDENT 2	SUPERVISOR
MOHD ANIQ BIN MOHD ASAARI	MUHD FAKRUSYI SYAKIRIN BIN SHAHIMI	DR. NUR AQILAH BINTI MOHAMAD AMIN
06DET22F1070	06DET22F1018	

BACKGROUND FILTER

Traditional filters are fixed in one location, limiting their functionality to specific buildings or areas. This static nature poses a challenge for users who seek versatility and flexibility in their filtration solutions. Consumers prefer filters that **can adapt to different environments**. The Backpack Water Filter addresses this demand by introducing **portability as a key feature**.

PROBLEM STATEMENT

- **Difficulty to get clean water** sources when in an **area far from clean water sources.**
- Having **restrictions** to get an **unlimited source of clean water.**
- Problems in identifying **the level of cleanliness** of water that can be drink.

OBJECTIVE

STUDENT 1
- To **develop** the filter efficiently, it **removes maximum of contaminants** from various water sources. To **design** a user-friendly filtration system that requires minimal effort to operate, with **easy cleaning or replacement of parts** to extend its life and usability. To **create** a compact, lightweight water filter system that includes **pH values from 6.5-9,5.** To **integrate** an ultrasonic water level sensor after the filtration process, enabling users to **monitor the water level** in the filter's reservoir in real-time.

STUDENT 2

COMMERCIAL VALUE

- Keeping an eye on outdoor recreation trends and health concerns can **help gauge future demand and pricing.** As consumers become more environmentally conscious, filters that are sustainable or **reduce plastic waste can have increased** value.
- With the rise in outdoor activities like hiking and camping, the demand for portable water filtration solutions has increased. Consumers are **increasingly concerned about access to clean water**, especially in remote areas.

INOVATION HIGHLIGHT

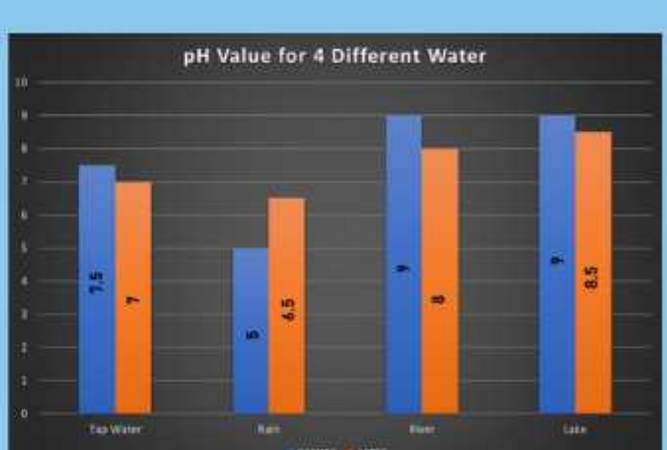
- Backpack water filter **can filter from dirty water to clean water using reverse osmosis** system besides being able to identify the current water level. Backpack water filter can filter water as
- much as **1.5l** at a time and **can filter many times up to 25 gallons.** Using a pH sensor to **measure the pH level of the water**
- to ensure that the filtered water is **safe and clean** to drink.

METHODOLOGY

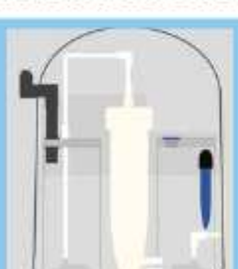
RESULT & ANALYSIS

Clean Water Before/After FILTER	RESULT
Before	The clean water storage area of **1.5L** takes **3** minute to fill
After	The amount of water below is **150ml**

- The water from before filtering tank take 3 minutes to fill 1.5L which the rate is 0.5L/1 minute.



DESIGN SOLUTION




CONCLUSION

In conclusion, the Project Backpack Water Filter serves as an **innovative and practical solution** for providing **clean drinking water in various environments**, particularly in **outdoor and emergency** situations. By emphasizing portability, ease of use, and effective filtration, this project addresses critical needs for accessibility to safe water.

- Water that have the best pH value to drink after filtering is tap water with a pH value of 7 while river water have a pH value 8.5 which is too high.So the water will be alkaline.

POLITEKNIK MALAYSIA
PORT DICKSON

PERFECT PALACE IOT CAT HAVEN

Mark Terence A/L David Selvaratnam
06DET22F1073
Student 1

Vekaashkantan A/L M.Lorince
06DET22F1073
Student 2

Supervisor: Dr Nur Aqilah Binti Mohamad Amin

BACKGROUND:

1. IoT Smart Cat Cage Project: Uses IoT technology to automate cat care.
2. Key Features: Smart feeding and watering system within the cat cage.
3. Goals: Enhance convenience, promote pet health, and reduce the burden on pet owners.
4. Target Audience: Pet owners, especially those who are frequently away from home.

PROBLEM STATEMENT:

1. Traditional cat cages often face challenges in maintaining consistent feeding and watering schedules.
2. Lack of remote monitoring for the cat's well-being.
3. Ensuring proper feeding and hydration becomes difficult when the owner is away or on vacation.

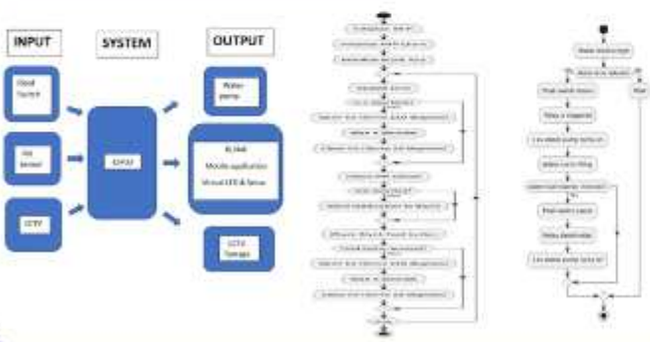
OBJECTIVES STUDENT 1:

1. To develop a system that dispenses controlled portions of food and at schedule times, ensuring the cat is fed even when the owner is away.
2. To monitor the cat sensor that detects the cat's presence inside the cage, providing insights into their activities and behaviour.

OBJECTIVES STUDENT 2:

1. To monitor the cat's behaviour by installing a CCTV camera that will broadcast in a web page by using its own IP address.
2. To create a smart watering system using a DC 12V water pump to refill the water bottle when levels drop in the float switch.

METHODOLOGY:



INNOVATION & HIGHLIGHT

1. Smart feeding: Implementing portion control, scheduling, and food dispensing based on predefined settings or user commands.
2. Smart watering: Providing continuous access to clean water, monitoring water levels, and ensuring optimalhydration for cats.
3. This IoT cat cage ensures pets are fed and hydrated automatically, offering peace of mind for pet lovers when they're away.

COMMERCIAL VALUE:

1. Automated feeding and watering for convenience.
2. Real-time camera monitoring for remote pet care.
3. Ideal for busy or traveling pet owners.
4. Sets apart from traditional pet care products.

CONCLUSION:

The IoT cat cage revolutionizes pet care by automating feeding and watering, offering convenience and remote monitoring. With eco-friendly features, it promotes pet well-being while reducing environmental impact, creating a smarter and more connected future for pet owners.

RESULT AND ANALYSIS:

Feature	Daily Consumption	Storage Capacity	Days Until Refill Needed
Automated Feeding	150g	1688g	~ 11 Days
Automated Watering	300ml	6230ml	~ 20 Days

PRODUCT ID: 1738

POLITEKNIK PORT DICKSON


Muhammad Ameer Mukminin Bin Normizol
(06DET22F1039) Student 1


Pn Azrinawati Binti Samaon
Supervisor


Mohamad Aiman Bin Amran
(06DET22F1060) Student 2

IOT FALL DETECTION BRACELET

BACKGROUND

- Detect falls and automatically call for help without the user having to press a button.
- Remind the senior citizens when to take medication.
- Use wearable technology.
- Using the Blynk platform, sound the buzzer remember take the medication and notifications are sent instantly , allowing for a quick response.

PROBLEM STATEMENT

- Independent-living seniors and people with disabilities have a high likelihood of falling and getting injured
- Forgetting to take medication on time can lead to serious health problems.
- Many systems don't have a real-time notification feature, slowing down response times.

OBJECTIVE STUDENT 1

- To build an Iot Fall Detection Bracelet using Fabric Bracelets to make sure the material suitable and comfortable to wear.
- To develop a fall detection system that is user-friendly and helpful in providing quick assistance.

OBJECTIVE STUDENT 2

- To design a reminder system for take medicine and effective fall detection alert system using smartphone
- To implement a reliable and cost-efficient fall detection and alert system.

COMMERCIAL VALUE

- The capabilities of the device make it easy to scale. It can be marketed directly to consumers or sold to healthcare facilities and senior care homes.
- The device uses low-cost but reliable components like accelerometers, gyroscopes, and low-energy microcontrollers ESP32 allowing for mass production at a low cost.
- The compact size and simple design of the bracelet make it easy to ship, sell, and market globally.

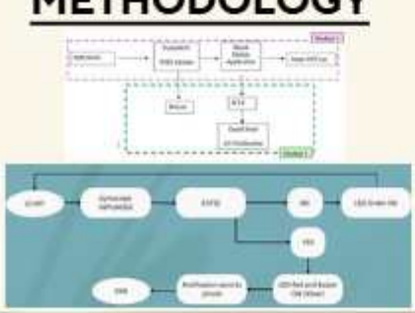
CONCLUSION

In conclusion, the IoT Fall Detection Bracelet is a simple, affordable device designed to automatically detect falls and send real-time alerts to caregivers. With its easy-to-use design and customizable notification system, it helps ensure that help arrives quickly when needed, making it a valuable tool for improving the safety and independence of elderly or at-risk individuals

INOVATION HIGHLIGHT

- User-Friendly: The bracelet is designed to be lightweight and comfortable for everyday wear,
- Sensor Technology: Uses MPU6050 sensors for precise motion recognition. Mobile App
- Notifications: Through the Blynk app, users receive instant push notifications and sound the buzzer on their smartphones.

METHODOLOGY



PICTURE

IOT FALL DETECTION BRACELET

POLITEKNIK MALAYSIA
PORT DICKSON

UV LIGHT DISINFECTION ROBOT

YANG ANTAH AFIQAH
BINTI MOHD.KAMARULZAMAN
06DET22F1085

PN. AZRINAWATI
BINTI SAMAON

NUR HAZIRAH FARZANAH
BINTI HISHAM AFFENDY
06DET22F1099

BACKGROUND

THE UV LIGHT DISINFECTION ROBOT USES UV-C LIGHT TO KILL BACTERIA AND VIRUSES. IT WORKS BY BREAKING DOWN THEIR DNA, HELPING TO REDUCE THE RISK OF ILLNESS. THE ROBOT HAS A SMART CAMERA (ESP32 CAM) THAT HELPS IT SEE DURING DISINFECTION ROBOT MOVING. THIS ENSURES IT CAN BE CONTROLLED WITHOUT EXPOSING PEOPLE TO HARMFUL UV LIGHT.USING UV LIGHT AND SMART TECHNOLOGY, THIS PROJECT OFFERS A LOWCOST,RELIABLE WAY TO CLEAN SURFACES AND MAKE ENVIRONMENTS SAFER.

PROBLEM STATEMENT

MALAYSIAN HOMES OFTEN USE AEROSOL DISINFECTANT SPRAYS OR CLOROX SOLUTIONS FOR CLEANING. THESE METHODS MAY NOT FULLY ELIMINATE ALL GERMS AND VIRUSES. EXAMPLE • HOSPITALS, COLLEGE, PUBLIC PLACES THIS UV LIGHT DISINFECTENT ROBOT MORE EFFICIENT AND COST- EFFECTIVE SOLUTION TO ENSURE THROUGH DISINFECTION AND MINIMIZE THE RISKS OF INFECTION ACROSS DIFFERENT SETTINGS.

OBJECTIVES

- TO DEVELOP AN AUTONOMOUS DISINFECTANT ROBOT USING ESP32 CAM
- TO CONTROL AND MONITORING SMART CAMERA WILL ENABLE DURING THE DISINFECTION PROCESS, ENSURING THAT THE ROBOT OPERATES SAFELY AND EFFICIENTLY WITHOUT POSING ANY HARM TO HUMANS.
- TO DEVELOP A CONTROL SYSTEM FOR A ROBOT USING MIT APP INVENTOR 2 THAT ALLOWS THE ROBOT TO MOVE FOWARD, BACKWARD, LEFT AND RIGHT
- TO DESIGN DISINFECTANT ROBOT THAT USER FRIENDLY AND LOW COST

METHODOLOGY

INNOVATION HIGHLIGHTS

- SMART CAMERA INTEGRATION• EQUIPPED WITH A SMART CAMERA (ESP32), THE ROBOT CAN MONITOR AND NAVIGATE THROUGH SPACES, ENSURING TARGETED AND PRECISE DISINFECTION WITHOUT REQUIRING CONSTANT HUMAN SUPERVISION.
- REMOTE CONTROL VIA BLUETOOTH• THE ROBOT CAN BE CONTROLLED USING AN ANDROID SMARTPHONE THROUGH BLUETOOTH, ENABLING USERS TO MANAGE ITS MOVEMENTS AND ACTIVATE DISINFECTION MODES REMOTELY FOR BETTER FLEXIBILITY.

COMMERCIAL VALUES

THIS WASTE MANAGEMENT PROJECT IS IMPORTANT FOR PROTECTING PUBLIC HEALTH AND SAFETY. WITH GROWING CONCERNS ABOUT WASTE, IT'S CRUCIAL TO ACT QUICKLY.MANAGING WASTE IN BUSY PUBLIC AREAS HELPS PREVENT HEALTH RISKS AND IMPROVE SAFETY. THE PROJECT BENEFITS EVERYONE BY IMPROVING WASTE HANDLING AND CREATING A CLEANER, HEALTHIER ENVIRONMENT.

CONCLUSION

THE UV LIGHT DISINFECTANT ROBOT PROVIDES AN EFFECTIVE AND SAFE WAY TO SANITIZE SURFACES USING UV-C LIGHT AND SMART CAMERA TECHNOLOGY. IT OFFERS REMOTE CONTROL, AUTOMATIC DISINFECTION, AND HELPS REDUCE THE SPREAD OF GERMS, MAKING IT IDEAL FOR HOSPITALS, PUBLIC SPACES, AND HOMES.

DESIGN SOLUTIONS

POLITEKNIK MALAYSIA
PORT DICKSON

Banana Plantation Protection System


Supervisor :
Azrinawati Binti Samaon

Group Members:
Muhammad Hazwan Bin Azman (06DET22F1002)
Nazrul Najmi Bin Noor Hisyam (06DET22F1030)

BACKGROUND

Banana plantation are susceptible to various threats such as pests, diseases, and environmental factors. Protecting banana plantation from these threats is crucial to ensuring a stable supply of bananas and sustaining the livelihoods of farmers. For this project, there will be a system that will help the farmer for their Banana Plantation Protection whenever the farmer is there or not.

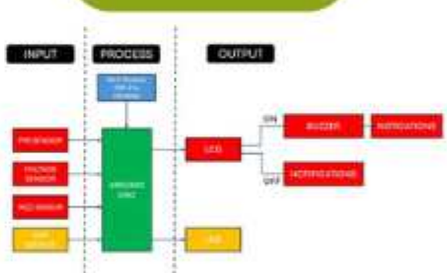
PROBLEM STATEMENT

- Crop yields are reduced and the disturbance of animals such as birds and monkeys will be a major loss to cultivation. The presence of unknown wild animals is also one of the causes that cause crop yields to decrease.
- When the weather is too hot, fires in the fields can also occur without the farmer's awareness most plantations can burn without knowing the real causes.

OBJECTIVE

- To develop a plantation protection system by sending notifications through the Blynk application in case of movement and smoke.
- To integrate into the smoke detector for early fire warning, allowing users to be aware to monitor in real time.
- To create a farm surveillance system that can detect movement between 5 and 12 meters and detect smoke or fire within a few meters of a potential source.
- To design a user-friendly plantation protection system that requires minimal effort to operate and replacement of parts.

METHODOLOGY



INNOVATION HIGHLIGHT

- Development of a mobile application that allows farmers to report pest outbreaks and receive alerts about potential threats.
- Sensor fire danger warning not only through smartphone notifications but also through calls and buzzers.

COMMERCIAL VALUE

- **Quality Improvement:**

Protecting plants from pests and diseases enhances the quality of the bananas, which can command higher prices in the market, especially for organic or premium varieties.

- **Easy for Installation and maintenance:**

Consumers are more likely to invest in systems that they can easily set up and repair broken components.

DESIGN SOLUTION


INSTITUTION NAME:POLITEKNIK PORT DICKSON
PRODUCT ID:1774
PRODUCT NAME:AUTOMATIC REFILL HAND SOAP DISPENSER WITH NOTIFICATION

AHMAD MUSYRIF BIN KHAIRIL FAISAL(06DET22F1021)
MUHAMMAD HAFIZ HAKIMI BIN MOHD ZAIN(06DET22F1015)
PENYELIA:MISS NUR AFIQAH BINTI MOHAMMAD

BACKGROUND

- PRESENTING THE AUTOMATIC REFILLER HAND SOAP DISPENSER WITH NOTIFICATION THE FUTURE OF EASE AND HYGIENE.THIS SYSTEM UTILIZES AN ARDUINO UNO MICROCONTROLLER, ULTRASONIC SENSORS TO DETECT THE BACKUP TANK'S LIQUID LEVEL, AND IR SENSOR TO DETECT HAND MOTION, TRIGGERING THE RELEASE OF SOAP LIQUID.

PROBLEM STATEMENT

- THE ISSUE HERE IS THAT, AS USERS, WE FREQUENTLY EXPERIENCE ISSUES WHEN WE WANT TO WASH OUR HANDS IN THE TOILET AND THE HAND SOAP RUNS OUT AND ISN'T REPLACED BY THE JANITOR.

OBJECTIVE

- TO DESIGN AUTOMATIC REFILLER SYSTEM THAT ORGANIZED AND MAKE IT EASIER FOR THE USER TO DO THE JOB.
- TO UPGRADE DISPENSE LIQUID SOAP WITHOUT HAVING TO TURN AND PUSH ANY SORT OF SWITCH.
- TO MONITOR THE LEVEL OF SOAP IN A TANK AND WHEN IT IS AT THE LOWEST LEVEL OF THE HAND SOAP ITS ACTIVATED AUTOMATICALLY TO REFILL THE DISPENSE

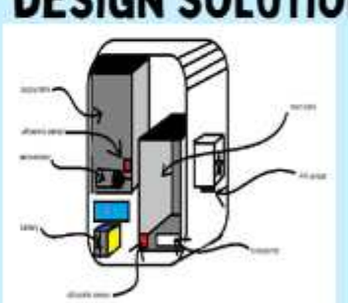
COMMERCIAL VALUE

- RESIDENTIAL SECTOR: HOMEOWNERS, APARTMENT BUILDINGS, AND RENTAL PROPERTIES LOOKING FOR A CONVENIENT, HYGIENIC, AND LOW-MAINTENANCE HAND SOAP SOLUTION.
- COMMERCIAL SECTOR: BUSINESSES, SCHOOLS, HOSPITALS, AND OTHER ORGANIZATIONS THAT REQUIRE RELIABLE HAND HYGIENE SYSTEMS FOR THEIR FACILITIES

INNOVATION HIGHLIGHT

- AUTOMATIC HAND SOAP REFILLER
- AUTOMATIC HAND SOAP DISPENSE
- SEND A NOTIFICATION WHEN ITS TIME TO REFILL

DESIGN SOLUTION



PICTURE

POLITEKNIK MALAYSIA
PORT DICKSON

IOT AUTOMATIC GARLIC PEELING MACHINE

Product ID: 1735


STUDENT 1
IZZATUL NABILLA BINTI ZAIHAN
06DET22F1027


STUDENT 2
NURUL AISYAH BINTI ZULLAZZAMAR
06DET22F1054


SUPERVISOR
MISS NUR AFIQAH BINTI MOHAMMAD

BACKGROUND

The Automatic Garlic Peeler and Blender is an innovative solution designed to streamline the peeling process for food vendors and chefs. This device can handle 1kg to 1.5kg of garlic, efficiently peeling and washing. By eliminating the need for manual peeling, it saves time and reduces the risk of skin irritations, enhancing kitchen efficiency and comfort. This invention promises to revolutionize garlic preparation in both professional and home kitchens.

OBJECTIVES

- To design a tool that may ease peeling process and saving time.
- To develop efficiency while remove outer skin of garlic cloves.
- To minimize the risk of injuries while peel the garlic
- To allow customizable settings for peeling different quantities of garlic, catering to both small and large-scale needs efficiently.

INNOVATION HIGHLIGHTS

- Can be monitor through phone or keypad button
- Has an emergency stop button for safety requirement
- Real-time monitoring to detect when garlic cloves are fully peeled, ensuring minimal waste and perfect results.
- Has a buzzer to alert that the peeling process has been completed

PROBLEM STATEMENT

In Malaysia, food-based businesses like Nasi Lemak are popular for generating income. A key attraction of Nasi Lemak is its sambal, which relies heavily on garlic. Vendors often use 1kg to 1.5kg of garlic daily, but peeling this amount by hand is time-consuming and uncomfortable. The strong garlic smell can irritate the hands and eyes, leading to skin issues like irritation and eczema. Therefore, the goal of this research is to design a garlic peeling and blending machine that will replace manual peeling, significantly reducing the time and effort required.

COMMERCIAL VALUES

- Peels large quantities of garlic quickly with minimal waste.
- Reduces labor, energy, and maintenance costs with automated IoT features like remote monitoring
- Higher initial investment but offers long-term savings and scalability for food processing businesses.
- Ideal for industries like food processing, catering, and exports.

DESIGN SOLUTION

PICTURE

POLITEKNIK MALAYSIA

TABLE TENNIS BALL VACUUM


MUHAMMAD HAZMI BIN MOHD ROFI (06DET22F1024)


AIDIL HAKIM BIN MOHAMAD AMIN (06DET22F1036)


NUR AFIQAH BINTI MOHAMMAD(SUPERVISOR)

1 BACKGROUND

A table tennis ball vacuum typically uses manual effort or mechanical systems to collect balls during gameplay or practice. Key components like the vacuum motor, movement system, control system, and power supply must be carefully chosen for effective and reliable operation. Research current table tennis ball vacuum to identify their features, limitations, and user feedback, which will help understand the market and find areas for improvement. Additionally, examine the technological limitations of existing table tennis ball vacuums. The project design should prioritize usability, safety, and adaptability, allowing it to work in various environments and respond well to user inputs.

2 PROBLEM STATEMENT

- Table tennis practice occurs in a small area, requiring ample space for movement.
- Typically, 3 to 5 athletes train together.
- When some athletes collect scattered balls, it disrupts those who are training.
  This limits available space for active athletes to move.
  Athletes waiting for their turn must gather balls before they can start practicing.

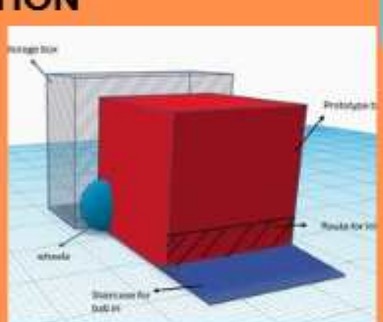
3 OBJECTIVES

- To create a model that table tennis athletes can use to help pick up balls that scattered during practice,.
- To improve the rate of time saving when collecting balls.
- To safe the area for athlete training more widely

4 INNOVATION HIGHLIGHT

- Collects large quantities of balls from the floor, significantly reducing the time spent on clean-up
- These model can hold a substantial number of balls, making them ideal for professional settings or busy training environments.
- Incorporating sensors to detect the presence of balls and navigate obstacles effectively.

5 DESIGN SOLUTION



6 COMMERCIAL VALUE

- **TARGET MARKETS :** High level and coaches spend long hours training and automated or highly efficient ball collection system.
- **TIME SAVING :** Reducing the time spent on ball collection allows more time for actual practice, improve experience and training productivity.
- **ENVIRONMMENTAL :** Offering eco-friendly versions made from sustainable materials could attract environmentally conscious consumers.

7 DIAGRAM/PICTURE

SENARAI PROJEK & PINGAT ESITEX SESI I 2024/2025

PROJEK DET 5B

BIL.	NO PENDAFTARAN	NAMA PELAJAR	ID PROJEK	TAJUK PROJEK	PENYELIA	PINGAT
1	06DET22F1053	AISY AMRI BIN AMIR	1786	GARBAGE TRAP WITH SENSOR AND MOBILE APP	MOHD IZHAM BIN AHMAD	GOLD
2	06DET22F1041	SITI NUR FATIMAH BINTI AHMAD HARUN				
3	06DET22F1007	TUAN AIN NOR MARINA BINTI TUAN ARISALEROL	1787	IOT BASED GAS LEAKAGE AND EJECTION SECURE DETECTOR		SILVER
4	06DET22F1014	WARDINA SAFIAH BINTI AZMAN				
5	06DET22F1026	LUQMAN NURHAKIM BIN ROSLI	1788	BED ALARM WITH AUTOMATED TIDY		SILVER
6	06DET22F1066	HAFIZIN JAMIL BIN NOR AZMI				
7	06DET22F1029	MUHAMMAD ZULISKANDAR BIN NORZAILI	1707	HANDS-ON LEARNING WITH ARDUINO TRAINER KIT	JUMALIAH BINTI JAHURI	BRONZE
8	06DET22F1084	MUHAMAD AL AMIN BIN AZMI				
9	06DET22F1001	MUHAMMAD HAKIM BIN ABDULLAH	1708	MINI HYDRO GENERATOR		BRONZE
10	06DET22F1004	MUHAMMAD AMIR BIN ZAIDI				
11	06DET22F1038	MUHAMMAD JEFRYZAL JAQUIM BIN JEFFRY	1703	RHAPSODY LIGHT	AZIHA BT MOHD NOR	BRONZE
12	06DET22F1059	MUHAMMAD FARIZ HAIKAL				
13	06DET22F1078	AMRI FAZLY BIN AMIR	1713	AUTO PET FEEDER		SILVER
14	06DET22F1072	MUHAMMAD IZZARUL HAZIQ BIN A.LATIF @ SURIA	1700	ENVIRONMENTALLY FRIENDLY BICYCLE		
15	06DET22F1063	MUHAMMAD HAIKAL BIN ABDULLAH				SILVER
16	06DET22F1075	ADAM SAMIR QAYUM BIN HAMID QAYUM	1669	STREETLIGHT MONITORING SYSTEM	NURSHEDA BINTI ZAINUDIN	BRONZE
17	06DET22F1081	YUVAN A/L LOGANATHAN				
18	06DET22F1087	MUHAMMAD IQBAL DANIAL BIN ZULKARNIAN	1664	BLUETOOTH CONTROL GRASS CUTTER		BRONZE
19	06DET22F1093	MUHAMMAD AUFAL NAZIM BIN MOHD NAZRI				
20	06DET22F1035	SHAHRUL NIZAM BIN TASLIM	1667	SMART PARKING SYSTEM WITH LCD SCREEN		SILVER
21	06DET22F1044	MUHAMMAD IRFAN BIN MUHAMAD YUSRI				
22	06DET22F1010	MOHAMAD YUSRI EHSAN BIN YUNOS	1776	COMPACT TRAINER LAB RECTIFIER	MOHD ZAINI BIN KEMON	BRONZE
23	06DET22F1056	ALEEF NUQMAN BIN KHAIRUL ANUAR				
24	06DET22F1017	ILYASA BIN AZANI	1777	SMART NAVIGATION STICK		BRONZE
25	06DET22F1020	MUHAMMAD KHAIRIL IMRAN BIN ISMAIL				
26	06DET22F1091	PUTERA MOHAMED DANIEL HAKIMI BIN MOHAMED FAKHRUL ANWAR	1778	SAFETY AUTO BRAKING SYSTEM		BRONZE
27	06DET22F1069	ALIF MUZAKKIR BIN MOHD SARRIFUDDIN				

POLITEKNIK PORT DICKSON
PRODUCT ID : 1786
PRODUCT NAME : GARBAGE TRAP WITH SENSOR AND MOBILE APP

TEAM MEMBER:
SITI NUR FATIMAH BINTI AHMAD HARUN (06DET22F1041)
AISY AMRI BIN AMIR (06DET22F1053)

SUPERVISOR:
EN. MOHD IZHAM BIN AHMAD

BACKGROUND

Our country was once surprised by a flood that was quite severe and closed the roads. This incident often happens every year in areas concentrated in big cities such as Kuala Lumpur and areas around the state of Selangor. Many people have been rescued and some of them are standing on top of the sunken car. One of the causes of this flood is garbage that accumulates and clogs the main drain so that water cannot flow smoothly. This project has a sensor part as a sensor that detects the level of garbage that has been collected and the type of garbage, a motor part as a motor that moves the garbage trap horizontally, and ESP32 as a signal transmitter to the mobile application.

PROBLEM STATEMENT

This problem occurs in the main drain, which is blocked due to the accumulation of excessive waste from leaves and garbage thrown everywhere by local residents. This small pollution can lead to larger issues, including overflowing water, especially during rain and flash floods.

OBJECTIVES

- Smooth the flow of main drainage system from flash floods.
- Can separate garbage with water to facilitate collection.
- Accelerating the cleaning process through IOT.

INNOVATION HIGHLIGHTS

- The equipped with sensor to detect waste levels that to providing when the trap is nearly full. A mobile application is used to monitor sensor
- level detection including notifications for full garbage collection IoT integration that enables connection with other smart systems to increase
- efficiency in management.

METHODOLOGY

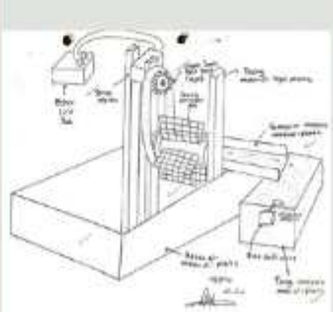
1.Title Selection.
2.Literature Study.
3.Model design and Model Building.
4.Testing or simulation to project.
5.Data collection.
6.Analysis data.
7.Discussion and Conclusion.

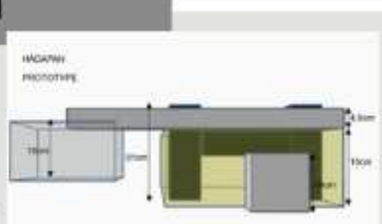
COMMERCIAL VALUE

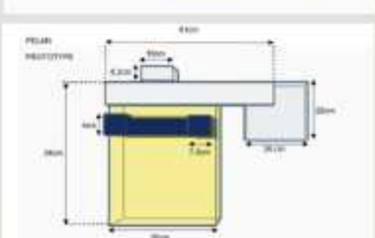
- Minimizing the need for unnecessary waste collection, reducing energy and labor costs.
- Mobile applications attract the attention of users who are more aware of technology and environmental management. Environmental
- awareness to consumers to demonstrate their commitment to sustainability and social responsibility.

PICTURE

DESIGN SOLUTION







POLITEKNIK MALAYSIA PORT DICKSON

INSTITUTION NAME : POLITEKNIK PORT DICKSON
PRODUCT NAME : IOT BASED GAS LEAKAGE AND SECURE DETECTOR

TEAM MEMBER: TUAN AIN NOR MARINA BINTI TUAN ARISALEROL
WARDINA SAFIAH BINTI AZMAN

SUPERVISOR: ENCIK MOHD IZHAM BIN AHMAD

BACKGROUND

Imagine where a gas leak occurs in your home or workplace. Will you be notified in time to avoid disaster? Our project aims to keep you always one step ahead. Therefore, we introduce our innovative project which is IOT BASED GAS LEAKAGE AND EJECTION SECURE DETECTOR. The system is designed to address critical safety concerns associated with gas leaks. By using advanced gas sensors, such as the MQ series, our detectors constantly monitor the concentration of dangerous gases and use IoT technology to provide real- time and fast alerts to users through mobile applications.

PROBLEM STATEMENT

- The possibility of a gas leak resulting in a major mishap.
- Because they are not present, users react slowly to gas leaks.
- Insufficient early warning effectiveness.
- It is not possible for users to halt the gas leak at the appropriate moment.

OBJECTIVES

- Prevent mishaps or the possibility of explosions.
- Enables users to react quickly and remotely monitor gas conditions.
- Makes sure people are promptly informed about gas leaks.
- Make sure that gas leaks can be quickly contained.

METHODOLOGY

An IoT gas based leakage and ejection secure detector project is developed using a methodical approach in our research design. This project describes its own circuits and functionality using flowcharts and block diagrams. Several key parts are combined in this construction, including an Arduino Uno, an ESP8266, a gas sensor, an LCD, a buzzer, an LED, a transistor, a motor drive, and a DC motor. Programming the microcontroller requires coding and software implementation in order to enable features like leak detection and emergency notifications.

INNOVATION HIGHLIGHT

In the event of an accident, this cutting-edge gadget helps users identify gas leaks by fusing sensors, smart technology, and accessibility features. vMq-2 gas detection sensor. vLCD to show the leak alert. vA buzzer that serves as a warning. vThe dc motor is controlled by the motor drive. vThe Blynk app will be used to send emergency assistance.

COMMERCIAL VALUE

1. Security and technological advancement
Due to their ease of installation, wireless gas detection systems are becoming more and more popular as a means of preventing mishaps like fires.

2. User satisfaction and cost savings
Remote gas level monitoring eliminates the need for frequent manual checks, saving money on labor and improving user convenience.

3. Development of software that is easy to use
designed to enable dependable user communication, emergency notifications on the Blynk app, and smooth sensor data.

CONCLUSION

The IoT Based Gas Leakage and Ejection Secure Detector project demonstrated its efficacy in promptly and precisely identifying gas leaks, thereby furnishing a crucial preemptive alert to avert potential threats like fire or explosion. This system's support for IoT makes it possible to monitor remotely, automate processes like shutting off gas supplies, and increase user safety. It also provides a scalable solution that can be easily expanded in the future, making it appropriate for a range of applications. All of this comes at a reasonable price.

DIAGRAM/PICTURE

BED ALARM WITH AUTOMATED TIDY

POLITEKNIK MALAYSIA
PORT DICKSON

TEAM MEMBER:
HAFIZIN JAMIL BIN NOR AZMI 06DET22F1066
LUQMAN NURHAKIM BIN ROSLI 06DET22F1026


SUPERVISOR: MOHD IZHAM BIN AHMAD

BACKGROUND

The "Bed Alarm with Automated Tidy" project is designed to enhance comfort and convenience in daily life, particularly for individuals with hearing impairments or limited mobility. Traditional loud alarms can be disruptive, whereas a vibration-based alarm offers a gentle wake-up solution without disturbing others. Additionally, the automated bed adjustment feature provides an easy way to tidy the blanket, offering increased independence and convenience for users. By integrating real-time clock functionality, motor control, and user interaction through a keypad, this project addresses both personal comfort and the growing demand for assistive technologies in home automation.

PROBLEM STATEMENT

- Many people find it challenging to wake up on time using traditional (sounding) alarms , which can be too loud or easy to ignore. This project addresses the need for a more effective and gentle wake-up method by using a vibration-based alarm system.
- Manually adjusting a bed or blanket can be difficult for individuals with limited mobility or those seeking convenience. The project aims to solve this issue by incorporating an automatic bed-making feature, which allows users to easily and neatly adjust the blankets on their beds.

OBJECTIVES

- A compact device that combines a vibration alarm with automatedbedtidyandtidyingfunctionalities.
- To create a vibration-based alarm system that provides a more comfortable and unobtrusive waking experiencecomparedtotraditionalsoundalarms.
- To design a motorized bed or blanket adjustment system that allows the user to tidy bed with minimal effort.

METHODOLOGY

1. System Design and Planning
2. Component Selection and Testing
3. Circuit Design and Assembly
4. Programming and Integration
5. Testing and Calibration
6. Troubleshooting

INNOVATION HIGHLIGHT

- Vibration-Based Alarm System:
  Replaces traditional sound alarms with a vibration mechanism, offering a more subtle and non-intrusive wake-up experience, ideal for individuals who prefer a quieter environment.
- Automated Bed Movement:
  The project integrates motorized bed adjustments, enabling users to effortlessly to tidy the bed blanket at the press of a keypad.

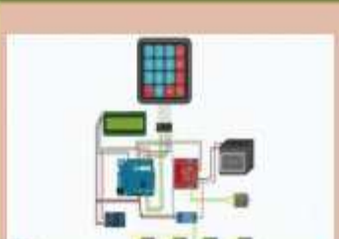
COMMERCIAL VALUE

Improved Comfort and Convenience:
Automated bed tidy adds significant value, making this system a dual-function product. This feature can be marketed to individuals looking for more comfort and convenience in their day-to-day lives, especially in caregiving environments.

CONCLUSION

The "Bed Alarm with Automated Tidy" project successfully combines a vibration-based alarm system with automated bed movement to provide a more comfortable and efficient solution for users. By integrating a real-time clock for precise alarm scheduling, a keypad for easy user interaction, and motorized bed control, the system enhances both the wake-up process and bed adjustment convenience. This project not only improves the daily routine for individuals with mobility challenges but also offers a more user-friendly and non-intrusive wake-up experience.

DIAGRAM/PICTURE




POLITEKNIK MALAYSIA
PORT DICKSON

INSTITUTION NAME: POLYTECHNIC PORT DICKSON
PRODUCT ID: 1707
PRODUCT NAME: HANDS-ON LEARNING WITH ARDUINO TRAINER KIT

NAMA GROUP:MUHAMMAD ZULISKANDAR BIN NORZAILI (06DET22F1029)
MUHAMAD AL AMIN BIN AZMI (06DET22F1084)

SUPERVISOR: PUAN JUMALIAH BINTI JAHURI

BACKGROUND

Trainer that we develop is the Arduino Trainer Kit. Our Trainer kit project is different from other Trainer kits out there. The Arduino Trainer Kit is an educational tool created to introduce students about technology and robotics. With this kit, students can explore about application technology.

PROBLEM STATEMENT

- Students find it difficult to understand the subject they are learning
- Students lack interest in learning the subject.
- Lack of opportunities for experience-based and skill-based learning.
- Learning approaches that rely too heavily on theory are less engaging

OBJECTIVES

- Turning the Dc motor used.
- Make sure the LCD works when the sensor detects something.
- Turn on the buzzer and bulb using the sensor.
- Build trainer models based on different outputs

METHODOLOGY

- Students will physically connect circuits (such as motors and sensors) and see how they work in real life, rather than just learning from theory. As soon as the
- sensor detects an object, the students will immediately see the buzzer and bulb on.

INNOVATION HIGHLIGHT

- this Arduino Trainer Kit was developed to helps students connect what they learn to real-life uses, like controlling motors, buzzers, and lights. The kit allows
- students to see immediate results, like a buzzer sounding or a light turning on when the sensor detects something, making learning more engaging.

COMMERCIAL VALUE

- The Arduino Trainer Kit has the potential to be a highly valuable commercial product, particularly in the educational technology and robotics market. The kit's unique selling point lies in its ability to introduce students to technology and robotics

CONCLUSION

- In conclusion, the Arduino Trainer Kit is an innovative educational tool designed to help students learn in a more interactive way. This project offers students the opportunity to explore design concepts and technology, making it different from other Edu kit tools.

DIAGRAM/PICTURE

POLITEKNIK MALAYSIA PORT DICKSON

INSTITUTION NAME : POLITEKNIK PORT DICKSON
PRODUCT ID : 1708

PRODUCT NAME : MINI HYDRO GENERATOR

TEAM MEMBER : MUHAMMAD HAKIM BIN ABDULLAH (06DET22F1001)
MUHAMMAD AMIR BIN ZAIDI (06DET22F1004)

SUPERVISOR : PUAN JUMALIAH BINTI JAHURI

BACKGROUND

As camping grows in popularity, the demand for sustainable power solutions rises. Traditional gasoline generators are costly and noisy, while mini hydroelectric generators use flowing water for clean electricity. With the ESP8266 microcontroller, these generators offer real-time monitoring and alerts, making them convenient and safe for eco-friendly campers in remote areas.

PROBLEM STATEMENT

1. Camping often relies on unsustainable, costly power sources like gasoline generators.
2. Many water column phenomenon has been recorded and taking many lives.
3. It must provide enough electricity for essential camping equipment.
4. The system should work in different water conditions and be easy to set up.

OBJECTIVES

- To create a mini hydro generator that can generate an output of up to 12V.
- To develop a sustainable energy source that will not harm nature and harm humans.
- To monitor how much output can be generated by using water as an energy source.
- To warn users from their smartphones whether the flow is safe or not.

METHODOLOGY

1. Design & Build: Assemble the hydro generator with a turbine, alternator, and ESP8266 microcontroller for monitoring. **2. Programming:** Code the ESP8266 to send real-time voltage and current data to a smartphone app and activate buzzer/LED alerts for issues. **3. Testing & Optimization:** Test in different water conditions, fine-tune for accurate data, and ensure portability and easy assembly.

INNOVATION HIGHLIGHT

1. Smart Monitoring: ESP8266 microcontroller alerts users via smartphone for real-time updates on performance.
2. Multi-channel Alerts: Buzzer and LED warn users of issues like increased flow rates.
3. Voltage Display: Built-in volt and ammeter show live voltage and current output.
4. Portable and Eco-friendly: Easy to carry, environmentally friendly, and ideal for remote camping.

COMMERCIAL VALUE

1. **High Demand:** Appeals to eco-conscious campers and outdoor enthusiasts.
2. **Smart Features:** Smartphone monitoring adds convenience over traditional generators.
3. **Safety & Reliability:** Alerts and real-time voltage display ensure safe, efficient use.
4. **Versatile Use:** Ideal for camping, off-grid living, and emergency backup power.

CONCLUSION

In conclusion, the mini hydroelectric generator with the ESP8266 provides an eco-friendly power solution for campers in remote areas. By harnessing flowing water and offering real-time monitoring, it surpasses traditional gasoline generators, meeting the demand for sustainable energy in camping gear.

TESTING PROCESS

POLITEKNIK PORT DICKSON
PROJECT ID : 1703
RHAPSODY LIGHT


STUDENT 1 : MUHAMMAD JEFRYZAL JAQUIM BIN JEFFRY


SUPERVISOR : TS.AZIHA BINTI MOHD NOR


STUDENT 2 : MUHAMMAD FARIZ HAIKAL BIN HANIYUSRI

BACKGROUND

This setup allows the lights to automatically turn on or off based on motion detected in the room and also provides the option for manual control via a smartphone using Wi-Fi.

PROBLEM STATEMENT

Lighting systems waste energy when lights are left on in empty rooms, and they lack the convenience of remote control.

OBJECTIVE

Integrates a motion sensor and an ESP8266 microcontroller, allowing users to control room lights automatically based on movement and manually through a smartphone via Wi-Fi.

METHODOLOGY

The methodology for the smart lighting system using the ESP8266 and motion sensor begins with designing the system and selecting key components like the ESP8266 module and PIR motion sensor

INNOVATION HIGHLIGHT

This project combine esp8266 that can control light on our smartphone and also using PIR sensor that can automatic off when no motion in room.

COMMERCIAL VALUE

Offer energy efficiency reduce electricity bills, and enhance user experience. The system's ease of installation, smartphone control, and motion-sensing capability make it attractive for retrofitting existing lighting setups without major renovations.

CONCLUSION

By combining automatic lighting control through motion detection with remote control capabilities via a smartphone, the system offers users flexibility, comfort, and cost savings.

PICTURE

INSTITUTION NAME: POLYTECHNIC PORT DICKSON
PRODUCT NAME: AUTO PET FEEDER

TEAM MEMBER: AMRI FAZLY BIN AMIR
SUPERVISOR: TS. AZIHA BINTI MOHD NOR

BACKGROUND

The automated pet feeder is designed to make pet care more convenient by dispensing food at scheduled times. The system uses a servo motor to control the release of food and a real-time clock (RTC) to ensure accurate timing. The feeding schedule can be easily set by the user using a keypad, and the system provides feedback via an LCD display. This project aims to reduce human intervention in feeding pets, ensuring they are fed at the correct times even when the owner is not present.

PROBLEM STATEMENT

- Feeding Schedule:

Difficulty in maintaining a consistent feeding schedule for pets when owners are away.

- Portion Control:

Overfeeding or underfeeding pets due to lack of precise portioning.

- Power Supply:

Dependency on power sources, leading to potential malfunctions during outages.

OBJECTIVES

- To create a system that dispenses predetermined portions of food at specific times, ensuring pets receive regular meals even when owners are not at home.
- To design a mechanism that accurately measured and dispenses appropriate portions of food, helping to manage a pet's diet and prevent overeating.

METHODOLOGY

The methodology of an auto pet feeder involves several key steps, starting with the design of a user-friendly device that includes compartments for food storage and dispensing mechanisms. It incorporates programming for setting feeding schedules and portion sizes, followed by testing to ensure accurate food dispensing. A simple user interface is developed for easy programming and adjustments, while durable, pet-safe materials are selected to withstand regular use. Finally, gathering user feedback post-launch helps identify areas for improvement, ensuring the feeder is reliable and effective.

INNOVATION HIGHLIGHT

- **Customizable Feeding Schedule**
- **Precise Portion Control**
- **User-Friendly Interface**

COMMERCIAL VALUE

- Increased Convenience:

Appeals to busy pet owners who seek automated solutions for feeding schedules.

- Market Demand:

Growing trend in pet ownership drives demand for innovative pet care products.

- Cost Saving:

This product is more affordable than the other smart pet feeders due to the functions they have.

CONCLUSION

The automated pet feeder project automates the feeding process, reducing the need for constant human intervention and ensuring pets are fed on time. The use of real-time clock functionality and servo control ensures accurate and reliable operation. With potential for future enhancements, this system provides a strong foundation for more advanced pet care automation.

DIAGRAM / PICTURE

POLITEKNIK PORT DICKSON
PROJECT ID: 1700
ENVIRONMENTALLY FRIENDLY BICYCLE

SUPERVISOR: Ts. AZIHA BINTI MOHD NOR
STUDENT 1: MUHAMMAD IZZARUL HAZIQ BIN A. LATIF @ SURIA (06DET22F1072)
STUDENT 2: MUHAMMAD HAIKAL BIN ABDULLAH (06DET22F1063)

BACKGROUND

An environmentally friendly bicycle is a sustainable transportation mode aimed at reducing carbon footprints and protecting ecosystems. Designed for all, especially Port Dickson Polytechnic students, it can be integrated into landscaping programs, giving students hands-on experience in eco-friendly lawn care.

PROBLEM STATEMENT

- Gas mowers generate excessive noise, disrupting the peace in residential areas.
- Traditional gas-powered lawn mowers contribute significantly to carbon emissions and air pollution.
- The ongoing costs of fuel and maintenance for gas mowers make them expensive over time, limiting affordability for many homeowners.

OBJECTIVE

- Aim to reduce carbon emissions and environmental footprint compared to traditional gas-powered mowers. To reduce
- energy consumption by utilizing human power, supplemented with electric assistance. To encourage physical exercise
- and outdoor activity while performing lawn maintenance.

METHODOLOGY

Probiem Identification: identify the need for a more sustainable and user-friendly lawn mower.
Design Phase: Select appropriate materials for the frame
Performance Testing: Conduct trials to measure the cutting efficiency, battery life, and user experience.

INNOVATION HIGHLIGHT

- Combination of Bicycle Mobility and Electric Power
- Fully Electric Operation
- Promotes Health and Wellness
- Quiet Operation

COMMERCIAL VALUE

Cost Saving for Customer
offers significant long-term cost savings compared to traditional gas-powered mowers.
Unique Niche Product
The integration of bicycle mobility with electric power creates a unique product that stands out in the competitive lawn mower market.

CONCLUSION

This mower is designed to be efficient, low-maintenance, and accessible to a wide range of users, making it an appealing choice for environmentally conscious homeowners. Overall, this project provides a practical, innovative, and sustainable way to maintain lawns while promoting a greener future.

PICTURE

POLITEKNIK MALAYSIA
PORT DICKSON

INSTITUTION NAME: POLITEKNIK PORT DICKSON
PRODUCT ID: 1669
PRODUCT NAME: STREETLIGHT MONITORING SYSTEM


NURSHEDA BINTI ZAINUDIN


ADAM SAMIR QAYUM


YUVAN A/L LOGANATHAN

TEAM MEMBER: ADAM SAMIR QAYUM BIN HAMID QAYUM (08DET22F1075)
YUVAN A/L LOGANATHAN (08DET22F1081)
SUPERVISOR: NURSHEDA BINTI ZAINUDIN

1 Background

This project was designed to accomplish a simple task:
Reduce light pollution and save energy.

It combines both software and hardware that work together to create a reliable and safe way to save energy and reduce light pollution.

2 Problem Statement

Roads that aren't as busy with streetlights use a lot of energy.

Light pollution causes problems to humans, animals, and the environment.

Power consumptions causes unnecessary wastages.

3 Objectives

- To build a system of LED's that can notify if there are problems.
- To build an array of sensors that ensures the lights would only turn on if movement is detected.
- To build the controller board with Arduino that can interact with the input and output board.
- To interconnect all the boards mentioned to create a seamless system that saves energy and notifies if a problem occurs.

4 Methodology

An LDR sensor detects the brightness outside and sends a signal to Arduino if it is dark enough for streetlights to turn on.

The LED's turn on, but are only dim.

IR sensors detect movement, LED brightens for a while and dims after movement is no longer detected.

5 Innovation Highlight

This system introduces a notification system.

When a problem occurs, the ESP32 sends a signal to our phone to notify us of a problem.

This makes it easy to carry out maintenance.

6 Commercial Value

A lot of energy can be saved by installing the Streetlight Monitoring System.

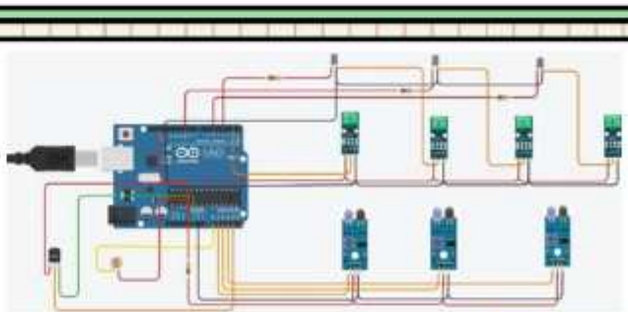
It can be retrofitted to existing streetlights, making it easy to implement anywhere without costing a lot.

The cost for the installation can be as low as RM 100 for each streetlight, making it affordable.

7 Conclusion

This project aims to reduce excessive energy wastage from underused streetlight by using a system of sensors that work in tandem. By only brightening it when there are objects passing by, we could reduce energy waste by a significant amount while still making it safe because it would not be pitch dark, as the streetlight would only be dimmed. The notification system to alert us of any issues ensures swift action can be taken to fix the streetlight by the responsible authorities.

8 Diagram



INSTITUTION NAME : POLITEKNIK PORT DICKSON

PRODUCT NAME : BLUETOOTH CONTROL GRASS CUTTER

MUHAMMAD IQBAL DANIAL BIN ZULKARNIAN (06DET22F1087)

SUPERVISOR : PUAN NURSHEDA BINTI ZAINUDIN

MUHAMMAD AUFAL NAZIM BIN MOHD NAZRI (06DET22F1093)

BACKGROUND

Introducing the Bluetooth-controlled grass cutter: an innovative solution set to transform lawn maintenance. In a time of fast technology growth and demand for convenience, this project offers a new way to manage outdoor areas. With Bluetooth control, users can easily manage their lawn care remotely.

PROBLEM STATEMENT

The increasing demand for efficient and user-friendly lawn maintenance solutions calls for innovation in the realm of landscaping equipment. Conventional grasscutting methods often involve manual labor or bulky machinery, posing challenges such as limited maneuverability, noise pollution, and environmental concerns

OBJECTIVES

The goal is to develop a Bluetooth-controlled grass cutter that can be operated remotely using a smartphone app. This project will utilize existing technology and components commonly found in robotic lawn mowers, while integrating Bluetooth connectivity for remote control. The aim is to complete the development and testing of the Bluetooth-controlled grass cutter within six months.

METHODOLOGY

The methodology involves planning the grass cutter's design and components, assembling the hardware, and developing software for Bluetooth control. After integrating the system, it will undergo testing for performance, safety, and efficiency. Adjustments will be made before final evaluation and project completion within six months.

INNOVATION HIGHLIGHT

The grass cutter can be controlled remotely via a smartphone, offering convenience and reducing the need for manual operation. This wireless control allows users to operate the device from a safe distance, increasing accessibility and user comfort.

COMMERCIAL VALUE

With the increasing popularity of smart devices, there is a significant market opportunity for a Bluetooth- controlled grass cutter. Consumers are looking for ways to simplify household chores, and a remote- controlled lawn mower fits perfectly within the growing trend of smart home and garden equipment.

CONCLUSION

The Bluetooth-Control Grass Cutter project aims to revolutionize lawn maintenance by integrating smart technology into traditional grass cutting equipment. Through the implementation of Bluetooth connectivity, the expected results encompass a paradigm shift towards enhanced efficiency, convenience, and precision in grass cutting tasks

DIAGRAM/PICTURE

POLITEKNIK MALAYSIA PORT DICKSON

INSTITUTION NAME : POLITEKNIK PORT DICKSON
PRODUCT ID : 1667
PRODUCT NAME : SMART PARKING SYSTEM WITH LCD SCREEN

MEMBER

MUHAMMAD IRFAN BIN MUHAMAD YUSRI
(06DET22F1044)

SUPERVISOR

PUAN NURSHEDA BINTI ZAINUDIN

MEMBER

SHAHRUL NIZAM BIN TASLIM
(06DET22F1035)

BACKGROUND

- THE CONCEPT OF 'SMART PARKING SYSTEMS' HAS GAINED SIGNIFICANT ATTENTION IN RECENT YEARS AS CITIES AROUND THE WORLD GRAPPLE WITH URBAN CHALLENGES, TRAFFIC CONGESTION AND INEFFICIENT PARKING MANAGEMENT. THE SYSTEM LEVERAGES ADVANCED TECHNOLOGIES SUCH AS SENSORS, DATA ANALYTICS AND MOBILE APPLICATIONS TO OPTIMIZE THE USE OF PARKING SPACES.

PROBLEM STATEMENT

- WASTE OF TIME LOOKING FOR PARKING
- THE PARKING LOT IS CROWDED.
- WASTING FUEL WHEN LOOKING FOR A PARKING SPACE.
- GASOLINE WILL BE WASTED DUE TO LOOKING FOR PARKING FOR TOO LONG.
- CAN AVOID COMPETING FOR A PARKING PLACE WITH OTHER PEOPLE

OBJECTIVES

- TO DISPLAY THE NUMBER OF AVAIBLE CARPARK SLOT ON LCD SCREEN AND WEBPAGE.
- TO EVALUATE THE CARPARK SLOT MONITORING SYSTEM FOR PERFORMANCE AND ACCURACY.
- TO DESIGN, DEPLOY, AND MAINTAINING A CUTTING EDGE SMART PARKING SYSTEM
- TO DEVELOP AND IMPLEMENT INNOVATIVE SMART PARKING SYSTEM AND TECHNOLOGIES TO OPTIMIZE URBAN PARKING MANAGEMENT

METHODOLOGY

- THE SMART PARKING MONITORINGS SYSTEM IS DESIGNED TO REVOLUTION THE WAY PARKING SPACES ARE MANAGED AND UTILIZED IN URBAN ENVIRONMENT.THERE'S AN URGENTNEED FOR INNOVATIVE SOLUTION TO OPTIMIZE SPACE USAGE, REDUCE CONGESTION, AND ENCHANCE THE OVERALL PARKING EXPERIENCE. THIS PROJECT AIMS TO ADDRESS THESE CHALLENGES BY IMPLEMENTING A COMPREHENSIVE SYSTEM THAT LEVERAGES CUTTING-EDGES TECHNOLOGY TO PROVIDE REAL-TIME INFORMATION ABOUT PARKING SPACE AVAILABILITY

INNOVATION HIGHLIGHT

- REAL-TIME AVAILABILITY TRACKING
- DATA ANALYSTIC
- ENERGY EFFICIENCY
- COMMUNITY ENGANGEMENT
- MODULAR DESIGN

COMMERCIAL VALUE

INCREASED REVENUE FOR PARKING OPERATOR

- IMPLEMENTING FEATURES THAT ALLOW FOR DYNAMIC PRCING BASED ON DEMAND CAN MAXIMIZE REVENUE FOR PARKING LOT OPERATORS.

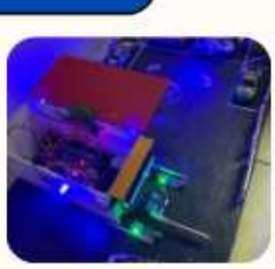
COST SAVINGS

- AUTOMATING PARKING MANAGEMENT REDUCES THE NEED FOR PERSONNEL, CUTTING LABOR COST FOR OPERATORS

CONCLUSION

- IN CONCLUSION, THE DEVELOPMENT OF THE SMART PARKING SYSTEM REPRESENT AN IMPORTANT EVENT IN THE FIELD OF MANAGEMENT PROVIDING PARKING INFORMATION. WITH THIS SYSTEM, DRIVES GET REAL-TIME INFORMATION ABOUT THE AVAIBILITY OF PARKING SPACES, OUR SYSTEM NOT ONLY IMPROVES CONVENIENCE AND EFFICIENCY BUT ALSO CONTRIBUTES TO REDUCING TRAFFIC CONGESTION.

DIAGRAM / PICTURES



PRODUCT ID : 1776

COMPACT TRAINER LAB RECTIFIER

POLITEKNIK MALAYSIA PORT DICKSON

TEAM MEMBER

MOHAMAD YUSRI EHSAN BIN YUNOS
(06DET22F1010)

SUPERVISOR

MOHD ZAINI BIN KEMON

TEAM MEMBER

ALEEF NUQMAN BIN KHAIRUL ANUAR
(06DET22F1056)

BACKGROUND

- Trainers that will assist students in applying their knowlegde and abilities in Power Electronics.
- Convert alternating current (AC) to direct current (DC)
- Provide practical experience with real-world power electronics applications.

PROBLEM STATEMENT

- Conventional laboratory sets are cumbersome, costly, and difficult to obtain for lone experimentation.
- Addressing the issue of high ripple factor that can impair the operation of electronic equipment.
- Ensuring the trainer is easy to use and suitablr for educational settings.

OBJECTIVES

- Enhance the teaching and learning experience with precise and clear outcomes.
- Provide a more economical option compared to conventional lab setups.
- Helps students and engineers gain a deeper understanding of power electronics through hands-on experience.

METHODOLOGY

- Use the trainer as an effective teaching tool.
- Discuss findings and relate them to theoretical concepts.
- All the required parts, such as an oscilloscope and a training kit, are assembled.

INNOVATION HIGHLIGHT

By incorporating these innovative features, Compact trainer lab rectifier project can provide a comprehensive and engaging learning experience for students in power electronics. This approach not only enhances theoretical understanding but also equips students with practical skills that are crucial in the field of electrical engineering.

- Can easily use in anywhere especially in laboratary without any restricted use.
- easy for students to understand with accurate measurements and easy installation.

COMMERCIAL VALUE

High Demand:

- Universities, technical colleges, and vocational schools require advanced training equipment to teach power electronics effectively.

Workforce Development :

- Industries need to train their workforce on the latest technologies in power electronics. A compact trainer lab rectifier can be used in corporate training programs to upskill employees.

Revenue Generation:

- By selling to educational institutions, industrial training centers, and R&D departments, the trainer can generate substantial revenue.

CONCLUSION

In conclusion, The project provides hands-on learning for rectification principles by developing and testing half-wave and full-wave rectifiers. It involves using oscilloscopes and multimeters to observe waveforms and voltages. The project highlights practical applications in electronic devices and power systems, emphasizing reliable and efficient rectification. Overall, it demonstrates real-world applications of theoretical knowledge and enhances education through practical investigation.

DIAGRAM / PICTURE

POLITEKNIK MALAYSIA PORT DICKSON

INSTITUTION NAME: POLITEKNIK PORT DICKSON
PRODUCT ID: 1777
PRODUCT NAME: SMART NAVIGATION STICK

TEAM MEMBER

ILYASA BIN AZANI
(06DET22F1017)

SUPERVISOR

MOHD ZAINI BIN KEMON

TEAM MEMBER

MUHAMMAD KHAIRIL IMRAN BIN ISMAIL
(06DET22F1020)

BACKGROUND

This project's goal is to assist people with vision impairments in overcoming obstacles while walking. An ultrasonic sensor is utilized to do this. It is composed of a transmitter and receiver, and it has a detection range of 20 to 80 cm to identify obstacles. In addition, we make use of a LDR sensor and a rain sensor where it can identify in dark areas and when rain drop at the sensor, in which all are used to guarantee the safety of users wherever they go.

PROBLEM STATEMENT

- Blind individuals face a significant challenge due to the lack of information about road conditions, rendering them unable to identify hazards such as potholes or road repairs.
- They cannot identify potholes or repairs on the road, which compromises their safety.
- This absence of information makes it difficult for them to navigate safely while crossing roads.
- It undermines their independence and elevates the risk of accidents.

OBJECTIVES

- To develop a smart navigation stick, integrating an ultrasonic sensor and rain sensor, LDR sensor with an Arduino microcontroller, buzzer, GSM Module, Emergency SMS and LED (Light Emitting Diode).
- To enable the device to send a text message via SMS to a specific mobile number in case in a dangerous situation.
- To create a user-friendly software for the walking stick, ensuring smooth integration of sensor data and reliable communication.
- To make sure the smart navigation stick can resist different climatic circumstances and keep working dependably for a long time, conduct thorough durability and reliability testing.

METHODOLOGY

The research design incorporates a systematic approach to develop a smart navigation stick, utilizing a block diagram and flow chart to outline the circuitry and functionality. The construction of all circuits involves assembling components such as ultrasonic, LDR and rain sensors, microcontrollers, and communication modules. Coding and software implementation play a crucial role in programming the microcontroller, enabling functionalities such as obstacle detection, navigation assistance, and emergency alerts.

INNOVATION HIGHLIGHT

This innovative device combines sensors, smart technology, and accessibility features to help users navigate their surroundings with greater ease and safety.

- Ultrasonic sensor to obstacle detection
- LDR sensor to detect area dark
- Rain sensor detect when rain drop at the sensor
- Emergency assistance will send sms to smartphone.

COMMERCIAL VALUE

1.Improved mobility and safety
- Demonstrable improvements in obstacle avoidance for visually impaired individuals.

2. High user satisfaction
- Positive feedback on the ease of use, design, and functionality of the Smart Navigation Stick.

3. Creation of a user-friendly software
- Designed to facilitate smooth sensor data, emergency SMS, and reliable communicate with the user.

CONCLUSION

In conclusion, the smart navigation stick is a major improvement in assistive technology, giving visually impaired individuals more independence, safety, and mobility. By combining sensors, navigation technology, and an easy-to-use design, it helps users overcome challenges in navigating their surroundings. Its ability to detect obstacles, provide real-time feedback, and enhance awareness of the environment makes it a valuable tool that can significantly improve the lives of millions worldwide

DIAGRAM/PICTURE

POLITEKNIK MALAYSIA
PORT DICKSON

INSTITUTION NAME: POLITEKNIK PORT DICKSON
PRODUCT NAME: SAFETY AUTO BRAKING SYSTEM
PRODUCT ID: 1778

SUPERVISOR: ENCIK MOHD ZAINI BIN KEMON

TEAM MEMBER:
1.ALIF MUZAKKIR BIN MOHD SARRIFUDDIN (06DET22F1069)
2.PUTERA MOHAMED DANIEL HAKIMI BIN MOHAMED FAKHRUL ANWAR (06DET22F1091)

BACKGROUND

The primary goal of Safety Auto Braking Systems (SABS) is to improve vehicle safety by automatically applying the brakes when an impending collision is detected. This is done through the use of cutting-edge technology. By taking a proactive stance, the severity and frequency of accidents brought on by human error such as distracted driving or delayed reaction times are to be decreased. Generally speaking, SABS use ultrasonic sensors, HC05 bluetooth module and Arduino Uno R3 components like to identify objects in the path of the car and start the braking system if the driver doesn't react fast enough. Reducing injuries, minimizing the effects of collisions, and saving lives are the ultimate objectives.

PROBLEM STATEMENT

- Who: Drivers, passengers and members of the public involved in accidents.
- What: an enhanced safety feature that, in an emergency, automatically applies the brakes to stop or lessen the severityof collisions.
- Where: can be used in a variety of weather and road conditions, though performance may differ depending on environmental conditions and sensor range.
- When: becomes active when it senses an impending collision risk, like when a car in front of it abruptly slows down or when a pedestrian suddenlycrosses the street.
- Why: to minimize the effects of accidents and lower the risk of collisions in order to improve road safety

OBJECTIVES

- Improve Driver Reaction: Help drivers respond quicker than human reflexes in critical situations, particularly when the driver is distracted or sluggish to reply.
- Encourage safer driving behaviors by sending notifications and triggering automatic braking when unsafe circumstances are recognized, hence enhancing overall road safety.
- If a collision is inevitable, the system uses brakes to limit vehicle speed, reducing the intensity of the impact and decreasing potential casualties.
- Operate efficiently in a variety of settings, including rain, fog, and low-light circumstances, improving safety regardless of the driving situation.

METHODOLOGY

- Automatic braking system involves ultrasonic sensors, Arduino Uno microcontroller, LED and buzzer. Ultrasonic sensors mounted to the front
- of the vehicle to detecta obstacles. Arduino Uno processes the sensor data. When an obstacle is
- detected within critical range, the microcontroller sends a signal to engage the braking mechaniam. An alert system (LED or buzzer) is activated to notify the driver of the
- obstacle.

INNOVATION HIGHLIGHTS

- Dynamic Braking Control: Depending on the road type, weight, and speed, the system can modify the braking force. From emergency braking to mild deceleration, it delivers the proper brake reaction under a variety of circumstances.
- Better Detection Systems: Even in difficult situations like cities or crossroads, innovative SABS can now more precisely identify vulnerable road users, such bicycles and pedestrians.
- These modes lower the possibility of human mistake by allowing the braking system to entirely take control or to help drivers make better judgements.

COMMERCIAL VALUE

Warning system pricing starting from RM 200

CONCLUSION

The Auto Braking System project is progressing from initial research to prototype development and testing to demonstrate the significant advancements in vehicle safety technology. Throughout the project, we came to a structured approach like integrating advanced sensor to develop a reliable braking system capable of responding effectively to potential collisions.

DIAGRAM/ PICTURE

SENARAI PROJEK & PINGAT ESITEX SESI I 2024/2025

PROJEK DET 5C

BIL.	NO PENDAFTARAN	NAMA PELAJAR	ID PROJEK	TAJUK PROJEK	PENYELIA	PINGAT
1	06DET22F1019	AMEER ZACQUAN BIN SANIMAN	1670	INTELLIGENT CHAIR	FADZLIDA BT SHAMSUDIN	BRONZE
2	06DET22F1025	MOHAMMAD ARIF HAKIMI BIN MOHAMMAD BADRUL HISHAM				
3	06DET22F1028	QAMARUL AKHYAR BIN MOHIZAM	1779	RFID DOOR LOCK ACCESS BY BLYNK APPLICATION		SILVER
4	06DET22F1031	MUHAMMAD FARIZZUDIN BIN FARHAZUAN				
5	06DET22F1043	ALIF HAIKAL BIN RAZALI	1675	SMART COOLING PAD		SILVER
6	06DET22F1065	MUHAMMAD AIMAN HAFIFI BIN ASFULRIZAL				
7	06DET22F1074	MOHAMAD AZZAMUDDIN BIN BAHARUDIN	1668	ECOBLEND - SMART KITCHEN WASTE MANAGEMENT SYSTEM	MOHD JAHIDI BIN ROSDI	GOLD
8	06DET22F1037	MUHAMMAD KHAIRI HANIIF BIN YUSOF				
9	06DET22F1080	MUHAMMAD HAZIM BIN NOR AZHAR	1679	IOT ENERGY MONITOR (AT SOCKET)		NONE
10	06DET22F1034	MOHAMAD ADHAM HAKIMI BIN MOHD FAUZIE				
11	06DET22F1009	ISAAC FARKHAN BIN MEORIZAL	1686	SMART WHITEBOARD		BRONZE
12	06DET22F1095	MUHAMMAD AFIQ AIMAN BIN MUSTAIN				
13	06DET22F1040	MUHAMMAD AMAR ASHRAF BIN MOHD YUSOF	1673	FLOODGUARD PARKING	MASNORA BT HJ SEPIKUN	BRONZE
14	06DET22F1049	MUHAMMAD ARIFF IMAN BIN AZARE				
15	06DET22F1016	NUR ANIS ALYSSA BINTI MOHD HATTA	1674	CHILD SAFETY MOTION GUARD		NONE
16	06DET22F1022	NUR SHALIHAH BINTI ABDUL KADIR				
17	06DET22F1013	MUHAMMAD HAIKAL BIN KHAIRUL NIZAM	1678	DEVELOPMENT FOR CIRCUIT BREAKER		SILVER
18	06DET22F1046	MUHAMMAD HAZWAN HAKIMI BIN SHAMSUDDIN				
19	06DET22F1061	MUHAMMAD HAIKAL BIN ROSLI	1681	AUTOMATIC WIRE CUTTER	IZWAN KAMAL BIN ABDUL WAHAB	SILVER
20	06DET22F1068	MUHAMMAD AZROY BIN MOHD NORAZIZAN				
21	06DET22F1071	MUHAMMAD AFIQ AKMAL BIN MOHD ASRI	1671	AWAS (AUTOMATED WATERING SYSTEM)		SILVER
22	06DET22F1077	MUHAMMAD HISHAM BIN RAHMAN				
23	06DET22F1006	SITI AISYAH BINTI MESRI	1797	ROBOT WASTE WATER FILTER		SILVER
24	06DET22F1055	NUR DARWIENA BINTI MUHAMAD SUHAIMI				
25	06DET22F1083	AMEER HAKIM BIN JAUHARI	1680	GREEN HOUSE SECURITY AND PLANT MONITORING SYSTEM VIA TELEGRAM BOT	THIRUCHELVE A/P RAMASAMY	SILVER
26	06DET22F1003	MAH JIAN SOON				
27	06DET22F1086	MUHAMMAD ALIF FAKRUDIN BIN KAMIL	1685	SAFETY CAR CHILD DETECTOR		BRONZE
28	06DET22F1089	MUHAMMAD AFFIQ BIN SUHAIMI				

POLITEKNIK PORT DICKSON

INTELLIGENT CHAIR

TEAM MEMBERS :
- MOHAMMAD ARIF HAKIMI BIN MOHAMMD BAADRUL HISHAM (06DET22F1025)
- AMEER ZACQUAN BIN SANIMAN (06DET22F1019)

SUPERVISOR :
- PUAN FADZLIDA BINTI SHAMSUDIN

BACKGROUND

- The chair that automatically arrange itself back to its position. This project also monitors the force sensors if it can detect any pressure that given by user's weight Beside that this system quickly response to the command

OBJECTIVES

- To build a circuit for the pressure and ultrasonic sensors that placed at the end of the rail and at the bottom of the chair
- To construct a coding for the Arduino to connect to the sensors and spins the motors
- To monitor the pressure and ultrasonic sensors functionality to stop at the end of the rail and detect any users on the chair

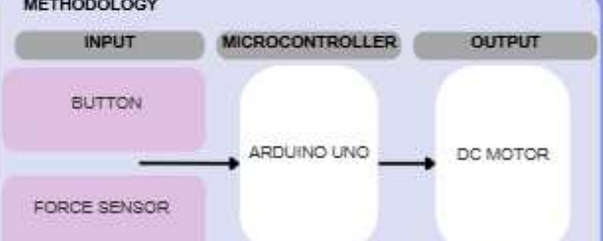
PROBLEM STATEMENT

- The issue of broken chairs extends beyond mere inconvenience; it poses a shared concern for those who rely on them for comfort and support. Consider, for instance, the importance of proper arrangement and storage of chairs in schools or offices. The design process enables us to follow a systematic approach to design. When chairs are left unused and disorganized, structural damage resulting from neglect can affect various components of the chair. The device should be safe to use by people, and safety should be considered when choosing materials, finishes and the shielding of possible moving components. Additionally, the disarray caused by improper storage can create instability, resulting in unexpected shifts or collapses that pose safety hazards.

INNOVATION HIGHLIGHT

- The chair arrange itself back to its position by just pushing the push button. The pressure sensor is used for safety reason for users. With this innovation, students will be save their time and energy. Other than that, students safety is ensure because the chair is fix on its rail position

METHODOLOGY



CONCLUSION

In summary, the creation and deployment of a chair capable of self-arrangement, leveraging pressure sensors, and motorized mechanisms, represent a significant advancement in the field of intelligent furniture design. This innovative technology has the potential to profoundly impact various aspects of contemporary living and working environments. By seamlessly integrating state-of-the-art sensors and motorized components, the autonomous chair system offers unparalleled functionality, enabling it to detect user presence precision.

COMERCIAL VALUE

- The project is valuable because users can easily rearrange the chair back to its position with just pushing the push button. The chair will automatically move after the push button is pressed

DIAGRAM / PICTURE

POLITEKNIK MALAYSIA PORT DICKSON

RFID SMART DOOR LOCK

By BLYNK Application


FADZLIDA BINTI SHAMSUDIN
SUPERVISOR


QAMARUL AKHYAR BIN MOHIZAM
06DET22F1028


MUHAMMAD FARIZZUDIN BIN FARHAZUAN
06DET22F1031

1 BACKGROUND

A smart lock door using RFID (Radio Frequency Identification) is a type of electronic lock system that leverages RFID technology for secure access control. Instead of traditional keys, RFID smart locks use RFID tags, which can be in the form of keycards, fobs, or even smartphones equipped with RFID functionality, to unlock doors.

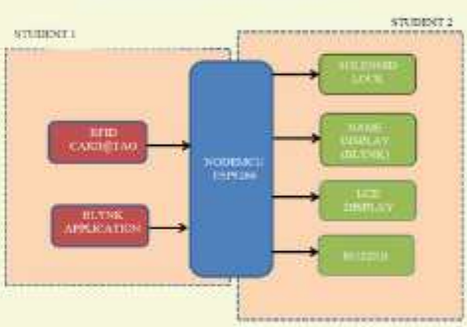
2 PROBLEM STATEMENT

- Users often face issues such as lost or forgotten keys, leading to access delays.
- Traditional locks can be easily picked or compromised, increasing the risk of unauthorized access.
- There is a growing demand for secure, efficient, and convenient access control systems in both residential and commercial settings.

3 OBJECTIVE

- To design a buzzer to alert surrounding people from danger.
- To build a scanner circuit using RFID by using electromagnetic field sensor
- To develop a system coding to scan RFID for displayed the name
- To develop coding from Blynk application for RFID MFRC522

4 METHODOLOGY



5 INNOVATION HIGHLIGHT

- By using Blynk and ESP8266, your RFID door lock can connect to Wi-Fi, letting you control and monitor it remotely. Get notifications when it's used, and manage access easily through the Blynk app, making it a smart and convenient security solution.
- With Blynk integration, your RFID door lock system supports IoT-based control, providing real-time notifications and access logs. This allows you to instantly track door activity and manage access remotely.

6 COMMERCIAL VALUE

Target Customers:

- Homeowners who want to make their homes more secure and convenient with a smart, keyless entry system.
- Small Businesses and Office that can track who enters, manage users easily, and get security alerts.
- Property Managers and Landlords who manage rental properties and need a way to give tenants or service workers access without being there in person.

7 DIAGRAM/PICTURE

8 CONCLUSION

In conclusion, this RFID-based door lock system offers a smart and efficient solution for secure access control. By integrating Blynk and ESP8266, it enables remote monitoring, real-time notifications, and convenient management of users through a mobile app. This project not only enhances security but also adds flexibility, making it ideal for homeowners, businesses and property managers. With its keyless entry, IoT features, and user-friendly interface, the system represents a step forward in modern.

POLITEKNIK MALAYSIA
PORT DICKSON

POLITEKNIK PORT DICKSON
PROJECT ID : 1675
SMART COOLING PAD

SUPERVISOR : PN FADZLIDA BT SHAMSUDIN
TEAM MEMBER : 1. MUHAMMAD AIMAN HAFIFI BIN ASFULRIZAL (06DET22F1065)
2. ALIF HAIKAL BIN RAZALI (06DET22F1043)

BACKGROUND

The Smart Cooling Pad represents a revolutionary advancement over conventional laptop cooling pad by integrating a voice sensor instead of relying on traditional power supplies. This ingenious solution not only alleviates user effort by enabling cooling through simple voice commands but also offers enhanced control and monitoring capabilities via mobile app interface.(Blynk)

PROBLEM STATEMENT

Laptops play a crucial role in contemporary life, but their prolonged usage often leads to overheating issues. This excessive heat can result in various problems such as noisy fans, hot surfaces, and performance decline. Moreover, sustained exposure to high temperatures poses significant risks to the hardware components, including potential damage to the CPU, GPU, or battery, necessitating costly repairs or replacements.

OBJECTIVES

1. To design a smart cooling pad that has a sound sensor as an input to turn on the project and a fan and LED as an output to cool the laptop.
2. To construct a sound sensor circuit that allows the connection of each component to function properly.
3. To monitor the control of the voice sensor to receive the instructions given to turn on the smart cooling pad via Blynk application.

DESIGN SOLUTION

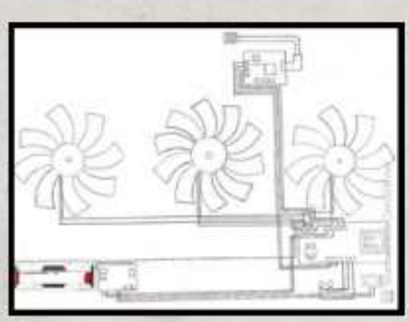
Design of smart cooling pad by using microcontroller(ESP32) to control the cooling pad through voice commands or a mobile app(Blynk) to control via smartphone. The voice module listens for commands to turn the cooling pad on/off, while the Blynk app do the same remotely via Wi-Fi, making it convenient and efficient.

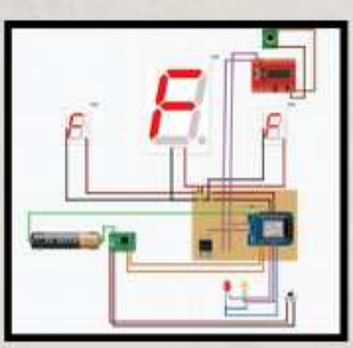
INNOVATION HIGHLIGHT

This innovation is the integration of 'hands-free control'(by voice command) and Blynk app control(remotely) into laptop cooling pad. It's adds flexibility and allowing control the cooling pad via smartphone. This creates a hybrid system which can use both voice commands and mobile app control for more functionality.

COMMERCIAL VALUE

This project is valuable because enabling users to easily control the device through simple voice command and activate via mobile app.





INSTITUITION NAME: **POLITEKNIK PORT DICKSON**
PRODUCT ID:**1668**
PRODUCT NAME: **ECOBLEND-SMART WASTE MANAGEMENT SYSTEM**

TEAM MEMBERS:
MOHAMAD AZZAMUDDIN BIN BAHARUDIN (06DET22F1074)
MUHAMMAD KHAIRI HANIIF BIN YUSOF (06DET22F1037)

SUPERVISOR:
EN MOHD JAHIDI BIN ROSDI



01. BACKGROUND

The EcoBlend project was conceived in response to the growing environmental and hygiene issues associated with conventional kitchen waste disposal methods. The system integrates a grinding mechanism to break down food waste into small particles, allowing it to be disposed of through standard drainage systems, thus reducing the volume of waste sent to landfills. The grinder is equipped with IR sensor as a safety feature while grinding the food waste.

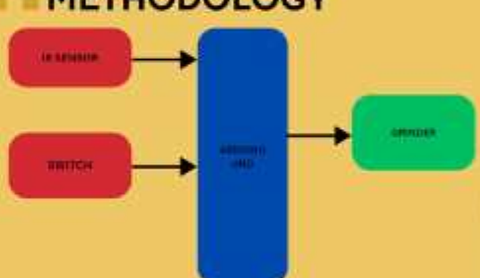
02. PROBLEM STATEMENT

Kitchen food waste, when thrown into traditional bins, creates unpleasant odors and attracts pests like flies and maggots. This leads to hygiene issues and increases landfill waste, which harms the environment. The lack of efficient disposal methods contributes to these problems, making it necessary to develop a better solution that addresses both hygiene and environmental impact.

03. OBJECTIVE

- To design housing for sensor to the grinder.
- To test the functionality of the project.
- To install the grinder under the sink seamlessly with the plumbing system.
- To create the sensor circuit for the grinder.

04. METHODOLOGY



05. INNOVATION HIGHLIGHT

- It uses a grinding mechanism to break down food waste into fine particles for easy disposal through drainage.
- The built-in IR sensor ensures user safety by automatically stopping the system when necessary.
- Employs a unique grinding mechanism instead of traditional blades, enhancing safety during operation.

06. COMMERCIAL VALUE

Wide Market Appeal:
The product is versatile and suitable for households, restaurants, and other commercial kitchens. Its ability to handle waste efficiently makes it attractive to a wide range of users .
Eco-Friendly Solution:
EcoBlend supports the growing demand for sustainable products by reducing kitchen waste that would otherwise contribute to landfills

07. CONCLUSION

In conclusion, the EcoBlend project provides an innovative solution to the persistent problem of kitchen food waste disposal. By efficiently grinding food waste and ensuring safe disposal through drainage, EcoBlend reduces landfill waste, minimizes unpleasant odors, and helps prevent pest infestations. The system's smart design, including safety features like the IR sensor, ensures ease of use and promotes hygienic practices in both households and commercial kitchens

08. DIAGRAM/PICTURE

IOT ENERGY MONITOR (At Socket)

MOHD JAHIDI BIN ROSDI
SUPERVISOR
ELECTRICAL ENGINEERING DEPARTMENT

MOHAMAD ADHAM
HAKIMI BIN MOHD FAUZIE
06DET22F1034

MUHAMMAD HAZIM
BIN NOR AZHAR
06DET22F1080

Background

This project involves building an IoT-based Energy Monitor using the ESP32 microcontroller, designed to measure and monitor energy consumption in real-time. By integrating sensors for voltage and current measurement, the system can calculate power usage and display the data on an LCD screen as well as transmit it to a mobile app using the Blynk IoT platform.

Problem Statement

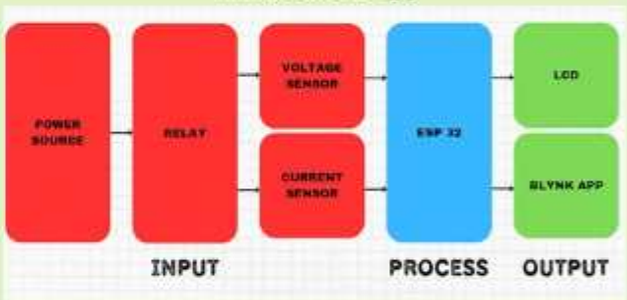
- Many households do not know the amount of energy used at their plug sockets.
- This lack of awareness makes it difficult for people to save energy and lower electricity bills.
- As a result:

1. Energy is wasted unknowingly.
2. This waste contributes to environmental problems like climate change.
3. Increased energy demand further strains resources.

Objective

1. To create a IOT energy monitor that helps individuals understand their energy consumption patterns.
2. To construct coding for this IoT Energy Monitor using ESP32.
3. To design a simple IoT-based device that monitor current and voltage data from plug socket.
4. To construct circuit of IoT-based device can function to monitor current and voltage data from socket.

Methodology



Innovation Highlights

1. Users can monitor and control devices from anywhere using the Blynk app.
2. Tracks energy usage at a single socket for better control of individual devices.
3. Helps users reduce energy waste and promote eco-friendly habits.

Commercial Value

Target Customer: Homeowners looking to optimize appliance usage, and monitor electricity consumption for greater efficiency and sustainability.

Cost Saving:
Efficient usage and remote control significantly lower electricity bills and waste.

Project Diagram

Conclusion

The IoT Energy Meter is a practical solution for monitoring and managing electricity usage at the socket level. It helps users track voltage, current, power, and energy consumption in real time, promoting energy efficiency and cost savings. With remote access through the Blynk app, users can conveniently monitor and control devices from anywhere. The project supports sustainability by encouraging responsible energy use and is suitable for households, small businesses, educational institutions, and smart home enthusiasts. This device offers both practical benefits and aligns with the growing trend toward smart energy management solutions.

KEMENTERIAN PENDIDIKAN TINGGI

POLITEKNIK MALAYSIA
PORT DICKSON

PRODUCT ID: 1686
PRODUCT NAME: SMART WHITEBOARD


SUPERVISOR: MOHD JAHIDI BIN ROSDI


ISAAC FARKHAN BIN MEORIZAL [06DET22F1009]


MUHAMMAD AFIQ AIMAN BIN MUSTAIN [06DET22F1095]

1.PROBLEM STATEMENT:

The conventional whiteboard take a lot of time to be erase and alot of energy. These smart whiteboard addresses these issues, allowing educators to clear the board with a simple command and enhancing interactivity. Despite challenges like cost and integration, this innovation can significantly improve engagement in education.

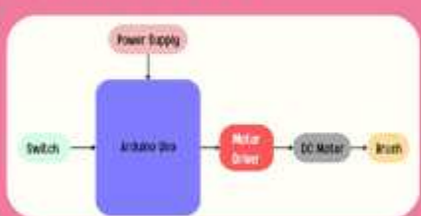
2.BACKGROUND:

The Smart Whiteboard automates cleaning with a single touch, eliminating the hassle of erasing and reducing waste, offering an eco-friendly solution that enhances efficiency and seamless collaboration in any workspace.

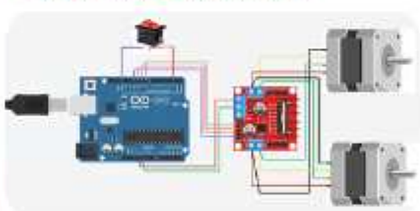
3.OBJECTIVE:

- To develop programming for controlling whiteboard erasure.
- To design a circuit for the smart whiteboard.
- To design a whiteboard that can automatically erase

4.METHODOLOGY:



5.CRICUIT DIAGRAM:



6.DIAGRAM:

7.INOVATION HIGHLIGHT:

Time-saving:
Eliminates manual erasing, allowing educators to focus more on teaching.
Ergonomic Design: Reduces physical strain on educators, enhancing comfort during long teaching sessions.

8.CONCLUSION:

In conclusion, the automatic erase whiteboard is a transformative educational tool that eliminates manual erasing and reduces physical strain on educators. This innovation enhances teaching efficiency, interactivity, and sustainability, improving overall classroom engagement and benefiting both educators and students in a modern learning environment.

FLOODGUARD PARKING

POLITEKNIK MALAYSIA Port Dickson

PUAN MASNORA BINTI HJ. SEPIKUN
SUPERVISOR

MUHAMMAD AMAR ASHRAF BIN MOHD YUSOF
06DET22F1040

MUHAMMAD ARIFF IMAN BIN AZARE
06DET22F1049

1 BACKGROUND

Our project is a Floodguard Parking designed to prevent cars from being hit by flood water. It uses water level sensor to detect flood water, push button and Blynk application. If a flood coming and water level trigger, the Blynk application will give a notification to user's phone. This project also uses a buzzer to warn the surroundings and push button is used to command the car lift manually.

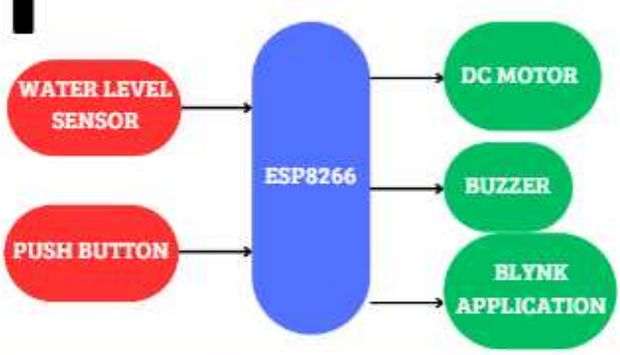
2 PROBLEM STATEMENT

- This problem happened because the victim did not have time to move the vehicle to a safe place.
- In Malaysia, cases of floods that result in car damage and repair costs are very high.
- There are many cases of floods that occur in Malaysia that record vehicle damage losses. For example, case in 2021 recorded the highest loss of vehicle damage which is RM 855million in Selangor.

3 OBJECTIVES

- To construct DC motor circuit that can lift the parking.
- To design a parking lot that can lifting the car with water level sensor.
- To construct water level sensor circuit that connect with ESP8266, DC motor, buzzer and push button.
- To design a mobile application (Blynk App) that can give a notification to user or car's owner.

4 METHODOLOGY



5 INNOVATION HIGHLIGHT

- This product has been improved by adding a water level sensor compared to other products on the market.
- Innovation of adding a buzzer at the house for alert to owner's car.
- Notification from Blynk applications for extra alert.

6 COMMERCIAL VALUE

Target Customers:

Flood victims who hit their homes and vehicles. It can prevent your car from being hit by flood water and the car in a safe condition.

Commercial Car Parking Facilities:

Businesses like malls, airports, or office complexes could integrate floodguard parking systems to protect customers' cars, enhancing their reputation for safety and boosting customer loyalty.

7 PICTURE/DIAGRAM

8 CONCLUSION

THE FLOOD GUARD PROJECT SUCCESSFULLY ENHANCED FLOOD RESILIENCE IN VULNERABLE AREAS BY IMPLEMENTING EFFECTIVE FLOOD BARRIERS. THE TESTED SOLUTIONS FOR PROPERTY DAMAGE. WHILE EFFECTIVE, THE PROJECT HIGHLIGHTED THE NEED FOR ONGOING ADAPTATION TO ADDRESS FUTURE RISKS FROM CLIMATE CHANGE.

POLITEKNIK MALAYSIA
PORT DICKSON

CHILD SAFETY MOTION GUARD

EsItEX


PUAN MASNORA BINTI HJ. SEPIKUN
SUPERVISOR


NUR ANIS ALYSSA BINTI MOHD HATTA
06DET22F1016


NUR SHALIHAH BINTI ABDUL KADIR
06DET22F1022

1 BACKGROUND

Our project is a Child Safety Device designed to prevent accidents where children are left alone in cars. It uses PIR and FSR to detect the presence and motion of both the child and driver and last but not least GSM Module. If a child is detected without the driver, a notification and call will sent to the driver's phone using a GSM module. The device is also equipped with an LED and buzzer to alert people nearby, making it an efficient solution for child safety in vehicles.

2 PROBLEM STATEMENT

- This problem often occurs among parents who forget or are careless about leaving their children in vehicles.
- In Malaysia, cases of children dying in cars due to parental negligence, particularly from heatstroke, have become a serious concern.
- In recent years, **there have been multiple reports in the media** highlighting these incidents. For example, a case in 2019 involved a 4-year-old girl who died after being left in a car for several hours in Terengganu, Malaysia. Most incidents occur when
- parents, often in a rush or distracted, forget their children in the backseat. For example, a tragic case in 2020 involved a nine-month-old baby who died from heatstroke after being left in a car for four hours in Pahang.

3 OBJECTIVE

- To design a device that alert surrounding people with buzzer and LED lamp outside the car for early rescue.
- To create a design by utilizing Passive Infrared (PIR) technology on the device to detect motion of the child.
- To construct the force mechanism, we used the Force Sensitive Resistor (FSR) to detect the force applied on the seat based on the average children's weight.
- To construct the GSM modules to get trigger whenever the detection mechanism detects, and a message and call will recieved to the parents mobile.

4 METHODOLOGY

5 INNOVATION HIGHLIGHT

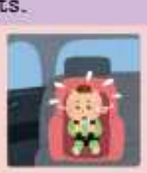
- This device product has been improved by adding a PIR sensor compared to other products on the market.
  Innovation of adding a buzzer and LED lamp outside the car to alert people surrounding that not is created by anyone.
- Call and message for extra alert for the driver or the parents.

6 COMMERCIAL VALUE

Target Customers:
Families with young children, especially infants and children under 12 years old. Parents are always seeking ways to ensure their kids' safety, particularly in cars.

Aftermarket Car Accessories:
The large aftermarket car accessory industry presents opportunities to sell this product separately to car owners looking to upgrade their vehicle safety features.

7 PICTURE



8 CONCLUSION

In summary, our project endeavors to tackle the crucialissue of child safety within vehicles by introducing an innovative detection system. Through the integration of sophisticated sensors like Passive Infrared (PIR) and Force-Sensitive Resistor (FSR), coupled with intelligent control mechanisms, we've developed a solution capable of accurately discerning the presence of a child in the rear seat and safeguarding their well-being.

POLITEKNIK MALAYSIA PORT DICKSON

DEVELOPMENT FOR CIRCUIT BREAKER

SUPERVISORS
PUAN MASNORA BINTI HJ. SEPIKUN

TEAM MEMBERS

MUHAMMAD HAZWAN HAKIMI BIN SHAMSUDDIN
06DET22F1046

TEAM MEMBERS

MUHAMMAD HAIKAL BIN KHAIRULNIZAM
06DET22F1013

BACKGROUND

Circuit breakers play a vital role in electrical safety, protecting circuits from damage caused by overloads or short circuits by interrupting the flow of electricity. The contactor functions as a circuit breaker, automatically tripping (opening) when abnormal conditions like overload, short circuit, or faults occur in the electrical system. Blynk allows users to control the contactor remotely via a smartphone. This means we can manually trip (turn off) or reset the breaker from anywhere with internet access, providing more control over the electrical system without being physically present.

PROBLEM STATEMENT

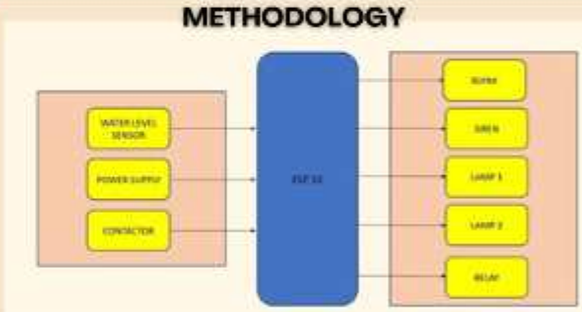
In flood-prone areas, electrical circuits and appliances can be damaged by water. This can cause short circuits, fires, or electrocution. These risks endanger both lives and property.

- in December 2022 where three siblings lost their lives due to electrocution in a neighbor's flooded house. This incident underscores the need for better public awareness, infrastructure resilience, and strict safety regulations to prevent similar accidents in the future.
- Electrical hazards during floods are a serious safety issue, as highlighted by the tragic death of a 51-year-old man in December 2019. The victim was electrocuted while wading through floodwaters and holding onto an electric pole.

OBJECTIVE

- To design an integrated system that combines automatic circuit protection with IoT technology, enabling real-time notifications and remote control via the Blynk app for enhanced safety and operational efficiency.
- To implement a water sensor that accurately detects water levels and activates automatic responses when critical levels are reached.
- To construct a smart system that allows users to remotely turn off the main distribution board (DB) by controlling the contactor through the Blynk app, ensuring quick responses to electrical faults and water-triggered events.
- To design a system to detect water levels using sensors, which will be triggered when water reaches critical levels or damages.

METHODOLOGY



INNOVATION HIGHLIGHT

- The ability to remotely turn off and turn on the main distribution board (DB) via the Blynk app provides a critical safety feature, enabling users to quickly disconnect power in emergency situations, such as flooding or electrical fault.
- The project includes advanced water sensors that detect water levels and automatically take action when certain levels are reached.

COMMERCIAL VALUE

Enhanced Safety:

- By automatically cutting power during flooding, the system reduces the risk of electrical fires, electrocution, and property damage, making it highly valuable for residential, commercial, and industrial markets..

PICTURES

CONCLUSION

- In conclusion, this project creates a smart system that detects water levels using advanced sensors. When the sensors find that water has reached a certain level, they automatically activate the contactor to turn off the main distribution board (DB). This action helps keep the system safe by cutting off power and preventing damage.
- The project also uses the Blynk app, which allows users to manually turn the circuit breaker on and off from their phones, adding convenience and control. This combination of automatic detection and manual control improves safety and efficiency.

POLITEKNIK PORT DICKSON
PRODUCT ID : 1681
ADVANCED WIRE CUTTER

IZWAN KAMAL BIN ABDUL WAHAB
SUPERVISOR
POLITEKNIK PORT DICKSON

MUHAMMAD HAIKAL BIN ROSLI
STUDENT 1
(06DET22F1061)

MUHAMMAD AZROY BIN MOHD NORAZIZAN
STUDENT 2
(06DET22F1068)

1 BACKGROUND

The project called advanced wire cutters is a well-designed initiative to cut wires according to exact wire length measurements and desired total quantities to avoid wire wastage and wire tangles. If you cut the wire manually in the traditional way, there is a high possibility of errors in the length measurement, waste and tangled wires. So, this advanced wire cutter project can help with that problem. The use of this project can be used in institutions in electrical workshops, businesses and industries that often use wires in practical work, wire sales and product production.

2 PROBLEM STATEMENT

- Inaccurate wire measurements can cause wire waste.
- Inefficient cutting process.
- Tangles can cause production delays and possible possible damage to the wire itself.
- Waste of human time when cutting wire manually if large quantity of wire is requested.

3 OBJECTIVES

- To design an advanced wire cutter project that can cut wire to the exact length and desired quantity.
- To build an advanced wire cutter project automatically when cutting wire with high efficiency. To monitor the advanced wire cutter
- project by seeing the condition of the wire moving and cut with automatic control. To use an advanced wire cutter project with the
- use of a smart touch screen LCD display control to make it easier for users to tell the length and quantity requested.

4 INNOVATION HIGHLIGHTS

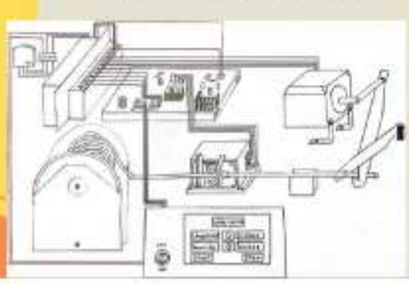
- Implement an automatic system to move the wire and can cut the wire with the exact size and quantity requested without the manual use of hands.
- Nextion LCD display is used to help display the length and quantity of wire to make it easier for users to tell instructions.
- The use of a buzzer that notifies the sound when the user's wire is ready to be cut according to the correct length and quantity.

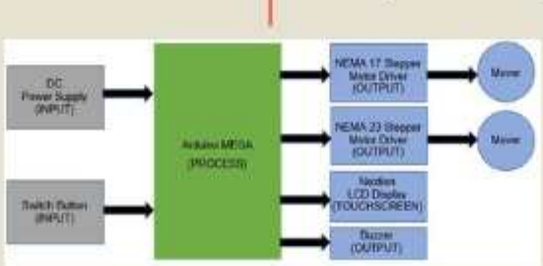
5 DESIGN SOLUTION

- Provides advanced wire cutter project designed based on researched automatic systems and dc power supply. A switch button to close or open the project. Nextion LCD display is used to help display the length and quantity of wire for user use. Buzzer detect cut wires. A stepper motor is also used in the project to pull the wire to the cutter bar and move the cutter with mechanical assistance.

6 COMMERCIAL VALUES

- The advanced wire cutter project has high efficiency based on the automatic concept of cutting wire with the exact size and requested quantity.
- Minimize injuries to students and workers using wire cutters
- The advanced wire cutter concept automatic can save energy and time of students or workers compared to cutting wires manually.





AUTOMATED WATERING SYSTEM

POLITEKNIK MALAYSIA PORT DICKSON

AWAS

ENCIK IZWAN KAMAL BIN ABDUL WAHAB
SUPERVISOR

MUHAMMAD AFIQ AKMAL BIN MOHD ASRI
06DET22F1071

MUHAMMAD HISHAM BIN RAHMAN
06DET22F1077

BACKGROUND

1 The greenness of plants shows how healthy a tree or plant is, it can even improve the aesthetical of an area or landscape which contributes to the sustainability of the environment. This has led to how we must remain consistent to ensure plants get the optimal water source for the growth process and maintain its greenness. To address the issue of individuals who have a busy lifestyle or time constraints due to certain factors. We have done some research and studied the level of humidity, temperature and weather that is suitable for plants that are suitable for the Malaysian tropical moonson climate. .

PROBLEM STATEMENT

2
- Owners face challenges in maintaining proper hydration levels for their plants, resulting in inconsistent care and harm to plant health.
- Owners unable to ensure optimal moisture levels for healthy growth and sustainability for plant.
- Owners cannot optimize watering based on the needs of vary plants and supporting the fertilization process.

OBJECTIVES

3
- To construct circuit of soil moisture sensors with Arduino MKR, water pump and LCD display to detect and regulate water supply.
- To design an easy-to-use interface for the automatic watering system to set watering times and check soil moisture rate.
- To design mechanism of watering for plants that including fertilization process using water pump.
- To provide a wireless controlled system that is accesible wireless from anywhere.

METHODOLOGY

4

PROJECT

5

INNOVATION HIGHLIGHT

6
- Convenient remote access for monitoring and control. Users can remotely adjust settings and monitor the system's status using the Blynk app from anywhere with Wi-Fi access.
- The water pump used is 2 in 1, it can be used to supply water and fertilizer to the entire plant without user involvement.
- The system is portable due to its small size and can be moved and installed in various locations that have a power supply to power it.

COMMERCIAL VALUE

7

TARGET MARKET :
- People with home gardens or indoor setups who need easy watering solutions or urban farmer growing plants in containers or vertical gardens.

COST SAVINGS :
- Water efficiency with conserves water, resulting in reduced utility costs for users and water reservoir within area that lack of water.

MARKET DEMAND :
- As the agricultural sector increasingly embraces technology, there is growing demand cause it improve efficiency and reduce resource waste.

CONCLUSIONS

8 In conclusion, through this investigation and research on the automated watering systems show their potential to enhance plant care efficiently, conserve water and reduce waste or cost. Otherwise, integrating the reliable soil moisture sensor, develop userfriendly interfaces and effective water delivery mechanisms can optimize the functional of the automated watering systems. It not contradicted from the main objectives that maintained optimal soil moisture levels, promoting plant health and conserving water resources. Finally, this automated watering systems encountered limitations such as complexity of sensor calibration based on plant, soil and environmental conditions.

POLITEKNIK MALAYSIA
PORT DICKSON

ENCIK IZWAN KAMAL BIN ABDUL WAHAB (Supervisor)
Product ID: 1797

NUR DARWIENA BINTI MUHAMAD SUHAIMI
-06DET22F1055

SITI AISYAH BINTI MESRI
-06DET22F1006

ROBOT WASTE WATER FILTER

1 BACKGROUND

The Water Waste Filter Robot is a smart solution to reduce water pollution by collecting surface waste and keeping ecosystems clean. Equipped with advanced sensors, it detects waste levels and removes it via a conveyor system. With over 80% of ocean plastic waste originating from rivers, this technology can significantly cut pollution. Let's protect our water for future generations!

2 OBJECTIVES

- To design Robot Water Waste Filter evaluate the functionality and performance of the software in filtering water waste from drains.
- To save human energy and assess the usability of the software interface for users interacting with the system.
- To design a filtration system that seperates waste from water, ensuring clean water is released back.

3 PROBLEM STATEMENT

- Waste management is one of the most pressing challenges faced by humanity. Water pollution harms aquatic species and reduces water quality. It also negatively impacts human life and well-being.

4 INNOVATION HIGHLIGHT

- Advanced sensor technology for real-time waste detection.
- Automated conveyor system to collect debris from the water's surface.
- Made from eco-friendly materials to minimize environmental impact.
- Bluetooth control via smartphone for convenient handling.

5 METHODOLOGY

6 COMMERSIAL VALUE

- Real-time Monitoring with Alerts: The ultrasonic sensor detects the height of accumulated waste in real-time, and when the waste reaches 10 cm, a buzzer sounds, notifying users to take immediate action for waste removal
- Cost-Effective Design: The automated waste collection system minimizes manual labor and reduces maintenance frequency, significantly lowering operational costs for water management.

7 CONCLUSION

The Water Waste Filter Robot represents a vital step toward combating water pollution. By efficiently collecting waste and monitoring levels in real-time, it not only protects aquatic ecosystems but also provides a cost-effective solution for municipalities and organizations. Embracing this innovative technology will contribute to cleaner water bodies and a sustainable future for generations to come.

POLITEKNIK MALAYSIA Port Dickson

POLITEKNIK PORT DICKSON
PRODUCT ID : 1680
PRODUCT NAME : GREENHOUSE SECURITY AND PLANT MONITORING SYSTEM VIA TELEGRAM BOT


SUPERVISOR: PUAN THIRUCHELVE A/P RAMASAMY


MAH JIAN SOON
06DET22F1003


AMEER HAKIM BIN JAUHARI
06DET22F1083

BACKGROUND

Greenhouse security refers to the practices and systems designed to protect plants, and resources within a greenhouse from various threats such as vandalism, unauthorized access, and environmental hazards. A plant monitoring system is a technology-driven solution used to continuously track and manage various environmental conditions of plants in real-time. It utilizes sensors, and sometimes automation to ensure optimal growing conditions, which are essential for plant health and productivity. Bird's Eye Chili (Cili Padi) is one of the most popular and widely grown chili varieties in Malaysia due to its heat and flavor. Malaysia's tropical climate provides suitable conditions for growing Cili Padi.

OBJECTIVES

- To build a circuit that uses a DHT11 sensor to help farmer identify the level of temperature and humidity inside greenhouse and display the readings via LCD display
- To develop a ESP32 coding to control the "Greenhouse Security and Plant Monitoring System via Telegram Bot" which activate the fans and light via Telegram Bot when the temperature is above 32 °C or humidity is above 80%.
- To construct a circuit that detects human movement using PIR motion sensor to identify intruders who breaks into the greenhouse. Buzzer will be activated when PIR motion sensor detect a intruder.
- To ensure the safety, health, and optimal growing conditions for Bird's Eye Chili (Cili Padi) inside the greenhouse through enhanced security measures.

PROBLEM STATEMENT

In modern agriculture, Bird's Eye Chili (Cili Padi) is a popular and widely grown chili variety in Malaysia due to its high demand in local cuisines. However,Bird's Eye Chili (Cili Padi)prefers moderate humidity (50-70%), Malaysia's tropical climate often results in humidity levels exceeding 80%. High humidity increases the likelihood of fungal infections and affects the overall health of the plants. Furthermore, Bird's Eye Chili (Cili Padi) grows best in temperatures ranging from 26°C to 32°C.Temperatures above 35°C can cause flower drop. Temperatures below 18°C making it harder for the plant to produce fruit. Farmers rely on less precise methods or estimations for measuring temperature and humidity. Greenhouse facilities are increasingly vulnerable to security threats, which can lead to significant financial losses, damage to crops, and disruption of operations. Key security challenges include unauthorized access, vandalism, and potential sabotage.

INNOVATION HIGHLIGHTS

- Farmers can monitor and control greenhouse conditions from anywhere using their mobile devices, enhancing convenience and accessibility.
- Based on real-time data, farmers can optimize irrigation, ventilation, and lighting, promoting more efficient resource use.
- Motion detectors greenhouse security. Any unauthorized movement triggers an alert

COMMERCIAL VALUES

- Enhanced Security: Reduces the risk of theft or unauthorized access with real-time security monitoring, protecting valuable crops and infrastructure.
- Reduced Operational Costs: Saves energy and water through precise environmental controls, lowering the overall operating costs for greenhouse owners.
- Marketability to Large-Scale Operations: Scalable for agriculture in larger greenhouses or enterprises, making it an attractive solution for commercial farms.

METHODOLOGY

- DHT 11 Sensor used to help farmer identify the level of temperature and humidity inside greenhouse. LCD
- panel used for display temperature and humidity. When the temperature is above 32 °C and the humidity is above 80%, the fan and light will be turned on via telegram bot. PIR motion sensor is used to detect
- human motion within 3 meters to activate the buzzer starting from the door ESP32 is used to control the
- input and output components based on the coding that be created. The "Greenhouse Security and Plant
- Monitoring System via Telegram Bot" can be placed at any strategic location and utilized for commercial cultivation Bird's Eye Chili (Cili Padi) using greenhouse farming techniques to ensure optimal monitoring and protection of plants and safety.

DIAGRAM

SAFETY CAR CHILD DETECTOR


PUAN THIRUSHELVE A/P RAMASAMY


MUHAMMAD AFFIQ BIN SUHAIMI (06DET22F1089)


MUHAMMAD ALIF FAKRUDIN BIN KAMIL (06DET22F1089)

BACKGROUND

In the article "Install a Detection Device to Prevent the Tragedy of Leaving a Child in the Car," Junaidah Zakaria addresses a pressing issue that has garnered increasing attention in recent years. Published on November 20, 2023, in ONLINE DAILY NEWS, the piece advocates for the installation of innovative detection devices designed to alert caregivers if a child is left unattended in a vehicle. The case of children being left in vehicles by their parents or guardians occurs every year, resulting in trauma for those involved. This incident can be addressed with child detection devices in cars to ensure that parents are more aware. Safety car child detector a system that we choose to developed to prevent some of the highest cases in Malaysia which is children or babies get locked in the car by their own parents or guardian unattended .

INNOVATION HIGHLIGHTS

- The system uses PIR infrared to monitor the back seat continuously, detecting even minor movements. This real-time detection alerts the driver immediately if a child is present after the car is turned off, helping to prevent dangerous situations.
- Integrated with a mobile app, the system sends instant notifications to the driver's smartphone if a child is detected in the back seat. This feature acts as a vital reminder to check the back seat, reducing the risk of heat-related incidents. The system
- employs machine learning to analyze driving behavior and adapt notifications. By recognizing patterns in how often drivers forget to check the back seat, it provides personalized reminders, enhancing overall safety for child passengers.

PROBLEM STATEMENT

Use polite and respectful language in every interaction. Polite language reflects respect and helps build positive relationships.

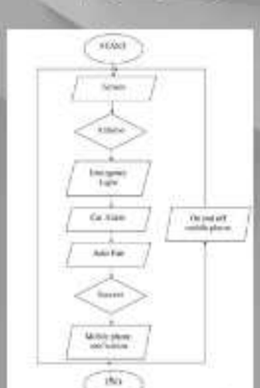
METHODOLOGY

OBJECTIVE

- To construct a circuit that detect children in the car by using motion PIR sensor and triggered the telegram notification also emergency light to alert people in public to takes early rescue step.
- To build a circuit that uses a temperature sensor to monitor the temperature in the car and display it on telegram notification for prevent heatstroke if child get locked in car
- To develop the NodeMcu ESP32 coding to control the "Safety Car Child Detector"which detect the child when car on locked and triggered the telegram notification and emergency light.The temperature sensor also will detect temperature in car and display it by telegram notification

COMMERCIAL VALUES

- Growing Market Demand:Increasing awareness of child safety in vehicles creates a strong market demand for innovative solutions that protect young passengers, appealing to parents and caregivers.
- Brand Differentiation:Integrating a child detection system helps automotive brands stand out by showcasing their commitment to safety, attracting consumers who prioritize protective features.
- Recurring Revenue Opportunities:The project can offer subscription services for app updates and premium features, creating a potential ongoing revenue stream while enhancing customer engagement.



FLOW CHART

CONCLUSION

In conclusion, the safety car child detector project addresses a critical safety concern regarding the inadvertent leaving of children unattended in vehicles, which poses significant risks such as heatstroke and other hazards. The problem statement underscores the urgent need for innovative solutions to mitigate this risk and enhance child safety in vehicles. The research objective of this project is to develop and implement an advanced detection system that can accurately identify the presence of children in vehicles and provide real-time alerts to caregivers. To achieve this objective, a systematic research methodology encompassing technological development, market analysis, and regulatory compliance has been employed.

KOMPILASI POSTER ESITEX

SESI I 2024/2025

PROGRAM DIPLOMA KEJURUTERAAN ELEKTRONIK (KOMPUTER) [DTK]

SENARAI PROJEK & PINGAT ESITEX SESI I 2024/2025

PROJEK DTK 5A

BIL.	NO PENDAFTARAN	NAMA PELAJAR	ID PROJEK	TAJUK PROJEK	PENYELIA	PINGAT
1	06DTK22F1004	MUQRI HAZIQ DARWISY BIN MOHAMAD ZAKI	1647	RESERVE PARKING SYSTEM VIA OCR	Ts. SITI ZALINA BINTI MOKHTAR	SILVER
2	06DTK22F1012	MUHAMMAD ALI IMRAN BIN ZAMRI				
3	06DTK22F1024	NUR IZZATUL NABILA BINTI AHMAD TARMIZI	1652	TILAPIA PONDPRO		BRONZE
4	06DTK22F1044	AHELA A/P BALA				
5	06DTK22F1010	ABDUL QAYYUM BIN ZULKARNAIN	1763	LECTURER SYSTEM MEETING CALLER		BRONZE
6	06DTK22F1037	ADAM HARITH BIN MOHD NOOR AZIAN				
7	06DTK22F1014	AMIR ARIF BIN ABD WAHAB	1650	CLINIC NOTIFICATION ASISSTANCE	KAMALIAH HANIM BINTI SAMHUDI KAMIL	SILVER
8	06DTK22F1017	MICHELLE FONG XIN YING				
9	06DTK22F1022	MUHAMMAD HAFIZ DANIAL BIN ZAINAL FITRI	1699	BABY ALERT TRIGGER BY PHONE ALARM		BRONZE
10	06DTK22F1008	HUDZAIL AIMAN BIN NORHISHAM				
11	06DTK22F1045	MUHAMMAD HAZIM HAKIMI BIN ROSLI	1649	WATER POLLUTION MONITORING BY DRONE USING PH AND TURBIDITY SENSORS	MOHD SHAFIE BIN RAHAMAN	GOLD
12	06DTK22F1002	MUHAMMAD ISKANDAR ZULKARNAIN BIN MOHD NAIM				
13	06DTK22F1028	MUHAMAD FAUZAN RAMADHAN BIN OTHMAN	1705	AUTOMATIC SEPERATE WASTE DUSTBIN AT CLASS USING SENSOR		SILVER
14	06DTK22F1039	SYED OMAR HAFIZ BIN SYED MUHAIMIN				
15	06DTK22F1016	MHUKEISH KUMAR A/L SANTHAIR	1648	AUTOMATIC RICE WASHER	NOREMY BT CHE AZEMI	SILVER
16	06DTK22F1032	MUHAMMAD AIMAN BIN MOHD ZAILANI				
17	06DTK22F1018	NURULAIN BINTI MOHD JOHARI	1654	IoT WINDOW		SILVER
18	06DTK22F1041	ALLEYA NAJWAH BINTI ZULFIKRI				
19	06DTK22F1006	AMSYAR HAZIQ FITRI BIN MOHD ADAN	1701	IoT SAFETY HELMET		GOLD
20	06DTK22F1034	MUHAMMAD ZULHELMI BIN MOHD ISA				

KEMENTERIAN PENDIDIKAN MALAYSIA

POLITEKNIK MALAYSIA PORT DICKSON

INSTITUTION NAME: POLITEKNIK PORT DICKSON
PRODUCT ID: 1647
PRODUCT NAME: RESERVE PARKING SYSTEM VIA OCR

TEAM MEMBERS:

MUQRI HAZIQ DARWISY BIN MOHAMAD ZAKI (06DTK22F1004)

MUHAMMAD ALI IMRAN BIN ZAMRI (06DTK22F1012)

SUPERVISOR:

PUAN SITI ZALINA BINTI MOKHTAR

BACKGROUND

The Reserve Parking System using OCR is designed to help solve this by alerting authorities when a vehicle parks in a reserved spot without registering its license plate. This system uses optical character recognition (OCR) to scan license plates and compare them with a database of registered vehicles. If an unregistered vehicle is detected, a loud siren goes off, annoying the vehicle owner and alerting authorities to the violation.

PROBLEM STATEMENT

Illegal parking in reserved spaces causes significant inconvenience and disrupts operations in areas where parking is limited. This issue is particularly common in institutions like polytechnics, hospitals and government buildings. Without proper monitoring and enforcement, unauthorized vehicles frequently occupy reserved spots, preventing rightful users from accessing them. There is a need for an automated system to monitor and manage reserved parking areas, ensuring that only authorized vehicles can park their vehicles.

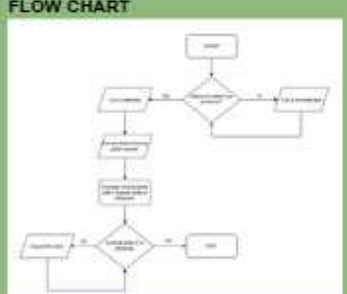
OBJECTIVES

- To construct camera with Raspberry PI microcontroller to capture license plate number.
- To develop a reserve parking system database by using phpMyAdmin to collect the license plate number.
- To build a system that notify the authorities by using siren.
- To build an ultrasonic sensor to detect car presence

METHODOLOGY

BLOCK DIAGRAM

FLOW CHART



DIAGRAM/PICTURE

MODEL

INNOVATION HIGHLIGHT

- Use Optical Character Recognition (OCR) to scan and read license plates.
- Use ultrasonic sensor to detect car presence and cross-verifies with OCR to confirm the registration status.
- A loud siren is triggered when an unregistered car parks in a reserved spot.

COMMERCIAL VALUE

- Offering hassle-free parking to improve customer satisfaction.
- Reduces the need for human intervention in parking management
- Is scalable and can be applied across various sectors such as hotels, hospitals, and residential complex
- The system can provide valuable parking behavior data such as average occupancy by the customers

CONCLUSION

The Reserve Parking System using OCR is a promising solution to the problem of illegal parking. This project is innovative in parking management and can be adapted for use in many different places. It also has commercial potential, with opportunities for sales and further development. Looking ahead to Malaysia, we envision rolling out this system in important areas like residential complexes, hospitals, government buildings. Our goal is to improve parking management and create safe parking environment

POLITEKNIK MALAYSIA
PORT DICKSON

TILAPIA PONDPRO

TEAM MEMBER:

1. NUR IZZATUL NABILA BINTI AHMAD TARMIZI (06DTK22F1024)
2. AHELA A/P BALA (06DTK22F1044)

SUPERVISOR: TS. SITI ZALINA BINTI MOKHTAR

BACKGROUND

IN THIS TILAPIA PONDPRO PROJECT AN AUTOMATIC FEED FEEDER SYSTEM USING FEEDING SCHEDULE IS CREATED TO PREVENT OVERFEEDING EXCESS FOOD BUILDUP AND ALSO TO PREVENT UNDERFEEDING SO THAT THE FISH TILAPIA HAS A HEALTHY FOOD CONSUMING AND DOES NOT GET SICK. NEXT, A WATER FILTRATION IS INSTALLED TO RECYCLE THE WATER IN POND FOR MAINTAINING WATER QUALITY AND ENSURING THE HEALTH AND PRODUCTIVITY OF THE FISH TILAPIA. A TURBIDITY SENSOR WAS ALSO ADD, SO THAT, THE QUALITY OF THE WATER IS KNOWN AND WHETHER IT IS TIME TO RECYCLE THE WATER OR NOT. IT WILL ALSO DISPLAY IN THE LCD THAT IS ATTACHED.

METHODOLOGY

PICTURE

COMMERCIAL VALUE

The Tilapia PondPro system offers significant commercial value by automating key aspects of fish farming, such as water quality monitoring, feeding, and aeration, which boosts fish health and yields while reducing labor and energy costs. Its smart technology helps prevent fish mortality, optimize feed usage, and ensure sustainable practices, making it an efficient and eco-friendly solution for both small-scale and large commercial farms. With the ability to scale operations, lower costs, and improve product quality, Tilapia PondPro enables fish farmers to maximize profitability and meet growing market demands for sustainable aquaculture.

PROBLEM STATEMENT

Difficulty in determining the correct amount of food for the fish and concerns about overfeeding also subsequent water quality degradation. Presence of suspended particles causing cloudiness in the water and lack of clarity potentially disturbing the ecosystem. Possible lack of maintenance or inadequate filtration capacity contributing to water quality issues.

OBJECTIVES

To create a circuit by using turbidity sensor for check water turbidity in fish pond.

To build an output display to monitor by using Arduino board.

To build an automatic feed feeder system by using timer for feed the fish automatic.

To develop a controller filtration system to recycle the water by using water filter

INNOVATION HIGHLIGHT

Automated Water Quality Monitoring

Sustainable Aquaculture Practices

Self-Cleaning Filtration System

CONCLUSION

In conclusion, managing a tilapia pond requires careful planning, ongoing monitoring, and proactive decision- making. By following the best practices outlined in this guide, can create an optimal environment for tilapia growth, prevent disease outbreaks, and ensure consistent product quality.

Moreover, continuous learning, data-driven decision making, sustainable practices, and community engagement can help stay competitive, enhance brand reputation, and contribute to the global demand for affordable, high-quality protein.


TEAM MEMBER:
ABDUL QAYYUM BIN ZULKARNAIN
(06DTK22F1037)

ADAM HARITH BIN MOHD NOOR AZIAN
(06DTK22F1037)

INSTITUTION NAME: POLITEKNIK PORT DICKSON
PRODUCT ID: 1763
PRODUCT NAME: LECTURER SYSTEM MEETING CALLER

SUPERVISOR: PUAN SITI ZALINA BINTI MOKHTAR

BACKGROUND

This project aims to improve communication and collaboration between lecturers and students in educational institutions by developing a comprehensive meeting system. By creating a lecturer paging system using PhpMyAdmin database, using ESP32 and integrating notifications through platforms like Telegram, this project seeks efficiency in interactions. Ultimately, it aims to create a more user-friendly environment that promotes sustainable administrative practices.

PROBLEM STATEMENT

• Current system, student enter the office without lecturer permission. So, this situation can be uncontrol and unsafe for lecturer belongings. • Some issues might be exam paper expose to public, privacy for lecturer is not protected and inefficiencies in accessing lecturers. • With this system can control student entry and exit to the office, monitor lecturer availability
before the student enter the office, and recognize the names and faces of all JKE staff.

OBJECTIVES

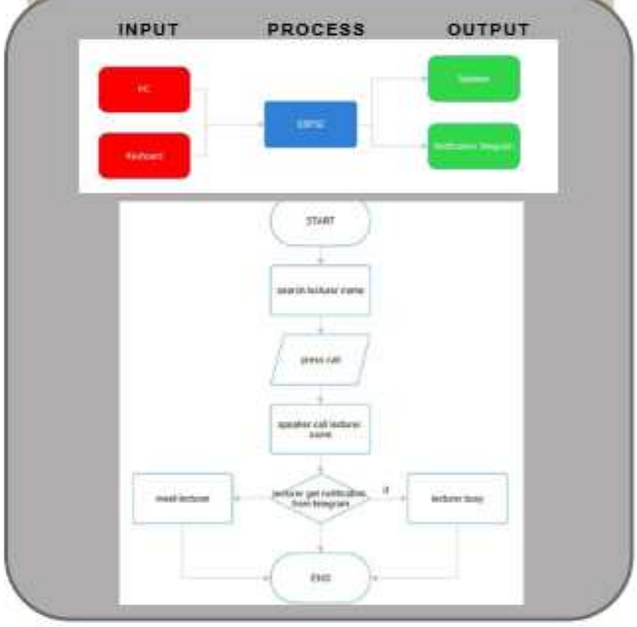
- To develop a Lecturer paging system database by using PhpMyAdmin to collect lecturer data.

- To build a paging system circuit by using ESP32 to call the lecturer at JKE office.

- To construct a notification system by using telegram to alert the lecturer.

- To create low cost caller system.

METHODOLOGY



INNOVATION HIGHLIGHT

1. Enhanced Security Protocols
2. Comprehensive Access Monitoring
3. Integration of Advanced Technologies
4. User-Friendly Interface
5. Proactive Risk Management

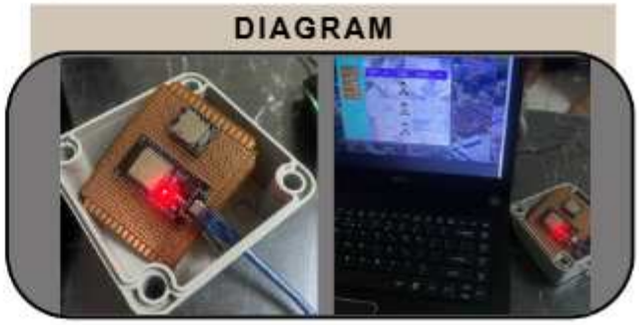
COMMERCIAL VALUE

The Lecturer System Meeting Caller project has strong commercial potential, targeting educational institutions to improve communication and security. By integrating ESP32, PhpMyAdmin and Telegram, it offers a unique, tailored solution to issues like unauthorized office access and inefficient student-lecturer interactions. With a low production cost of RM 550 (including PC),

CONCLUSION

In conclusion, the development of a Lecturer Paging System represents a significant step forward in enhancing communication and efficiency within educational institutions. By utilizing a PHPMyAdmin database to collect and manage lecturer data, we establish a solid foundation for effective interactions. Additionally, the incorporation of a Telegram notification system further enhances this process by providing real-time alerts to lecturers, thereby minimizing delays and improving responsiveness. Overall, this project not only addresses existing challenges in lecturer-student interactions but also contributes to a more organized and secure learning environment, ultimately supporting academic success and operational efficiency.

DIAGRAM



INSTITUTION NAME : POLITEKNIK PORT DICKSON
PRODUCT ID : 1650
PRODUCT NAME : CLINIC NOTIFICATION ASSISTANCE

TEAM MEMBER: 1. MICHELLE FONG XIN YING (06DTK22F1017)
2. AMIR ARIF BIN ABD WAHAB (06DTK22F1014)

SUPERVISOR : P N. KAMALIAH HANIM BINTI SAMHUDI KAMIL

BACKGROUND

The Clinic Notification Assistance System optimizes patient flow and reduces wait times at government clinics. It addresses overcrowding and long lines, which lead to patient dissatisfaction and inefficient resource use. With real-time notifications, the system improves the overall clinic experience.

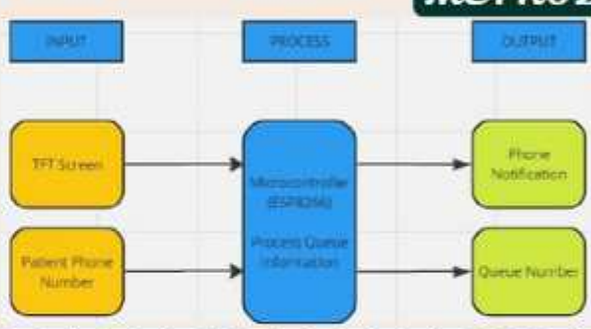
PROBLEM STATEMENT

Long wait times are a common problem at the clinic, which irritates patients and makes operations inefficient. Poor patient experiences are caused by clogged waiting areas and antiquated manual queuing systems. A notification system that lets patients know their queue status in real time can help with this issue by eliminating the necessity for in-person waiting.

OBJECTIVE

1. To design a functional interface by using the TFT ILI 9341 display.
2. To create a database by using phpMyAdmin for storing the user data.
3. To develop a notification by using Twillo to notify patient.
4. To create a paperless ticketing system by using phpMyAdmin to reduce deforestation.

METHODOLOGY



COMMERCIAL VALUE

1. The system offers clinics a cost- effective solution for managing patient queues, reducing operational delays, and improving patient satisfaction.
2. Its paperless nature aligns with environmental ustainability goals, which can appeal to government healthcare institutions.
3. The system's adaptability allows it to be scaled to clinics and healthcare provders, ensuring wider commercial potential.

INNOVATION HIGHLIGHT

- **PAPERLESS SYSTEM:** Completely eliminates the need for physical tickets.
- **REAL-TIME NOTIFICATIONS:** Patients receive timely updates about their queue status, minimizing time spent in waiting rooms.
- **MOBILE INTEGRATION:** Notifications are sent directly to patients' smartphone via WhatsApp or SMS, making the system accessible and convenient.

CONCLUSION

The Clinic Notification Assistance System enhances patient management in government clinics by reducing wait times, boosting satisfaction, and streamlining operations. Its real-time notifications and paperless approach improve healthcare efficiency while supporting sustainability goals.

POLITEKNIK MALAYSIA
PORT DICKSON

Our Supervisor
PUAN KAMALIAH HANIM BINTI SAMHUDIN KAMIL

OUR TEAM MEMBER
1.MUHAMMAD HAFIZ DANIAL BIN ZAINAL FITRI(06DTK22F1022)
2.HUDZAIL AIMAN BIN NORHISHAM(06DTK22F1008)

DEE 50102

Baby Alert Triggered by Phone Call

BACKGROUND

This idea devised for a solution called Baby Alert Triggered by Alarm Phone, which notifies parents and guardians alikeOur background research indicates that babies or children who are unintentionally left behind by parents tend to forget to bring them out together. This can be extremely risky because from 2022 to 2024, the number of cases increases sharply every year.

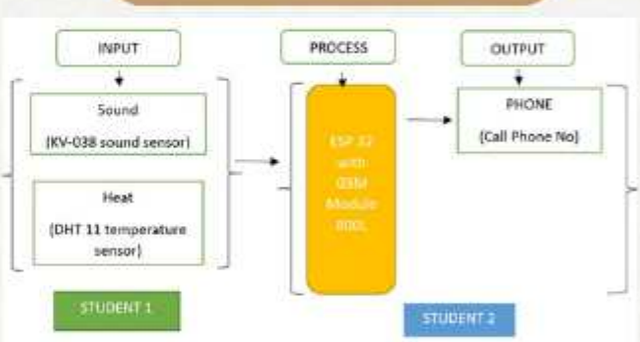
PROBLEM STATEMENT

"A one-year-old baby girl was found dead after being believed to have been left in a car at a public university in Kuala Nerus yesterday". **This was taken from newspaper The Star (OCT 2023)**

OBJECTIVES

- To build programming code with a suitable based on project.
- To build heat sensor circuit using DHT11 to ESP 32 and GSM Module800L. To build sound sensor circuit using KV-038 to ESP 32 and GSM Module800L.
- To make sure circuit can integrate with the coding that have been choose.

METHODOLOGY



INNOVATION HIGHLIGHT

One important invention that is specifically intended to avoid the catastrophic outcomes of forgotten babies in cars or other dangerous situations is a baby alert system that is activated by phone calls.This invention improves on conventional baby alert systems in a straightforward yet efficient way by using phone calls as a parent's emergency lifeline.

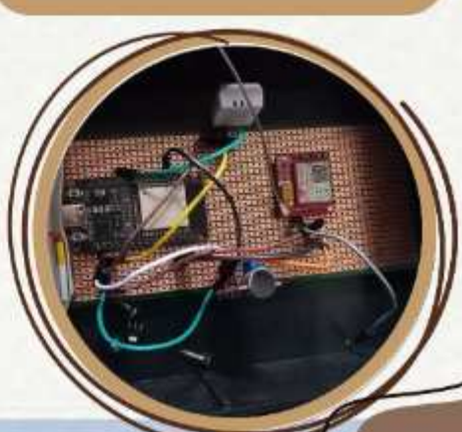
COMMERCIAL VALUE

Parents are increasingly looking for technological solutions to ensure their child's safety, especially in an era of smart home devices and Internet of Things (IoT). A baby alert system linked to phone calls could fall into this category, targeting parents, caregivers, and institutions like daycare centers.

CONCLUSION

On conclusion , this project need more times how to conduct a single project with report to follow the flow and how to improve of productivity and quality this project must be taken care carefully.

DIAGRAM/PICTURE



BACKGROUND

This project explores the use of drones that **using racing drone mechanism with GPS attached.** This drone is agile enough to go check the Ph and turbidity level for narrow rivers in remote areas by applying water quality circuit to monitor water pollution, offering an efficient solution for assessing water quality and responding to pollution incidents.

CONCLUSION

Future focus will be on developing mechanisms like optimizing propeller design for better efficiency, creating lighter yet stronger drone bodies to reduce drag, and enhancing flight characteristics such as stability, control, and precision in various environments through advanced autopilot systems.

METHODOLOGY


PROPELLER


BATTERY


MOTOR

This project use drone with pH and turbidity sensors to monitor water quality in different areas. First, the flight path and key points for data collection are planned. Before the flight, the **sensors are calibrated to ensure accurate readings**, and the **drone is checked for proper operation**. After the flight, the data is analyzed to identify water quality trends. Then, regular maintenance is done on the drone and sensors to keep them working well for future monitoring.

OBJECTIVE


build a long range drone using racing drone mechanism by using 2.4Ghz (ELRS) and first person view system

To display real time data for sensors reading

To utilize the drone's ability by making it waterproof using conformal coating

To design a water pollution monitoring system circuit using pH and turbidity sensor interfacing with Arduino

DIAGRAM

INNOVATION HIGHLIGHT

The innovation highlight is leveraging drone capabilities, the project improves spatial coverage and minimizes the need for human intervention, enhancing safety in contaminated environments and hard-to-reach areas.This system provides real-time data collection and transmission.


3D PRINT ARDUINO CASING

COMMERCIAL VALUE

- **Cost-Efficiency:** The drone-based system reduces the need for expensive, lowering operational costs for environmental agencies, researchers, and industrial operators.
- **Rapid Response:** This solution enables quicker response to pollution events, making it highly attractive for regulatory bodies .
- **Accessibility to Remote Areas:** The drone's ability to access hard-to-reach locations increases its appeal to industries operating such as agriculture where traditional water monitoring methods are difficult or impractical.

PROBLEM STATEMENT

Water is essential for life, and ensuring its quality is a major global challenge. Despite efforts to reduce pollution, current water monitoring methods are often slow and lack precision, leading to delayed responses. Traditional approaches rely on manual sampling and on site collecting to get the result. This project aims to address drone technology as a new method to collect data. This innovative approach will enabling quicker action to address water pollution

@AQUASENTINEL

ESLTEX

INSTITUTION NAME: POLITEKNIK PORT DICKSON
PRODUCT ID: 2025
PRODUCT NAME: AUTOMATIC SEPARATE WASTE DUSTBIN

TEAM MEMBER :

MUHAMAD FAUZAN RAMADHAN BIN OTHMAN
06DTK22F1028

SYED OMAR HAFIZ BIN SYED MUHAIMIN
06DTK22F1039

SUPERVISOR :

MOHD SHAFIE BIN RAHAMAN

BACKGROUND

This project aim to automatic separate waste which is paper , plastic and metal (aluminium tin) by using inductive sensor for metal and for plastic and paper will use capasitive sensor and IR sensor Arduino. This project also detect and display the level of the garbage by using ultrasonic sensor, ESP 8266 and Blynk app.

PROBLEM STATEMENT

Garbage cans in a Polytechnic classroom that is used often soon fill up because of the large amount of rubbish that lecture and students produce every day. Bins are overflowing and the classroom is unhygienic as a result of the present waste management system's limitations. The cleaner also cannot predict when the waste get full. This project aims to solve this problem by putting in place a automatic separate waste that will keep monitor of the waste bin's fill level and alert the cleaning staff when it is full and also make a separate more easier.

OBJECTIVE

- To design and develop an automatic waste separation dustbin system for classrooms with Arduino Mega
- To monitor waste level in the dustbin in using Ultrasonic sensor, ESP8266 and Blynk application.
- To design the lid of the garbage that can automatically open when sensor detect the movement by using Ultrasonic sensor.

METHODOLOGY

The approach for this project begins with designing the system and selecting essential components, including an inductive sensor for detecting metal, a capacitive sensor to differentiate between plastic and paper, and an IR sensor for enhanced material identification. An ultrasonic sensor will be integrated to monitor the fill level of the garbage bin, while the ESP8266 module will facilitate wireless communication with the Blynk app for remote tracking. Each sensor will be connected to an Arduino microcontroller, which will be programmed to collect and process data from the sensors and control the sorting mechanism based on the detected materials.

INNOVATION HIGHLIGHT

This project introduces an automated waste sorting system that efficiently separates materials like metal (aluminium), plastic, and paper. The system utilizes an inductive sensor for detecting metal, a capacitive sensor for differentiating between plastic and paper, and an IR sensor for enhanced material recognition. Additionally, an ultrasonic sensor monitors the garbage level, and the ESP8266 module, integrated with the Blynk app, provides real-time remote tracking of waste bin levels. This innovative approach simplifies waste management, promoting sustainability and smart technology integration in everyday waste disposal systems.

COMMERSIAL VALUE

This automated waste sorting system offers practical benefits for businesses in areas like waste management, manufacturing, and environmental services. It automatically separates metal, plastic, and paper, reducing the need for manual work and improving recycling efficiency. With the ability to monitor waste levels remotely through the ESP8266 and Blynk app, companies can better plan collection times and cut down on costs. Its easy setup and scalability make it a great option for businesses looking to adopt eco-friendly practices, save money, and meet environmental requirements.

CONCLUSION

The automated waste separation system project offers an innovative and practical solution to waste management challenges in classrooms, focusing on separating materials like metal, plastic, and paper. By incorporating sensors such as inductive, capacitive, and infrared, along with an ultrasonic sensor for monitoring bin levels, the system enhances efficiency. The use of ESP8266 for real-time communication with the Blynk app allows for effective remote monitoring of waste levels. This system addresses key problems like overflowing bins and promotes sustainability by reducing manual sorting efforts

DIAGRAM/PICTURE


POLITEKNIK PORT DICKSON

PRODUCT ID : 1648

PRODUCT NAME : AUTOMATIC RICE WASHER

TEAM MEMBER : MHUKEISH KUMAR (F1016) & MUHAMMAD AIMAN (F1032)

SUPERVISOR : PUAN NOREMY BT CHE AZEMI

BACKGROUND

Our project aims to deal with the flaws of traditional rice washing methods. As people often use too much water when washing rice, our idea is to build a machine that can wash rice on a wide scale, improving the process.

Rice is frequently washed in non-food-grade containers, such as basins. People end up using a lot of water when they washing the rice by hand in unclean conditions, which can contaminate the rice and cause foodborne illnesses, reducing the quality and hygiene.

OBJECTIVES

- To use the solenoid valve to control water flow automatically during the washing and draining processes
- To use the stepper motor to rotate and agitate the rice for thorough cleaning during wash cycles
- To create a water level sensor circuit to detect the water level in the washing pot.
- To monitor the water level for Automatic Rice Washer system.

INNOVATION HIGHLIGHT

Automatic Rice Washer use technology that have been integrated into an originally manual process. The project brings automation not just in the washing of rice but also the integration of IoT through the Blynk app, enabling users to manage remotely from their smartphones. The rice washer automatically regulates the water level and washing cycles based on rice quantity for an appropriate cleaning with minimal water wastage. This combination of smart control, water efficiency, and convenience to the user makes this project outstanding as a forward-looking solution for household used.

COMMERCIAL VALUE

Automatic Rice Washer is making an automated common household task. This should be quite interesting to those who like to multitask and who doesn't like to waste time so they can do other things while waiting for the rice to be clean.

The use of technology like the Blynk IoT app, makes it easier for users to start the washing process remotely with a smartphone. It also saves water, which makes it appealing to people who care about the environment.

CONCLUSION

In conclusion, Automatic Rice Washer offer a good solution to the challenges of washing rice in the cleanliness aspect. Through sensors, this machine can dispense water from the water tank into the washing pot and measure the water level. User can set the water level needed according on how much cup of rice. By using this machine, it can save people time and avoid contamination during the washing process. Overall, Automatic Rice Washer is efficient and environmentally friendly.

PROBLEM STATEMENT

Large-scale rice washing has several problems, including waste and health risks. People often use non-food-grade materials, which can cause health issues. Not wearing gloves while washing can contaminate the rice and lead to foodborne illnesses.

Water waste is another concern, especially in areas with limited water supply, and it can also harm the environment. Using dirty or unsuitable containers, like basins or buckets, can contaminate the rice, and materials in these containers might transfer harmful toxins to the rice, posing health risks to consumers.

METHODOLOGY

The methodology for the Automatic Rice Washer project includes few important steps. The project design is outlined using a block diagram and flow chart by showing the system inputs, processes and outputs.

The project is developed step by step and the tasks are distributed for each member. Overall, the methodology ensures a clear and systematic approach to make the rice washer fully functioning.

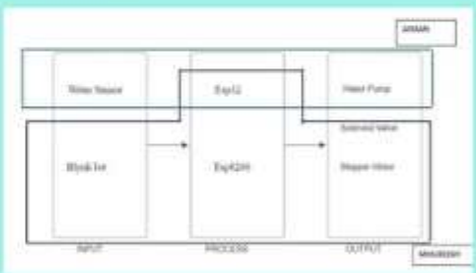


DIAGRAM /PICTURE

POLITEKNIK PORT DICKSON
PRODUCT ID : 1654

PRODUCT NAME : IOT WINDOW

SUPERVISOR : PUAN NOREMY BINTI CHE AZMI
NURULAIN (F1018) & ALLEYA NAJWAH (F1041)

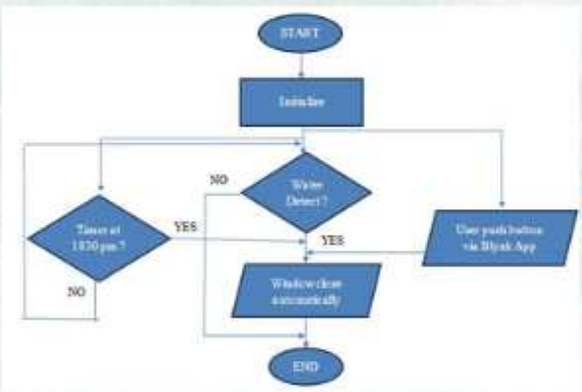
BACKGROUND

People usually don't get alert about weather news. It is pointless because of what they see is different with the weather forecast given.

OBJECTIVES

- To construct rain sensor circuit that automatically closes the window when it rainfall
- To construct timer circuit that automatically closes the window at the specific time
- To develop a controlling IoT Window System using Blynk apps.
- To analyze the IoT Window System Application.

DESIGN SOLUTION



CONCLUSION

In conclusions, it can conclude that the process of window close can be very easy. People do not need to come near the window to close the window when raining happen. It will make the user more easy than they need to run to close the window. Beside that, create a system that can help people that have house is need for the society.

PROBLEM STATEMENT

We cannot depends on the forecast given because it might be different. This will affect their furniture in the house when raining is happening and the window still open. It might be hard for people to close it if no one at home or they need to running to close all the window in their house.

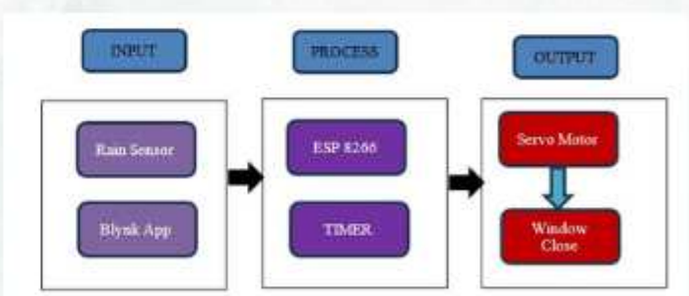
INNOVATION HIGHLIGHT

- Implementing rain sensor will detect rain and automatic close the window
- Implement the timer to close and open the window followed fix time that have been set
- Create an application to control the window to open and close

COMMERCIAL VALUE

- Automatically closes the window when it rains and allows users to control the window remotely via a smartphone app.
- Helps regulate room temperature with scheduled ventilation, reducing the need for air conditioning.
- A low-cost, DIY-friendly system for easy home integration.

METHODOLOGY



F1006

AMSYAR HAZIQ FITRI BIN MOHD ADAN

F1034

MUHAMMAD ZULHELMI BIN MOHD ISA

INSTITUTION NAME: POLITEKNIK PORT DICKSON
PRODUCT ID: 1701
PRODUCT NAME: IOT SAFETY HELMET

SUPERVISOR: PUAN NOREMY BINTI CHE AZEMI

BACKGROUND

The project that chosen for final proposal is about IoT Safety Helmet with IoT system. For this project, we decide to make a system that will help the worker from injury occurs at the working site. IoT Safety Helmet used for detecting the workers condition and prevent it from any emergency case. How this project worked is the worker have a system that will alert the superior if they push the panic button. This project detect the worker's pulse, surrounding temperature, and humidity by using sensor and display it using Blynk app.

PROBLEM STATEMENT

IoT safety helmet is designed to prevent emergency situations as the surrounding environment at the working place itself that can not only endangers the lives of workers but also exposes minerals or gases to the air which may cause harm and damage to property. Particularly, this system is made to work in areas where workers operate in very dangerous or risk place of the deep recesses of underground. One of the most important things for safety should be the safety of workers, detection is a key component of it as this system can identify the workers situation on having an emergency as fast as it could.

OBJECTIVES

- To develop a panic button system on safety helmet with ESP8266 as it microcontroller and to detect the worker in emergency using pulse sensor.
- To build an IoT Safety Helmet that are equip with sensors that will be helpful to the worker that working on site.
- To develop an interface that detect and monitor worker worker pulse and alerts the superior when they press the panic button
- To analyses the alert system that is trigger by the panic button to ensure the effectiveness response in case of emergency

COMMERCIAL VALUE

The IoT Safety Helmet offers significant commercial value by addressing the rising demand for workplace safety solutions across industries like construction and mining. By preventing accidents and reducing associated costs, it can lead to substantial savings on medical expenses and liabilities, ultimately boosting productivity and profitability. The helmet's ability to collect data enhances safety protocols, while its scalable design allows for integration into various safety systems. Additionally, companies may benefit from reduced insurance premiums and improved reputations, making this innovative helmet a worthwhile investment for organizations committed to worker safety.

INNOVATION HIGHLIGHT

- Combines a panic button and a pulse sensor to ensure worker safety in hazardous environments.
- Enables real-time health monitoring and emergency alerts for quick responses to potential dangers.

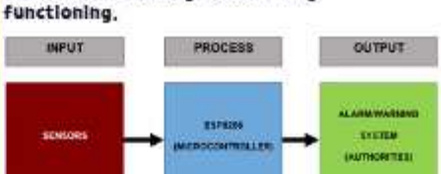
CONCLUSION

In conclusion, the IoT Safety Helmet project presents an innovative solution to enhance worker safety in hazardous environments by integrating real-time health monitoring, emergency alerts, and GPS tracking. By addressing critical safety challenges and promoting a proactive safety culture, this technology not only protects workers but also offers significant cost savings and productivity benefits for organizations. With its potential for scalability and integration, the IoT Safety Helmet is poised to make a meaningful impact in improving workplace safety standards across various industries.

DIAGRAM

METHODOLOGY

The methodology for the IoT Safety Helmet project includes few important steps. The project design is outlined using a block diagram and flow chart by showing the system inputs, processes and outputs. The project is developed step by step and the tasks are distributed for each member. Overall, the methodology ensures a clear and systematic approach to make the IoT Safety Helmet fully functioning.



SENARAI PROJEK & PINGAT ESITEX SESI I 2024/2025

PROJEK DTK 5B

BIL.	NO PENDAFTARAN	NAMA PELAJAR	ID PROJEK	TAJUK PROJEK	PENYELIA	PINGAT
1	06DTK22F1027	IFWAT MUZAKKIR BIN SAIMI	1789	OVERLOAD CURRENT DETECTION AND WARNING SYSTEM WITH CUT OFF	NOOR FAZNYZAHUDA BINTI FUAD	SILVER
2	06DTK22F1011	MOHAMAD ALIF BIN MOHD FAIZ				
3	06DTK22F1019	AMMAR FAHMI BIN MAZLAN	1790	LAWN MOWER DRONE		BRONZE
4	06DTK22F1047	MUHAMMAD IRZAN IRFAN BIN NOORHISHAM				
5	06DTK22F1005	MUHAMMAD AMIRUL BIN MOHD.ASRI	1791	RFID ATTENDANCE SYSTEM		SILVER
6	06DTK22F1013	MUHAMMAD HAZIQ BIN AZMAN				
7	06DTK22F1021	PRITVWIRAAJ SINGH A/L HARDIP SINGH	1732	AUTO LIFT CAR PARK	Ts. MOHD NIZAM BIN SHAMSUDDIN	BRONZE
8	06DTK22F1029	NOR RIDZMAN BIN NOR AZLAN				
9	06DTK22F1043	AFQAR HAFIYFIE BIN HELMI	1704	FACE DETECTOR DOOR LOCK		BRONZE
10	06DTK22F1046	MUHAMMAD SHAHRIMAN BIN SARIZAN				
11	06DTK22F1003	MUHAMMAD AIMAN BIN ALI SABRI	1730	VERMIN VAULT	NORHAYATI BINTI ABDUL MANAF	BRONZE
12	06DTK22F1036	NABIL RIZQULLAH BIN SHARUDDIN				
13	06DTK22F1031	MUHAMMAD ZULKARNAIN SHAH RIZAL BIN MOHD SHAHRIL RIZAL	1785	INTELLIGENT FISH CATCHER		BRONZE
14	06DTK22F1033	MOHAMMED NAZRI BIN MOHAMMED ANWAR				
15	06DTK22F1048	TIVYA A/P VIJAYAN	1729	REFASHION INTELLIGENT CLOTHES DISPOSAL BIN		BRONZE
16	06DTK22F1049	NUR FARRA AQILAH BINTI ROS AMIRASH				
17	06DTK22F1007	SYAHMI WAFIQ BIN HAMZAH	1737	WAVESANITATION : THE AUTOMATIC KINDY HAND SANITIZER	HASYIMAH BINTI AHMAD	SILVER
18	06DTK22F1001	MUHAMMAD NUR SAFWAN BIN SHAMSUL				
19	06DTK22F1023	NABIL MUQRI BIN MOHAMED ZHAIRY	1749	IOT BASED SOIL MOISTURE MONITORING SYSTEM		NONE

POLITEKNIK MALAYSIA
PORT DICKSON

POLITEKNIK PORT DICKSON
PRODUCT ID :
OVERLOAD CURRENT DETECTION, WARNING AND CUT-OFF SYSTEM

IFWAT MUZAKKIR BIN SAIMI
06FTK22F1027
(DIPLOMA KEJURUTERAAN ELECTRONIK KOMPUTER)

SUPERVISE BY
PN FAZNYZAHUDA BINTI FUAD

MOHAMAD ALIF BIN MOHD FAIZ
06DTK22F1011
(DIPLOMA KEJURUTERAAN ELECTRONIK KOMPUTER)

1 INTRODUCTION

The Overload Current Detection, Warning, and Cut-off System monitors for overloads, gives warnings, and cuts power to prevent damage. Users can set current limits, and it responds instantly. It's simple to use and protects equipment and circuits.

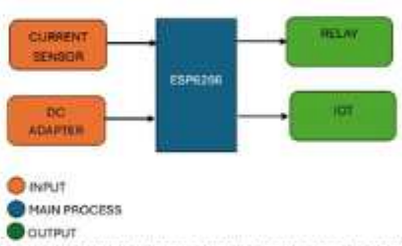
2 PROBLEM STATEMENT

We are developing a system to monitor current, warn of overloads, and cut power to protect circuits. It has adjustable current limits, real-time monitoring, and is easy to install, and reliable.

3 OBJECTIVE

- To construct a circuit that can measure a current value via Iot.
- To develop a circuit that can cut-off the overload current.
- To monitor the current value via IoT
- To create a notification system to the user via Iot.

4 METHODOLOGY



5 INOVATION HIGHLIGHT

- INSTANTLY TRACKS CURRENT FLOW TO PREVENT OVERLOADS.
- CUSTOMIZE LIMITS BASED ON SPECIFIC REQUIREMENTS FOR ADDED FLEXIBILITY.
- SIMPLE SETUP PROCESS, SUITABLE FOR VARIOUS ELECTRICAL SYSTEMS.

6 COMMERCIAL VALUE

- REDUCES RISK OF ELECTRICAL FIRES AND EQUIPMENT DAMAGE BY PREVENTING OVERLOADS.
- LOWERS MAINTENANCE COSTS AND PROLONGS THE LIFESPAN OF ELECTRICAL EQUIPMENT

7 CONCLUSION

Overload Current Detection, Warning, and Cut-off Systems protect electrical circuits from too much current, preventing fires and damage. They use sensors to monitor current and sound alarms or turn off power when necessary. These systems are found in homes, industries, and renewable energy setups. They enhance safety, lower repair costs, and support smart grid technology.

8 DIAGRAM

POLITEKNIK PORT DICKSON
PRODUCT ID : 1790
PRODUCT NAME : LAWN MOWER DRONE

TEAM MEMBER :

AMMAR FAHMI BIN MAZLAN
(06DTK22F1019)

MUHAMMAD IRZAN IRFAN BIN NOORHISHAM
(06DTK22F1047)

SUPERVISOR :
PUAN NOOR FAZNYZAHUDA BINTI FUAD

INTRODUCTION

- A lawn mower drone (also named as mower or grass cutter)
- A machine utilizing one or more revolving blades to cut a grass surface to an even height.
- They rely on rechargeable battery packs for power, they're super quiet.

PROBLEM STATEMENT

- The machine became damaged when we failed to detect or receive notice about the weather, forcing more expensive maintenance.
- Most of the people is getting busy with their work or other stuff so they don't even have a time to take care of their grass.
- Cutting the grass will take at least 20 to 30 minutes or more, depend on the width of an area.

OBJECTIVES

1. To Implement sensors capable of detecting various obstacles in the drone path to avoid collisions and ensure smooth operation.
2. To develop notifications system with rain sensor to detected rain and give notifications to user.
3. To provide a blades using rechargeable battery as power source to cut the grass effectively.
4. To develop a fully automatic control movement drone using esp8266 wifi module to performed the tasks without controlling.

METHODOLOGY

INNOVATION HIGHLIGHT

- To design a smart obstacle detection with ultrasonic sensor allowing it to detect and avoid obstacles to ensuring smooth and damage-free operation.
- To provide the rain sensor notifications so users can stops the drone's activity before it gets harmed by the rain.
- To create a green environment by using batteries instead of gas fuel to run without harmful emissions and contribute to a more sustainable approach to lawn care.

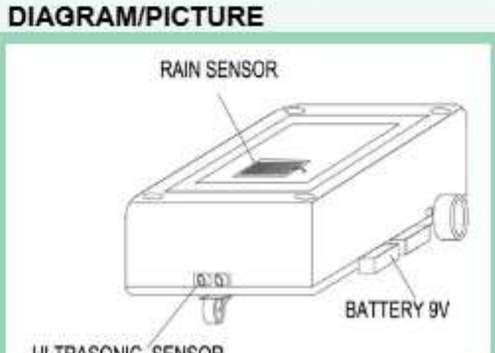
COMMERCIAL VALUE

- To produce an automatic lawn mowers drone that can market themselves as cutting-edge and innovative, which can attract customers looking for modern, tech-driven landscaping solutions.
- To reduced running costs without use of fuel, making it a cost-effective solution for both residential and business users over time.

CONCLUSION

In conclusion, the proposed project aims to develop an advanced autonomous lawn mower robot using the ESP8266 microcontroller, integrating cutting-edge technologies to revolutionize lawn maintenance. Through a comprehensive analysis of previous projects and advancements in robotics, we have identified key areas for improvement, including cutting efficiency, navigation, energy management, durability.

DIAGRAM/PICTURE



POLITEKNIK MALAYSIA
PORT DICKSON

INSTITUTION : POLITEKNIK PORT DICKSON

PRODUCT ID : 1791

PRODUCT NAME : FINGERPRINT ATTENDANCE SYSTEM

Supervisor → PN NOOR FAZNYZAHUDA BINTI FUAD

TEAM MEMBERS → MUHAMMAD AMIRUL BIN MOHD. ASRI (06DTK22F1005)
MUHAMMAD HAZIQ BIN AZMAN (06DTK22F1013)

INTRODUCTION

A large number of students in an institution creates many problems for lecturers or administrators. Often, attendance takes a long time in a class. As a result, the lecturer can affect the learning time and records taken, for example, records that are not filled in correctly.

PROBLEM STATEMENT

- Inefficient manual attendance process can lead to errors and wasted time due to manual attendance.
  There are students who come late, so it disrupts
- the learning process.

OBJECTIVE

- To build a fingerprint sensor circuit to identify student id.
  To detect unauthorized student.
- To develop a Database system for attendance records.
- To monitor student attendance record.

METHODOLOGY

INOVATION HIGHLIGHT

- This integrated software provides notifications from Gmail and may produce very detailed information about student attendance, student check-in and check-out times.
- Reduces administrative costs associated with manual time tracking, including paper records or punch cards.

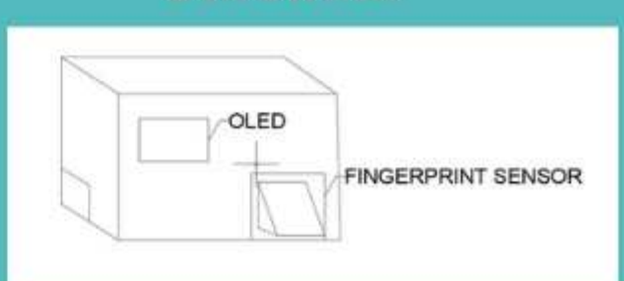
COMMERCIAL VALUE

- Suitable for businesses of all sizes, from small businesses to large corporations with multiple locations, due to centralized data management.
- Automating attendance and payroll processes decreases conflicts at work, resulting in higher employee satisfaction and morale.

CONCLUSION

In conclusion this project has offered a simple mechanism to mark attendance. Data is more organized when it is used in a database it can improve efficiency and reliability.Finally, this system provides time savings and easy control

DIAGRAM



POLITEKNIK MALAYSIA PORT DICKSON

AUTO LIFT CAR PARK

ID PROJEK : 1989

Team Member :
1.NOR RIDZMAN BIN NOR AZLAN (06DTK22F1029)
2.PRITWIRAAJ SINGH A/L HARDIP SINGH (06DTK22F1029)

SUPERVISOR :
EN.MOHD NIZAM BIN SHAMSUDDIN

BACKGROUND

One effective method to protect vehicles from flood damage is the use of auto lift parking systems, designed to elevate cars above flood levels. These systems reduce the risk of vehicle loss during floods, particularly in urban areas where moving cars to higher ground may not always be an option. Their quick and efficient operation makes them a practical, cost-effective part of flood preparedness, helping to safeguard vehicles from potential water damage.

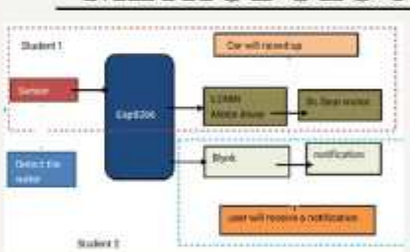
PROBLEM STATEMENT

- Real-time parking detection helps manage parking in smart cities by providing data on available spots, reducing wait times, and preventing vehicle damage Autonomous vehicles need accurate parking slot detection, improving both safety and parking efficiency. Automated systems reduce human effort and enhance parking efficiency.

OBJECTIVE

- Create an elevated parking structure above ground level to ensure cars are protected from floodwaters.
- Develop adaptive architecture that adjusts to environmental conditions by incorporating weather-responsive design into the parking structure.
- To notify users via email when their vehicle is ready for retrieval, reducing wait times and improving overall convenience
- Implement notification systems that alert staff and visitors in advance of approaching floods, enabling them to take precautionary measures.

METHODOLOGY



INNOVATION HIGHLIGHT

- The system uses a flood detection sensor to trigger car lift motors, raising the vehicle to a safe height when flooding is detected, protecting it from water damage.
- Integrated with Blynk IoT, the system sends real-time smartphone alerts when the car is lifted or lowered due to flooding.

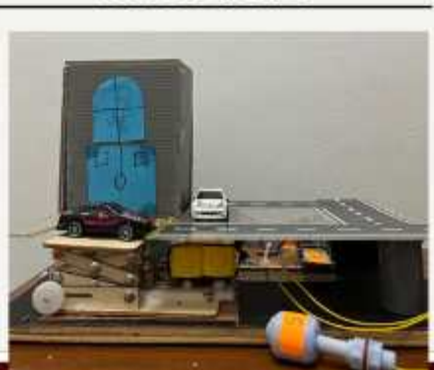
COMMERCIAL VALUE

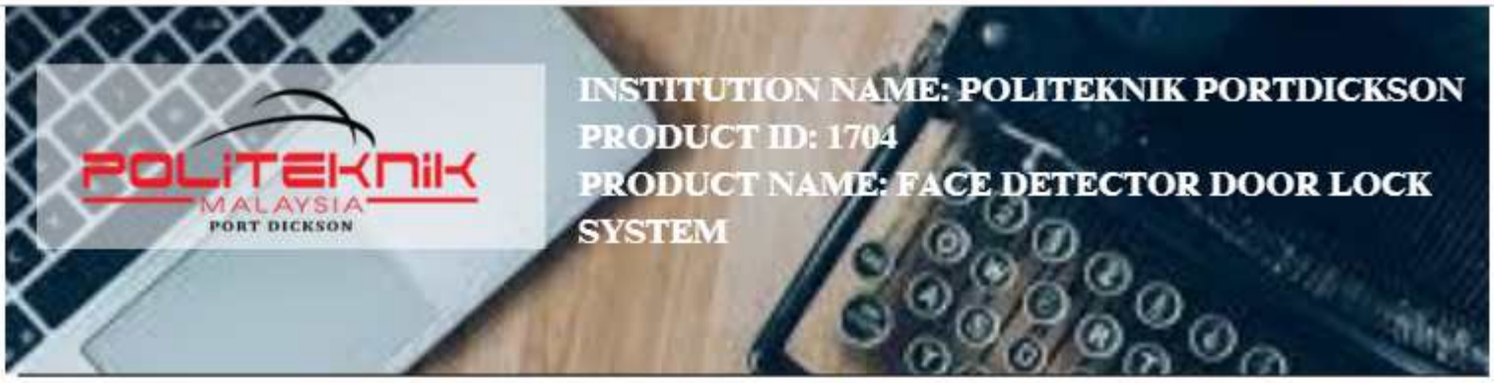
- **Insurans companies could benefit from fewer claims related to flood-damaged vehicles.**
- **It can be a protection of High-value assets from leading to a costly repairs or even total loss**

CONCLUSION

In conclusion, the automatic lift car park system provides a practical, efficient solution for vehicle elevation. It combines ease of use, remote control, and safety features, showcasing how basic components can create a reliable system for improving parking management and protecting vehicles in challenging conditions.

PICTURE





INSTITUTION NAME: POLITEKNIK PORTDICKSON
PRODUCT ID: 1704
PRODUCT NAME: FACE DETECTOR DOOR LOCK SYSTEM

TEAM MEMBER:

- AFQAR HAFIYFIE BIN HELMI
- (06DTK22F1043)
- MUHAMMAD SHAHRIMAN BIN SARIZAN
- (06DTK22F1046)

SUPERVISOR:

En. MOHD NIZAM BIN SHAMSUDDIN

BACKGROUND

AS HOME SECURITY CONCERNS INCREASE, THERE'S A GROWING DEMAND FOR ADVANCED ACCESS CONTROL SOLUTIONS. OUR PROJECT ADDRESSES THIS NEED WITH AN INTEGRATED FACE DETECTOR DOOR LOCK SYSTEM USING FACIAL RECOGNITION TECHNOLOGY, ALLOWING AUTHORIZED ACCESS WHILE ENSURING EFFICIENCY AND CONVENIENCE FOR HOMEOWNERS, EVEN WHEN THEY ARE BUSY OR AWAY

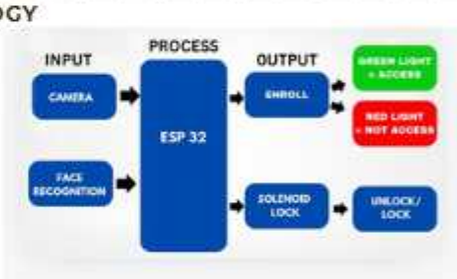
PROBLEM STATEMENT

- TRADITIONAL KEYS AND ACCESS CARDS CAN BE EASILY LOST, STOLEN, OR DUPLICATED, POSING RISKS OF UNAUTHORIZED ACCESS AND SECURITY BREACHES. MANAGING PHYSICAL KEYS OR ACCESS CARDS IS OFTEN CUMBERSOME IN BUSY OR MULTI-USER SETTINGS. CONVENTIONAL ACCESS CONTROL SYSTEMS STRUGGLE TO INTEGRATE WITH MODERN SMART HOME TECHNOLOGIES AND FAIL TO OFFER REAL-TIME, PERSONALIZED ACCESS CONTROL.

OBJECTIVE

- TO CREATE A CIRCUIT THAT INTEGRATES WITH AN ELECTRONIC LOCK, UNLOCKING ONLY WHEN A VERIFIED FACE IS DETECTED.
- TO BUILD A RELIABLE CIRCUIT FOR A CAMERA THAT DISPLAYS REAL-TIME VISUALS OF ITS SURROUNDINGS. CREATE SOFTWARE THAT CAN ENROLL HUMAN FACES IN REAL- TIME USING A LIVE CAMERA FEED. IMPLEMENT VISUAL (LEDS) FEEDBACK FOR VARIOUS SYSTEM STATES LIKE FACE DETECTION SUCCESS OR AN UNAUTHORIZED ACCESS ATTEMPT.

METHODOLOGY



INNOVATION HIGHLIGHT

- IMPROVE AUTOMATICAL SYSTEM: THE DOOR AND WILL UNLOCK IT WHEN A RECOGNIZED FACE IS DETECTED. ENABLE REMOTE MONITORING: ENABLE USERS TO ACCESS THE CAMERA REMOTELY VIA THEIR PHONE. PROVIDE HELP FOR USER: WHEN THE USER IS CARRYING HEAVY ITEMS, THE DOOR WILL OPEN AUTOMATICALLY, ELIMINATING THE NEED FOR A KEY AND ASSISTING THEM.

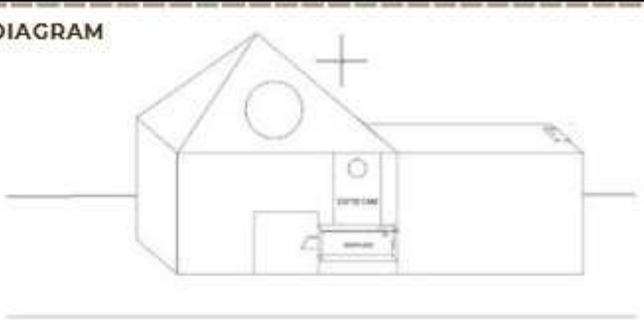
COMMERCIAL VALUE

The face detector door lock system presents substantial commercial value by providing advanced security features that cater to both residential and commercial properties, reducing theft risk and improving user convenience with touchless access technology.

CONCLUSION

In conclusion, the Face Detector Door Lock system provides a secure and convenient solution to access control challenges. Utilizing advanced facial recognition technology, it replaces traditional keys and access cards, simplifies user access, and integrates with smart home systems, enhancing security and convenience while setting a new standard for modern access control.

DIAGRAM



PRODUCT ID: 1730
PRODUCT NAME:VERMIN VAULT
SUPERVISOR:NORHAYATI BINTI ABDUL MANAF
TEAM MEMBER: 1.*MUHAMMAD AIMAN BIN ALI SABRI (06DTK22F1003)*
2.*NABIL RIZQULLAH BIN SHARUDDIN (06DTK22F1036)*

vermin vault

1 Background

Rodent infestations present serious difficulties for homes, companies, and agricultural activities, resulting in food poisoning, property damage, and health hazards.Traditional mouse control methods, like using chemical baits and mechanical traps, are often labor-intensive, harmful for the environment, and unable to give real-time information about pest activities.

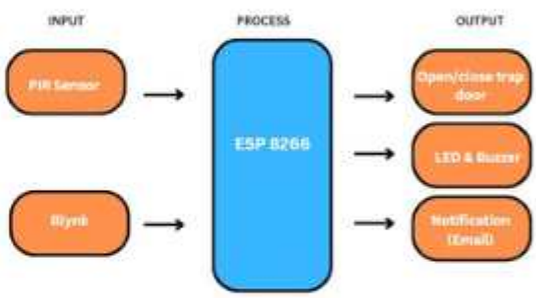
2 Innovation Highlight

1.Convenience and Automation
2.Humane Trapping Options
3.Smart monitoring and Alerts
4.Sustainable and Energy Efficient

3 Problem Statement

Despite their small size, mice and rats are very capable of causing significant harm to your belongings and property. This could be highly problematic because their urine, feces, and mouse droppings can contaminate the surfaces they walk on and reside on.

4 Methodology



5 Objectives

1.To activate the warning system
2.To develop a motion detection circuit
3.To create a control system by using IoT
4.IoT develop the notification system via IoT.

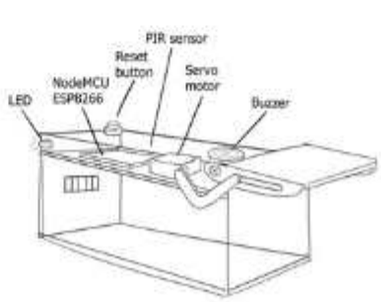
6 Commercial Value

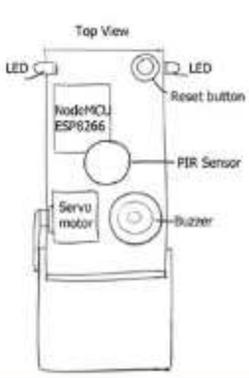
1.Automation with motion detection
2.Wi-Fi Connectivity and Smart Alert
3.Safety and humane design
4.Buzzer for local alerts

7 Conclusion

In conclusion, the development of this smart mouse trap system can solve people's problems related to pests that always enter the house and can cause damage to property and affect human health. This system is a game -changer because when compared to the old mouse trap, this system is much easier, faster and most importantly, it is cheaper, thus showing that this system is better.

8 Diagram Picture





POLITEKNIK MALAYSIA
PORT DICKSON

MEMBER: 1) MOHD NAZRI BIN ANWAR (06DTK22F1033)
2) MUHD ZULKARNAIN SHAHRIZAL BIN MUHD SHAHRILRIZAL (06DTK22F1031)

SUPERVISOR: PN NORHAYATI BINTI ABD MANAF

INTRODUCTION

Traditional fishing methods often require individuals to remain stationary for extended periods, which can be physically demanding and uncomfortable, especially for those with mobility issues or health concerns. Moreover, maintaining focus throughout the fishing process is crucial for success, as missing a bite can result in disappointment and lost opportunities

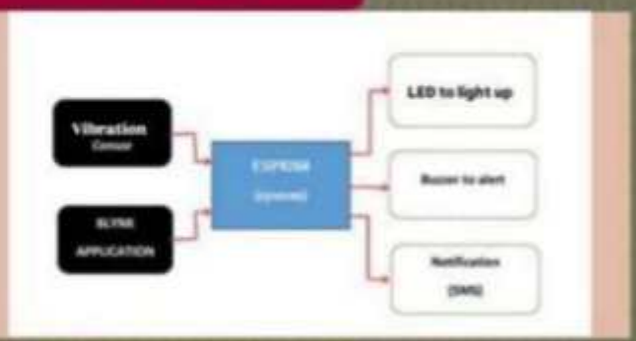
PROBLEM STATEMENT

What makes fishing difficult is that people need to wait for a long time and need to stay at the same place the whole time. If they are unlucky, even the only fish that are meant for them on that day can be missed due to lack of focus. So, finding a way to help this problem by invented an ESP$266 controlled fishing rod that can make people fishing even while resting on a chair.

OBJECTIVES

1) To develop a device equipped with a sensor capable of detecting fish vibration.
2) To design IoT system with LED that will light up when sensor detected a vibration.
3) To create an IOT notification system to alert the angler using the fishing rod.
4) To develop an automated fishing assistance by enhancing the fishing experience.

METHODOLOGY



INNOVATION HIGHLIGHT

- Fish Vibration Sensor: Detects fish activity for improved catch efficiency.
- LED Alert: Keep user alert and cautious allowing for relaxation.
- IoT Notifications: Sends real-time alerts to keep anglers informed.
- Sustainable Practices: Supports responsible fishing with efficient methods.

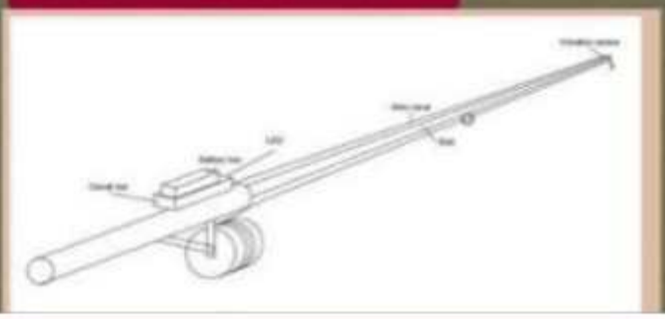
COMMERCIAL VALUE

Market Demand: Addresses the growing interest in accessible fishing solutions for people with mobility issues or health concerns.
- Enhanced Experience: Provides a more engaging and efficient fishing experience, appealing to both casual and serious anglers.
- Technology Integration: Leverages IoT technology, attracting tech-savvy consumers and differentiating from traditional fishing gear

CONCLUSION

The intelligent fish catcher enhances the fishing experience for those with mobility issues by integrating a fish vibration sensor, LED alert and IoT notifications. This innovation minimizes wait times alertness and increases catch success, making fishing more accessible for everyone

DIAGRAM/PICTURE



REFASHION INTELLIGENT CLOTHES DISPOSAL BIN

BACKGROUND

- **IoT Intelligent Clothes Disposal Bin Project**: Uses IoT technology to automate clothes disposal and enhance waste management.
- **Key Features**: Freshness and ventilation control, capacity detection, and smartphone notifications for bin status updates.
- **Goals**: To encourage proper waste disposal in various locations, promote recycling, and reduce landfill overflow.
- **Target**: Busy bin owners who are often away from the bin located place, and people who are interested in recycling clothes but do not use existing disposal options.

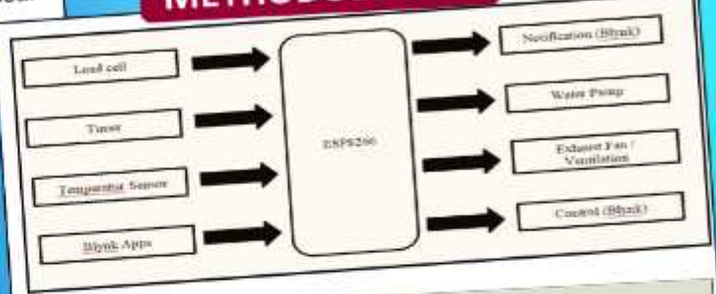
PROBLEM STATEMENT

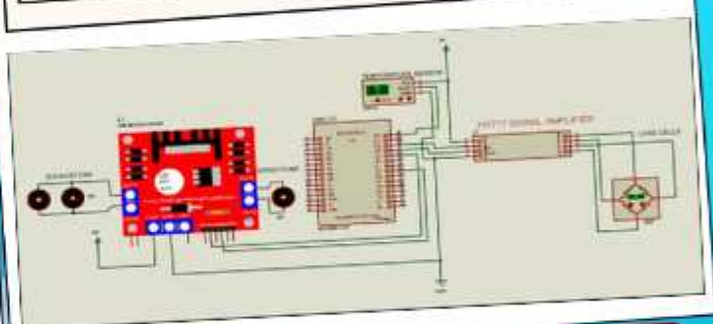
- Too many clothes are discarded, causing pollution and filling up landfills.
- Current disposal bins cannot accurately measure how full they are, leading to overflow and mess.
- These bins do not keep the inside fresh, resulting in unpleasant smells that deter usage.

OBJECTIVES

- To build a circuit that can detect the capacity of bin.
- To build a circuit can control the ventilation system.
- To build a circuit can control the freshness.
- To develop the notification system using IoT applications.

METHODOLOGY





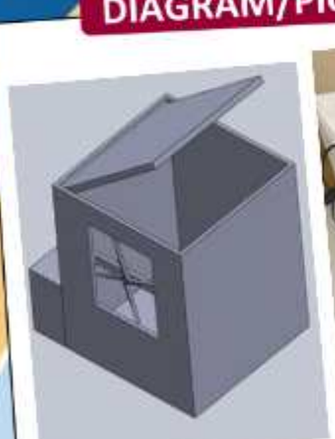
INNOVATION HIGHLIGHT

- Smart Monitoring: Sensors track capacity and conditions.
- Ventilation: Removes odors and maintains freshness.
- IoT Notifications: Alerts owner when the bin is full.

COMMERCIAL VALUE

- The Smart Clothes Disposal Bin offers convenience for households managing unused clothing.
- It promotes responsible waste management and appeals to eco-conscious consumers.
- Partnership opportunities with charities enhance community engagement and social responsibility.

DIAGRAM/PICTURE



CONCLUSION

The Refashion Intelligent Clothes Disposal Bin provides an efficient solution for managing clothing waste. It ensures freshness, eliminates odors, and notifies owners via Blynk when the bin is full, allowing remote monitoring. By simplifying waste management and promoting sustainability, this project benefits both individuals and the community.

Group Member :
TIVYA D/O VIJAYAN (06DTK22F1048)
NUR FARRA AQILAH BINTI ROS AMIRASH (06DTK22F1049)

POLITEKNIK MALAYSIA PORT DICKSON

POLITEKNIK PORT DICKSON
PRODUCT ID : 1737

WAVESANITATION AUTOMATIC KINDY HAND SANITIZER

TEAM MEMBER :
MUHAMMAD NUR SAFWAN BIN SHAMSUL (06DTK22F1001)
SYAHMI WAFIQ BIN HAMZAH (06DTK22F1007)

SUPERVISOR : PUAN HASYIMAH BINTI AHMAD

BACKGROUND

An automated hand hygiene system for kindergartens benefits children, teachers, parents, and society. It helps reduce disease spread, improves class attendance, and promotes public health. The device also serves as a teaching tool, encouraging children to learn the importance of handwashing early on, fostering lifelong healthy habits.

PROBLEM STATEMENT

Children often neglect hygiene, leading to the spread of germs. Automatic hand sanitizers encourage better hygiene, especially among kindergarteners, who are prone to diseases like HFMD (Hand, Foot, and Mouth Disease). Offering rewards, such as candy, each time they sanitize their hands can motivate them to develop good hygiene habits. However, existing systems may lack efficiency, ease of use, and adaptability to various settings.

OBJECTIVES

- To build an automatic hand sanitizer system using an ultrasonic sensor to dispense sanitizer. To
- monitor refill status, indicators and notifications using Blynk application. To develop an ultrasonic
- sensor circuit for the reward process that uses a servo motor to dispense candies. To observe the usage frequency of the dispensing system in a
- predetermined time using ThingSpeak.

METHODOLOGY

INNOVATION HIGHLIGHT

- The system is easy to install and adaptable for different kindergarten settings, with user-friendly operation. Sensors detect hands and automatically
- dispense sanitizer, minimizing contamination. It connects to Blynk and Thingspeak apps via Wi- Fi,
- enabling real-time monitoring of sanitizer levels, and usage data for efficient maintenance. A servo motor adds a reward feature, such as candy to encourage
- children to practice good hygiene habits consistently.

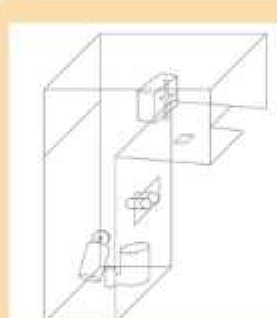
COMMERCIAL VALUE

- Giving small rewards (like candy) motivates kids to use the sanitizer regularly, making it stand out from regular dispensers. Schools and daycare centers
- are looking for new ways to encourage hygiene and prevent diseases like HFMD. Kindergarden
- and Thingspeakdsappcato treack thesaniBlyzenk levels, frequency usage and making maintenance easy.

CONCLUSION

The Automatic Kindy Hand Sanitizer offers a creative and practical approach to encouraging hygiene among young children. By merging a sanitizer dispenser with a candy reward system, it motivates kids to clean their hands while enjoying a fun treat. The device is designed for ease of use, with straightforward refilling and reliable electronic components to ensure smooth operation. Overall, this solution effectively combines functionality and enjoyment, promoting healthier habits.

DIAGRAM/PICTURE



POLITEKNIK MALAYSIA
Port Dickson

JKE DEPARTMENT, CLASS: DTK5B
PRODUCT ID: 1749

IOT BASED SOIL MOISTURE MONITORING SYSTEM

NABIL MUQRI BIN MOHAMED ZHAIRY

SUPERVISOR: PN HASYIMAH BINTI AHMAD

1 Background

Nowadays, a great number of people are into gardening regardless if its just a hobby or even work purposes. It is quite the responsibility despite how simple it may seem on the surface as it requires you to be committed and takes a portion of throughout your time taking care of the plants. It is impossible for people to be there at all times monitoring the plants and know their conditions. It is necessary to built a working IoT based system that can help solving this problem easily. Monitoring of environment parameter such as soil moisture, temperature and humidity are important parts of plant growth. This focused on the development of an instrumentation system and analysis on the effect of the water volume to the soil moisture, effect rate of soil moisture, temperature and humidity for an efficient plantation growth.

2 Problem Statement

In modern agriculture, efficient water management is crucial for optimizing crop yield and conserving resources. However, traditional methods of soil moisture monitoring are often labor-intensive, time-consuming, and can lead to either overwatering or underwatering of crops. This not only affects plant health but also contributes to water wastage and increased operational costs. This IoT-based solution aims to revolutionize farming practices by leveraging technology to enhance productivity, sustainability, and resource management.

3 Objectives

1. To construct a moisture monitoring system by using FDR sensors to identify the water context of the soil.
2. To build a temperature controlling system by using RTD sensors to measure the degree of hotness or coldness of surroundings that is send to temperature controller
3. To develop a notification system and monitor the soil moisture and temperature by using an application.

4 Methodology

1.System requirements
2.System design (software, hardware)
3.Prototype development
4. Testing
5.Evaluation and Optimization

5 Innovation Highlight

- Real-Time Data Monitoring: These systems use sensors to provide real-time data on soil moisture levels, enabling farmers to make informed irrigation decisions.
- Remote Access: Users can access data remotely through smartphones or web applications, allowing for monitoring without being on-site.
- Automated Irrigation: Integration with automated irrigation systems can trigger watering based on moisture levels, optimizing water use and improving crop yields.
- Data Analytics: Advanced analytics can predict moisture trends and suggest irrigation schedules based on historical data and weather forecasts.
- Alerts and Notifications: Users receive alerts when moisture levels are too low or too high, helping to prevent crop stress or overwatering.

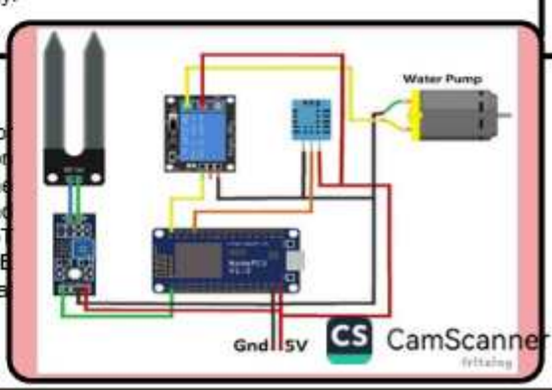
6 Commercial Value

The commercial value of an IoT-based soil moisture monitoring system can be significant due to several factors:

1.Market Demand: With the increasing focus on sustainable agriculture and efficient resource management, there's a growing demand for smart farming technologies.
2.Cost Savings: Farmers can save on water and energy costs by optimizing irrigation practices. This can lead to a quick return on investment, making the system attractive to potential buyers.
3.Increased Crop Yields: By maintaining optimal soil moisture levels, farmers can enhance crop health and yields, driving profitability and justifying the investment in monitoring technology.

7 Conclusion

In conclusion, an IoT-based soil moisture monitoring system represents a transformative solution for modern agriculture. By integrating real-time data collection, remote access, and automated irrigation capabilities, this project addresses key challenges in resource management and crop productivity. The innovative approach enhances decision-making for farmers, promotes sustainable practices, and ultimately leads to increased yields and cost savings. Overall, the successful implementation of this IoT solution not only benefits individual farmers but also contributes to bro@adRerE eAnLvLirYoGnmReEnAtaTlS gloTaEls, fostering a more sustainable and resilient agricultural ecosystem.



KOMPILASI POSTER ESITEX

SESI I 2024/2025

PROGRAM DIPLOMA KEJURUTERAAN ELEKTRONIK (KOMUNIKASI) [DEP]

SENARAI PROJEK & PINGAT ESITEX SESI I 2024/2025

PROJEK DEP 5A

BIL.	NO PENDAFTARAN	NAMA PELAJAR	ID PROJEK	TAJUK PROJEK	PENYELIA	PINGAT
1	06DEP22F1002	MEGAT AQLAN BIN ESSAFIRUDYN	1660	SMART HELMET DETECTION	NUR ILYANI BINTI ZAHARE	NONE
2	06DEP22F1013	ADAM AMSYAR BIN MUHAMMAD IKRAM				
3	06DEP22F1021	NORAIN SYAFARAH BINTI SYAFRIANTO	1657	IOT WATER SENSOR		BRONZE
4	06DEP22F1024	NUR DIRA ADLINA BINTI MOHD ROSDI				
5	06DEP21F1029	ARIB OMAR BIN MOHD TARMIZI	1662	AUTOMATIC SMART DOOR SENSOR		NONE
6	06DEP21F1073	AZRAIE AZRY BIN AZMAN				
7	06DEP21F1021	MUHAMMAD FIRDAUS BIN MOHAMAD FAIZUL	1932	CHILD MONITORING SAFETY ALERT SYSTEM IN VEHICLE	MOHAMAD ZAMRI BIN MUHAMAD	GOLD
8	06DEP22F1011	MUHAMMAD WAHSHI BIN SHAMSUL	1656	BLUETOOTH CONTROLLED WIRELESS NOTICE BOARD	ABDUL RAZAK BIN ISMAIL	BRONZE
9	06DEP22F1001	AMIRUL ASHRAF BIN KHIR-AMIR	1646	GAS LEAKAGE DETECTOR SYSTEM	NUR SUHANA BINTI SUHADI	GOLD
10	06DEP22F1006	MUHAMMAD HAIZAT HAFIZY BIN AHMAD FAUZI				
11	06DEP22F1007	TUAN NURALYA SYAMIMI BINTI TUAN ZUZAIDI	1658	CHILDREN SAFETY WITH IOT		GOLD
12	06DEP22F1028	NUR ELLYANA BINTI ANUAR				
13	06DEP21F2002	FLORENCE A/P PALANIAPPAN	1665	HOME HEAT ABSORBER SYSTEM		GOLD
14	06DEP22F1029	MIRUNALINI A/P SACHITHANANDAN				
15	06DEP22F1005	FATIN NAZIHAH BINTI MOHAMAD HARIS	1645	FEMININE URINARY TRACT CLEANSING SYSTEM FOR DISABLED PATIENTS	TS. DR. NORHANANI BT ABD RAHMAN	NONE
16	06DEP22F1014	CHANG YAN WEI	1651	AQUAFLORA HYDROPONICS SYSTEM		BRONZE
17	06DEP22F1025	TOH YEW HUR				
18	06DEP22F1022	KHAIREEN AFIQ BIN KHAIRUDDIN	1653	AUTISM RELAXATION TOYS		BRONZE
19	06DEP22F1030	MUHAMMAD SYAHRUL NIZAM BIN SHARUN				
20	06DEP22F1017	HOO TECK GUAN	1663	AUTOMATIC INTERNET OF THINGS SOLUTION FOR PLANT HEALTH	ALIZAWATI BT MAT ZIM	BRONZE
21	06DEP22F1027	LIM ZING TOU				
22	06DEP22F1010	SARVINNASH A/L MATHAVAN	1655	SMART ANTI-THEFT SYSTEM FOR HOME USING IOT		NONE
23	06DEP22F1020	ALEEYA NATASHA AZMAN				
24	06DEP22F1004	MUHAMMAD FARISH DANISH BIN MOHD FAIZAL	1659	SUPER AUTOMATIC CAT LITTER BOX		NONE
25	06DEP22F1009	HAIKAL AKMAL BIN KAMARUZAMAN				

INSTITUTION NAME : POLITEKNIK PORT DICKSON

PRODUCT ID : 3072

PRODUCT NAME : SMART HELMET DETECTION

TEAM MEMBER

MEGAT AQLAN BIN ESSSAFIRUDYN
(06DEP22F1002)
ADAM AMSYAR BIN MUHAMMAD IKRAM
(06DEP22F1013)

SUPERVISOR

PN NUR ILYANI BINTI ZAHARIE

BACKGROUND

- WEARING HELMETS REDUCES THE RISK OF SERIOUS HEAD INJURIES, BUT NON-COMPLIANCE AMONG RIDERS REMAINS A CHALLENGE.
- THIS PROJECT AIMS TO DEVELOP A HELMET DETECTION SYSTEM THAT ENSURES A RIDER WEARS A HELMET BEFORE STARTING OR OPERATING A VEHICLE.
- THE SYSTEM USES AN ULTRASONIC SENSOR, LED, BUZZER, AND MICRO SWITCH TO DETECT HELMET USAGE, ENSURING SAFETY MEASURES ARE FOLLOWED.

PROBLEM STATEMENT

- HIGH MOTORCYCLE ACCIDENTS LEAD TO SEVERE INJURIES AND FATALITIES, ESPECIALLY IN AREAS WITH HIGH MOTORCYCLE USAGE. MANY RIDERS FAIL
- TO WEAR PROPERLY HELMETS, INCREASING THE RISK OF HEAD INJURIES IN ACCIDENTS. EXISTING ENFORCEMENT METHODS LIKE POLICE CHECKS ARE
- LIMITED AND NOT ALWAYS EFFECTIVE.

OBJECTIVE

STUDENT 1 :

1. DEVELOP A SYSTEM TO DETECT THE PRESENCE OF A HELMET ON THE RIDER'S HEAD BASED ON THE DISTANCE MEASURED BY THE ULTRASONIC SENSOR.
2. PROVIDE REAL-TIME VISUAL AND AUDIBLE ALERTS (LED AND BUZZER) IF THE RIDER IS NOT STRAP THE CLIP WHEN WEAR HELMET.

STUDENT 2 :

1)TO CREATE AND VERIFY THAT BOTH THE INPUT AND THE OUTPUT CODING IS OPERATING CORRECTLY.
2)TO CONFIRM THAT THE CIRCUIT IS OPERATIONAL AFTER BEING FITTED INTO THE HELMET.

METHODOLOGY

STUDENT 1 :

- WRITE THE ARDUINO RAMO CODE TO DETECT THE HELMET USING THE ULTRASONIC SENSOR. CONFIGURE
- THE LED AND BUZZER TO ACTIVATE WHEN THE HELMET IS NOT DETECTED WITHIN A SET DISTANCE. ADD FUNCTIONALIT
- Y TO DISABLE THE ALERTS WHEN THE MICRO SWITCH IS PRESSED.

STUDENT 2 :

- CODE THE CIRCUIT BY CONNECTING THE ULTRASONIC SENSOR TO THE MICROCONTR OLLER TO MEASURE THE DISTANCE TO THE HELMET. CONNECT THE
- LED AND BUZZER TO PROVIDE ALERTS AND MICRO SWITCH TO MANUALLY STOP THE ALERTS. ASSEMBLE
- THE CIRCUIT ON A BASE BOARD.

INNOVATION HIGHLIGHT

1. SIMPLE AND CONTACTLESS HELMET DETECTION
USES AN ULTRASONIC SENSOR TO DETECT THE HELMET BASED ON DISTANCE, MAKING IT NON-CONTACT AND EASY TO USE.
2. INSTANT ALERTS WITH LED AND BUZZER
PROVIDES VISUAL (LED) AND SOUND (BUZZER) ALERTS TO REMIND THE RIDER TO WEAR THE HELMET.
3. EASY CONTROL WITH MICRO SWITCH
THE MICRO SWITCH ALLOWS THE RIDER TO TURN OFF THE LED AND BUZZER AFTER WEARING THE HELMET, MAKING THE SYSTEM EASY TO MANAGE.

COMMERCIAL VALUE : RM 90 FOR ONE HELMET

1. AFFORDABLE AND EASY TO SELL THE SYSTEM USES CHEAP PARTS, MAKING IT AFFORDABLE FOR INDIVIDUAL RIDERS AND MOTORCYCLE COMPANIES. IT CAN ALSO BE SOLD AS AN ADD-ON SAFETY TOOL. 2. HELPS FOLLOW HELMET RULES GOVERNMENTS AND AUTHORITIES CAN USE THIS SYSTEM TO ENFORCE HELMET LAWS AND REDUCE ACCIDENTS. 3. IT CAN BE SOLD TO MOTORCYCLE MANUFACTURERS TO INSTALL IN NEW BIKES. IT WILL KEEP WORKER SAFE DELIVERY SERVICES AND RIDE-HAILING . INDIVIDUAL RIDERS WHO WANT MORE SAFETY.

CONCLUSION

THE HELMET DETECTION SYSTEM IS AN EASY WAY TO MAKE MOTORCYCLE RIDING SAFER. IT USES A BUZZER AND LIGHT TO REMIND RIDERS TO WEAR HELMETS. A SIMPLE SWITCH LETS RIDERS TURN OFF THE ALERTS ONCE THEY HAVE THEIR HELMETS ON.THIS SYSTEM IS AFFORDABLE AND SIMPLE TO USE, MAKING IT A GOOD CHOICE FOR INDIVIDUAL RIDERS AND MOTORCYCLE COMPANIES. IT CAN ALSO BE IMPROVED WITH FEATURES LIKE ENGINE CONTROL AND SMARTPHONE ALERTS.IN SHORT, THIS SYSTEM HELPS KEEP RIDERS SAFE AND CAN BE USED WIDELY, ESPECIALLY IN PLACES WITH MANY MOTORCYCLES.

DIAGRAM / PICTURE

SUPERVISOR : PUAN NUR ILYANI BINTI ZAHARE

TEAM MEMBER :
NUR DIRA ADLINA BINTI MOHD ROSDI (06DEP22F1024)
NORAIN SYAFARAH BINTI SYAFRIANTO (06DEP22F1021)

POLITEKNIK MALAYSIA
PORT DICKSON

INSTITUTION NAME : POLITEKNIK PORT DICKSON
PRODUCT ID : 2006
PRODUCT NAME : IOT WATER SENSOR

BACKGROUND

- Flash Flood often occur suddenly , causing damage and posing risks to lives.
- Traditional warning systems are not fast or accurate enough to provide early warnings.
- Iot offers a solution through real-time monitoring using smart sensors.

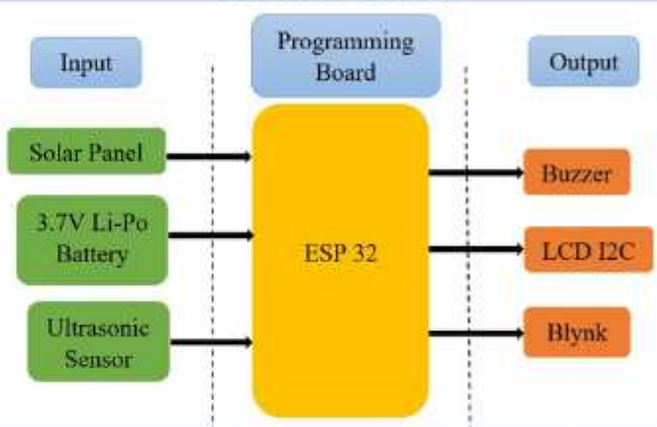
PROBLEM STATEMENT

- Areas prone to flash floods often lack effective water level monitoring systems.
- Many monitoring systems in flood-prone areas do not have remote access capabilities.
- Existing systems often fail to detect leaks and water accumulation, which can worsen flood risks.

OBJECTIVES

- To program and integrate components using Arduino IDE
- To use a solar panel and TP4056 module for continuous battery operation
- To develop a Blynk app for remote monitoring and water level notifications
- To utilize an ultrasonic sensor and ESP32 to measure water levels and control outputs (LCD and buzzer)

METHODOLOGY



INNOVATION HIGHLIGHT

- Real-time water level monitoring with ultrasonic sensor for accurate measurements.
- Remote monitoring and notifications via Blynk app on user devices.
- User-friendly interface with button for easy control.

COMMERCIAL VALUES

1) Affordability and Accessibility
- This product helps communities manage early flood control during the monsoon season.

2) Market Potential
- The system has strong market potential by addressing a critical safety need for users.

CONCLUSION

This system not only raises awareness about flood conditions but also provides practical and effective solutions for disaster management, making it a valuable tool in efforts to mitigate the impact of flash floods.

DIAGRAM

POLITEKNIK MALAYSIA
PORT DICKSON

KEMENTERIAN PENDIDIKAN

AUTOMATIC SMART DOOR SENSOR

TEAM MEMBER: 1) ARIB OMAR BIN MOHD TARMIZI
2) AZRAIE AZRY BIN AZMAN

SUPERVISOR: PUAN ILYANI BINTI ZAHARE

INTRODUCTION

Automatic Smart Door Sensor, Automatic door sensors are a part of contemporary access control systems and are widely used in a variety of environments, including homes and commercial buildings. Without requiring physical contact, these sensors are made to sense the presence or motion of people or objects, automatically opening the door.

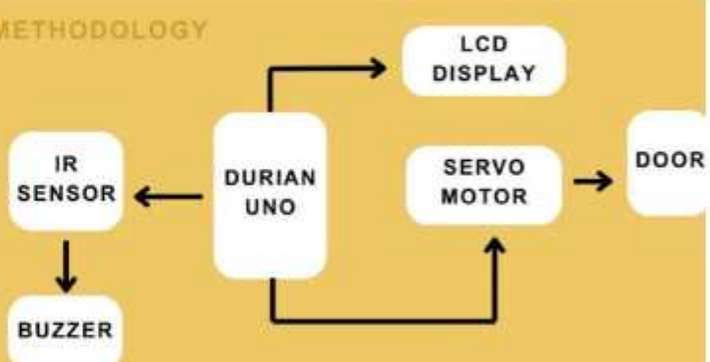
PROBLEM STATEMENT

- To ensure battery drain of smart door
- To ensure smart door can be opened successfully.
- To make a smart door hardware and software operated successfully.

OBJECTIVES

Automatic smart door sensors are devices designed to augment security by preventing intrusions, enhance accessibility of the doors, and reduce energy consumption. They are able to collect foot traffic patters, connect with smart systems, be managed remotely, ensure safety regulations are met and so much, while all that is going on, an easy entry is experienced.

METHODOLOGY



INNOVATION HIGHLIGHT

Smart automatic door sensors help improve the security and enjoyment of users by unlocking the door when they approach. They connect to other devices in the house for making possible routine functions and also provide energy saving features like doors closing after certain period of inactivity.

COMMERCIAL VALUE

Increased Property Value

- The combination of smart technology can enhance the aesthetic appeal of the properties to prospective buyers or tenants, increasing the overall market place

Enhanced Security

- Such devices are capable of identifying an intrusion and notifying the owner of the premises or structure thereby minimizing the potential risks associated with theft and vandalism

CONCLUSION

automatic smart door sensors improve home security and ease of use. Thanks to the use of technology, they mitigate energy wastage through real-time alerts and smart integrations, which meet current living demands, making the access to home smarter and safer.

DIAGRAM/PICTURE

POLITEKNIK MALAYSIA PORT DICKSON

INSTITUTION NAME : POLITEKNIK PORT DICKSON
PRODUCT ID : 1932
PRODUCT NAME : CHILD MONITORING SAFETY ALERT SYSTEM IN VEHICLE

TEAM MEBER:MUHAMMAD FIRDAUS BIN MOHAMAD FAIZUL (06DEP21F1021)
SUPERVISOR:MOHAMAD ZAMRI BIN MUHAMAD

BACKGROUND

- Increasing incidents of child fatalities in vehicles in Malaysia are linked to rising temperatures.
- Malaysia's hot and humid climate leads to rapid temperature spikes inside parked cars.
- These elevated temperatures increase the risk of heatstroke and other health complications, particularly in young children.
- Parents and guardians must take precautionary measures to ensure children are never left alone in vehicles, such

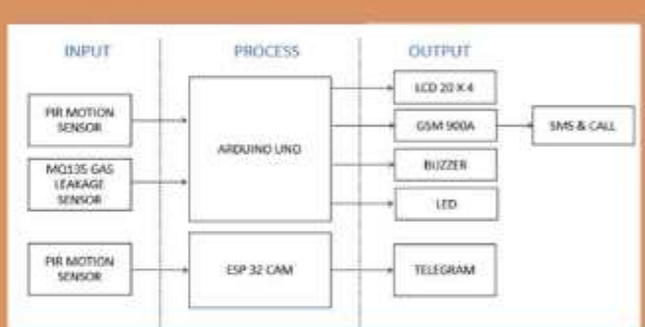
PROBLEM STATEMENT

- There is no smartphone connection oriented vehicle monitoring system that can detect physical movement and gas existence available in the market for the user
- There is no movement detection camera available in the market specifically to notify user via telegram application
- There is no real time monitoring system available in the market to notify user if any movement and dangerous gas occur inside the vehicle

OBJECTIVES

- To build a monitoring system that enable the parents to monitor their child's movement and detect the gas leakage via smartphone.
- To configure child monitoring system in vehicle with GSM module and ESP-32 CAM for communication with an affordable price for the user
- To construct a sensor circuit, PIR motion sensor and MQ135 Gas Leakage sensor by giving access to parents to monitor their child's condition through SMS, call and telegram message.

METHODOLOGY



INNOVATION HIGHLIGHT

- Designed for seamless integration with future smart vehicle technologies.
- Aligns with the evolving landscape of transportation.
- Focuses on continuous enhancement.
- Embodies an innovative approach.
- Ensures long-term relevance and effectiveness.

COMMERCIAL VALUE

- Affordability and Accessibility:

The goal is to develop an affordable child monitoring system for vehicles, ensuring it is accessible to a wider audience.

- **Market Potential:**

The system has the potential to greatly influence the market by addressing a critical safety concern for parents and caregivers.

CONCLUSION

- Designed to detect gas leakage and monitor motion inside a vehicle.
- Utilizes Global System Communication (GSM) to send SMS alerts to parents if a child is detected.
- Integrates ESP32-CAM to capture and send images of the vehicle's interior through Telegram.
- Built to evolve with advancing technology.
- Addresses the critical issue of accidents involving children left in vehicles.
- Encourages greater parental responsibility for children's safety.
- Continuous updates and enhancements expected to further improve system effectiveness.

DIAGRAM/PICTURE




POLITEKNIK MALAYSIA
PORT DICKSON

POLYTECHNIC PORT DICKSON
PRODUCT ID : 1656
PRODUCT NAME : BLUETOOTH WIRELESS CONTROL NOTICE BOARD

SUPERVISOR : ENCIK ABDUL RAZAK BIN ISMAIL

MUHAMMAD WAHSHI BIN SHAMSUL (06DEP22F1011)

BACKGROUND

In this project, we propose to develop a simple, low-cost, wireless Android-based notice board. The proposed system uses either Bluetooth or Wi-Fi-based wireless serial data communication in displaying messages on a remote digital notice board. This project offering a dynamic platform for sharing information in homes, offices, schools, and beyond. The Bluetooth-controlled notice board represents the evolution of traditional communication methods into the digital age.

PROBLEM STATEMENT

In a world increasingly reliant on digital communication and information sharing, traditional notice boards often fall short in meeting the dynamic needs of modern environments. Static, paper-based notices quickly become outdated, leading to inefficiencies, missed opportunities, and a lack of engagement among users. Furthermore, the process of updating these notice boards can be time-consuming and labor-intensive, requiring physical presence and manual effort.

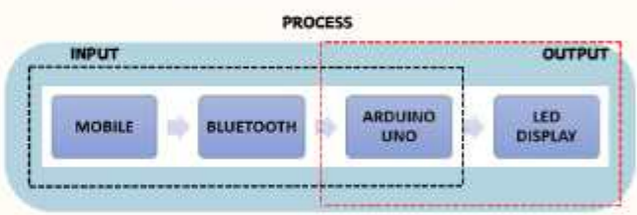
OBJECTIVE

1. To build a wireless connection between the mobile device and the Arduino Uno system. Bluetooth serves as the communication medium that transfers data from the mobile device to the main controller (Arduino Uno), ensuring fast and stable communication.

2. To develop a program of microcontrollers (Arduino Uno) that will be able to handle the processes of data and controls the digital notice board's display based on the input received.

3. To construct the digital notice board acts as the primary medium to show information to the public or other users at the designated location.

METHODOLOGY



INOVATION HIGHLIGHT

- Wireless Connectivity;By utilizing the HC-05 Bluetooth module, the system offers an intuitive, user-friendly interface for updating the notice board. Authorized users can pair their devices with the notice board and send commands to update the display.
- Environmentally Friendly; By reducing the need for paper-based communication, the Bluetooth Wireless Notice Board promotes an eco-friendly approach to information sharing.

COMMERCIAL VALUE

- Cost-Effective Production:

The use of widely available, affordable components such as the Arduino Uno, HC-05 Bluetooth module, and LED panels makes this project inexpensive to produce.

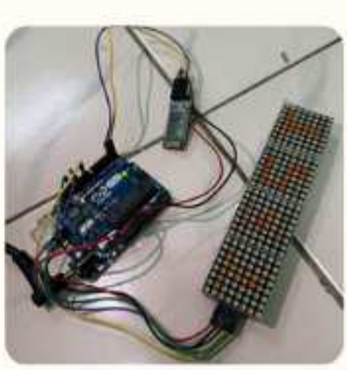
- Real-Time Information Sharing:

The real-time capability of this notice board adds immense value for businesses or institutions that rely on timely communication.

CONCLUSION

In conclusion, this Bluetooth-controlled digital notice board offers a low-cost, efficient solution for wireless message display. By using Bluetooth or Wi-Fi, it eliminates the need for physical connections, making it practical for schools, offices, and homes. It enables real-time information sharing, replacing traditional notice boards with faster, more flexible modern technology, adapting seamlessly to the digital era's demands for quick and effective communication.

DIAGRAM



POLITEKNIK MALAYSIA PORT DICKSON

POLYTECHNIC PORT DICKSON
PRODUCT ID : 3040
PRODUCT NAME : GAS LEAKAGE DETECTOR SYSTEM

SUPERVISOR : PUAN NUR SUHANA BINTI SUHADI
MUHAMMAD HAIZAT HAFIZY BIN AHMAD FAUZI (06DEP22F1006)
AMIRUL ASHRAF BIN KHIR-AMIR (06DEP22F1001)

BACKGROUND

The Gas Leakage Detection System with IoT enhances safety in gas storage facilities by detecting leaks early. It uses an MQ2 sensor to automatically activate an exhaust fan when gas is detected, minimizing risks for employees. Integrated with an ESP32 microcontroller and a GSM module (SIM800L), the system allows for remote monitoring and instant alerts via the Blynk app. Key components include a buzzer, relay module, and a 12V exhaust fan, all powered by a 12V 2A adapter. This automated solution alleviates employer concerns and lets staff focus on their work safely.

PROBLEM STATEMENT

Gas leakage incidents in storage facilities pose significant risks to both employees and property. In such situations, immediate detection and response are crucial to prevent accidents and ensure safety. Unfortunately, delays in identifying leaks can lead to dangerous outcomes. To address this issue, a gas leakage detector system with IoT has been developed to streamline the detection process. This system enhances safety by providing real-time alerts, allowing for quicker response times and minimizing the risk of harm to workers and the facility.

OBJECTIVES

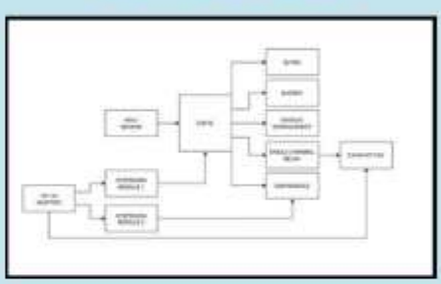
-To develop a gas leak detector with ESP32 to enhance workplace safety and design a gas detector for quick response to gas leaks.

-To monitor gas levels via the Blynk app and receive alerts through a GSM module SIM800L when gas is detected, enhancing safety in gas storage.

-To build a system that activates an exhaust fan when gas is detected, ensuring immediate ventilation.

-To monitor a detecting gas leak and send instant notifications to users via the Telegram platform

METHODOLOGY



INOVATION HIGHLIGHT

Real-Time Monitoring: The system continuously monitors gas levels using the MQ2 sensor, ensuring immediate detection of leaks and potential hazards.

Smart Automation: The exhaust fan, controlled by a relay module, automatically activates in response to detected gas leaks, effectively reducing risks and improving safety.

User-Friendly Interface: The Blynk application provides an intuitive interface for users to monitor gas levels, receive alerts, and control system components easily.

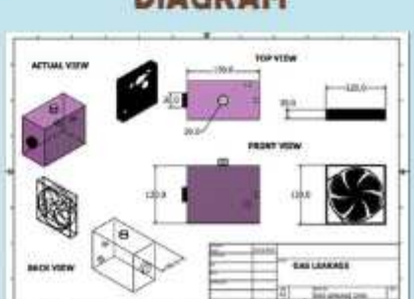
COMMERCIAL VALUE

Increased Safety and Reduced Risk : The main commercial value of this system lies in its ability to improve workplace safety by automatically detecting gas leaks and activating exhaust fans. This reduces the risk of accidents that can happen to workers and equipment.
Increased Employee Confidence and Morale : Knowing that the system automatically detects gas leaks and initiates safety measures gives workers the peace of mind to work with more focus. This can increase job satisfaction, reduce absenteeism, and improve employee retention, which ultimately benefits company productivity.

CONCLUSION

In conclusion, the IoT gas leakage detection system for gas storage facilities enhances safety by using Blynk, ESP32, MQ2 sensor, GSM module (SIM800L), and other components. It provides real-time monitoring of gas levels, sending alerts to smartphones via the Blynk app. The ESP32 allows for easy integration of additional sensors, while the MQ2 sensor detects leaks accurately. The relay module activates an exhaust fan automatically, and a buzzer provides an audible alert. This DIY-friendly solution enables customization to meet specific safety needs, protecting both property and occupants.

DIAGRAM



POLITEKNIK MALAYSIA PORT DICKSON

POLYTECHNIC PORT DICKSON
PRODUCT ID : 2004
PRODUCT NAME : CHILD MONITORING WITH IOT

SUPERVISOR : PUAN NUR SUHANA BINTI SUHADI
TUAN NURALYA SYAMIMI BINTI TUAN ZUZAIDI (08DEP22F1007)
NUR ELLYANA BINTI ANUAR (08DEP22F1028)

BACKGROUND

The project name is "Children Monitoring with IOT". This project was design for parents to monitor their children. It be a great advantage to parents and children. This project also show the longitude and the latitude where is the children.This project was design by using TTGO LILYGO ESP32 microcontroller, GPS module, OLED, Li-Po battery, switch, and piezo buzzer.

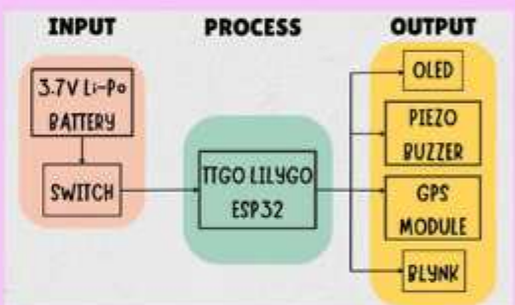
PROBLEM STATEMENT

Nowadays, many cases involve missing children in shopping mall. Because of that, it will be a problem for the parents because of the lost of a children. Parents need to go security counter to find their children. That cause a waste of energy and time. So, a project was created that will make the process easier.

OBJECTIVES

i) To set up a GPS module that can detect the latitude and logitude of the children from their parents.
ii. To develop a program of TTGO ESP32 microcontroller.
iii. To monitor the distance limit of children from their parents using GPS module and buzzer.
iv. To measure the distance of children from their parents using GPS module.

METHODOLOGY



INNOVATION HIGHLIGHT

Real Time Location Tracking :
The system tracks 10 meter distance the child's exact location using GPS module by showing longlitude and latitude.

Portable Design:
Designed by 3D printing and powered by a Li-Po battery, making it easy for children to wear or carry around.

COMMERCIAL VALUE

Real-Time Monitoring Convenience:
Using IoT technology, parents can get immediate updates about their child's location by Blynk App.

Cost-Effective Design:
Using components like an OLED display and ESP32 microcontroller makes this project advanced yet affordable. By optimizing production, the product can be sold at a competitive price.

DIAGRAM

TOP VIEW SIDE VIEW

CONCLUSION

In conclusion, the purpose of this project is to help parents monitor their children in shopping malls, especially in public places. To do this, we will create a child safety system using IoT technology. The input is TTGO LILYGO ESP32, which will program a GPS module to detect the distance of the child. If the child goes too far away, a buzzer will sound to alert them. This way, parents will be notified immediately if their child goes missing. By providing this child monitoring system, parents can have peace of mind and will be warned if their children are unattended. It will also improve child safety in public places to address concerns about children's safety.

POLITEKNIK PORT DICKSON
PRODUCT ID: 1665

THE HOME HEAT ABSORBER SYSYTEM

MIRUNALINI A/P SACHITHANANDAN (06DEP22F1029)
FLORENCE A/P PALANIAPPAN (06DEP21F2002)

SUPERVISOR ;
PN. NUR SUHANA BINTI SUHADI

BACKGROUND

In modern homes, excess heat can lead to discomfort, energy inefficiency, and increased cooling costs. The Smart Home Heat Absorber IoT system addresses these issues by utilizing a combination of sensors and fans to monitor and regulate indoor temperatures. This system, based on the ESP32 microcontroller, allows homeowners to control their home's temperature remotely using the Blynk app. With the integration of the DHT11 sensor, the system detects when the temperature surpasses a predefined limit, automatically triggering the activation of fans and exhaust systems to efficiently absorb excess heat and maintain a comfortable living environment. The project aims to enhance energy efficiency, reduce cooling costs, and provide a convenient solution for homeowners to monitor their home's temperature from anywhere.

PROBLEM STATEMENT

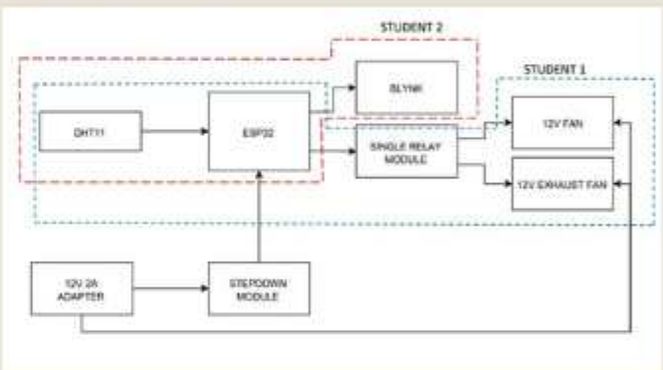
During summer, residents often experience discomfort upon entering their homes due to poor ventilation and heat buildup. This project provides a solution by using a heat sensor connected to a microcontroller, which automatically activates an exhaust system to remove excess heat before the residents arrive. The integrated IoT system, linked to the Blynk app, allows real-time monitoring and control of home temperatures via smartphones, build up comfort, convenience, and contributing to a more energy-efficient and sustainable living environment.

OBJECTIVES

Student 1(Mirunalini)- Hardware:
1) To build the DHT11 to detect the heat wave level of the resident's home
2) To develop the relay system to activate the 12V fan, along with the 12V exhaust fan

Student 2 (Florence)- Software:
1) To develop the output data displayed which connected to the ESP 32
2) To monitor and set the heat limit for the home using the Blynk App

METHODOLOGY



INNOVATION HIGHLIGHT

The Smart Home Heat Absorber IoT system offers an innovative solution for energy-efficient temperature control, using the ESP32 microcontroller and DHT11 sensor to automatically monitor and regulate indoor heat. Through integration with the Blynk app, users can remotely track real-time temperature data and control the system, ensuring optimal comfort and reducing energy consumption. This system not only provides automated heat absorption with the activation of fans when necessary but also allows for manual intervention, making it both smart and user-friendly. Its low-cost components, ease of installation, and scalability make it an accessible and sustainable choice for any home.

COMMERCIAL VALUE

The Smart Home Heat Absorber IoT system offers commercial value by reducing energy costs and enhancing home comfort. Its easy installation, remote control via the Blynk app, and energy efficiency make it a highly attractive product for the growing smart home market, offering opportunities for widespread adoption and partnerships with smart home and HVAC companies.

CONCLUSION

The Smart Home Heat Absorber IoT system is an innovative solution for smart homes, offering energy- efficient temperature control and remote monitoring. Using the ESP32 microcontroller, DHT11 sensor, and Blynk app, it provides a cost-effective way to manage indoor heat and reduce air conditioning use. Its modular design allows for easy adaptation to various home sizes and conditions, making it a versatile, scalable option for modern energy-conscious homes.

DIAGRAM

POLITEKNIK MALAYSIA
PORT DICKSON

INVENTOR: FATIN NAZIHAH BINTI MOHAMAD HARIS

SUPERVISOR: DR NORHANANI BINTI ABD. RAHMAN

FEMININE URINARY TRACT SYSTEM FOR DISABLED PATIENTS

BACKGROUND

- Prolonged diaper use among disabled women often leads to discomfort, skin irritation, and dependence on caregivers for hygiene.
- Limited mobility makes independent hygiene management difficult, causing emotional distress and decreased mental well-being.
- This project aims to create a hands-free, automated urinary cleansing system to address these challenges.
- The system features water-based cleansing with a physical switch, promoting independence and reducing caregiver involvement.
- Designed for ease of use and portability, it offers a hygienic alternative to manual cleaning while minimizing environmental impact and preventing infections.

PROBLEM STATEMENT

1. Discomfort and Skin Issues: Disabled women who rely on diapers often experience discomfort, skin irritation, and inflammation due to trapped moisture

2. Limited Mobility: Their limited mobility hinders independent management of hygiene, increasing dependence on caregivers.

3. Impact on Mental Well-Being: The compounded issues negatively impact their overall mental well-being, making it crucial to address these challenges for empowerment and improved quality of life.

COMMERCIAL VALUE

1. Affordable Solution: Priced at RM 500 – RM 800, making it accessible for healthcare providers and home users.

2. Cost-Saving Benefits: Reduces long-term expenses on diapers and infection treatments.

3. Market Demand: High potential in elderly care and hygiene industries, addressing unmet needs for disabled and elderly women.

OBJECTIVES

- To create a hands-free device for maintaining urinary hygiene after urination process
- To develop an automated system for intimate hygiene that provides cleansing function which controlled by a physical switch button

INNOVATION HIGHLIGHT

- User-Friendly Design: Tailored for individuals with limited dexterity, ensuring ease of use and comfort.
- Portability: Designed for portability, enabling hygiene maintenance in various settings, whether at home or on the go
- Eco-Friendly Focus: Prioritizes the reduction of disposable products, promoting an eco-friendly lifestyle.

METHODOLOGY

BLOCK DIAGRAM

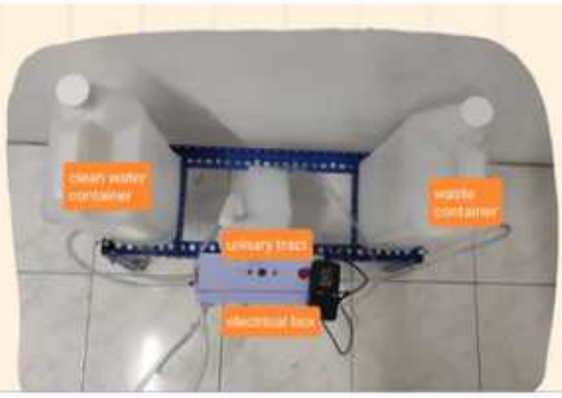
Operation :

- Momentary Button acts as the input to initiate the washing process by sending a signal to the Arduino Uno
- Arduino Uno gives the signal from the momentary button and sends commands to the relay to control the pumps
- Relay acts as a switch, activating thie appropriate water pumps for the different stages (inlet, washing, and outlet).
- Water Pumps (In/Out and Washing) handles the opening and closing of the inlet valve for water intake and drainage.
- Adapter 12V powers the Arduino and pumps to ensure smooth operation.

INPUT
PROCESS
OUTPUT

CONCLUSION

- The automated urinary cleansing system enhances hygiene management for disabled and elderly women.
- It promotes independence and comfort.
- Its eco-friendly design prevents diaper rash and reduces infection risks.
- With strong commercial potential, this product is set to make a meaningful impact in the hygiene industry



POLITEKNIK PORT DICKSON
PRODUCT ID:1651
PRODUCT NAME:AQUAFLORA HYDROPONICS SYSTEM

SUPERVISOR:
TS. DR. NORHANANI BT ABD RAHMAN

TEAM MEMBER:
TOH YEW HUR
(06DEP22F1025),

TEAM MEMBER:
CHANG YAN WEI
(06DEP22F1014

1 Backgound

The AquaFlora Hydroponics System is a modern farming solution that lets plants grow without soil. It uses hydroponic technology and includes important parts like a water pump, an LCD I2C display, a moisture sensor, a DHT11 temperature and humidity sensor, and an ESP32 microcontroller for easy monitoring and control. This new method aims to enhance plant growth while saving resources.

2 Problem Statement

Traditional farming has many problems, such as water shortages, poor soil quality, and the use of chemical pesticides. These issues make it hard to produce enough food sustainably. Hydroponics can help by using up to 90% less water than regular farming and eliminating the need for soil.

3 Objectives

Student 1: a) To develop a system for monitoring hydroponic parameters using a moisture sensor and an LCD display integrated with Wi-Fi technology. b) To analyze the performance of remote monitoring and control of the hydroponic system. Student 2: a) To design the AquaFlora Hydroponics system for automated water pumping using a moisture sensor-based control mechanism. b) To analyze the performance of the moisture- sensor-based water pumping system.

4 Methodology

- The moisture sensor monitors soil moisture, with 73% and above considered "dry" (where 0% is wet and 100% is dry).
- When moisture levels exceed 73%, the water pump is activated; when levels drop below 73%, the pump is deactivated.
- The DHT11 sensor measures the temperature within the hydroponic environment.
- Sensor readings are displayed on the LCD for local monitoring.
- The system uses an ESP32 microcontroller to connect to a Wi-Fi network, enabling remote control and monitoring of the system through the IoT platform.
- The Blynk app is used for real-time monitoring and control of the system from a mobile device.
- Data such as soil moisture and temperature are sent to the cloud for real-time monitoring via Blynk.

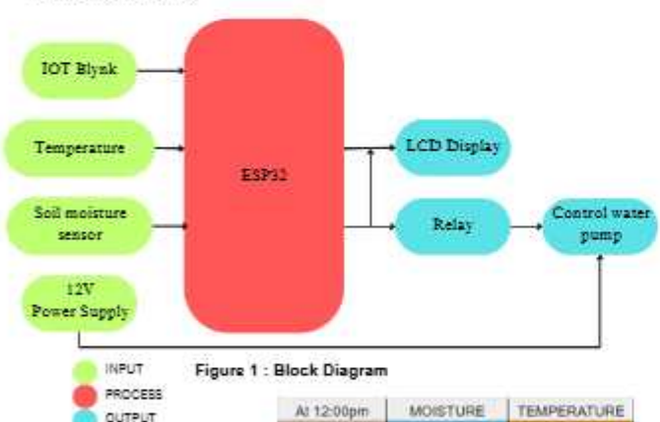


Figure 1 : Block Diagram

At 12:00pm	MOISTURE	TEMPERATURE
DAY 1	50	32
DAY 2	45	31
DAY 3	48	31
DAY 4	63	33
DAY 5	33	30

Table 1 : Analysis of Moisture and Temperature Data

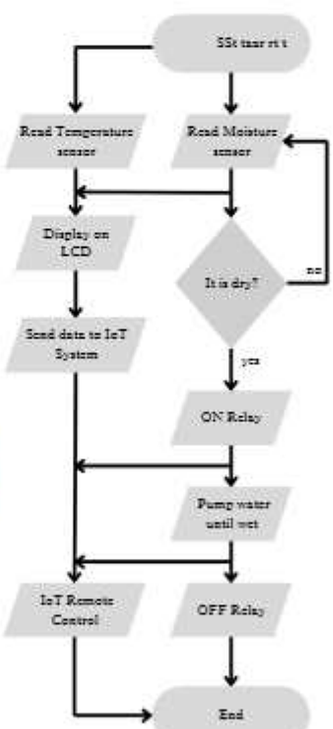


Figure 2 : Flowchart

5 Innovation Highlights

- IoT-Enabled Monitoring: Real-time access to moisture and environmental parameters via smartphone. Automated Water Pumping: Pump activation occurs only when the moisture sensor detects dryness, ensuring water efficiency. User-Friendly LCD Display: Integrated LCDI2C shows real-time system status. Environmental Control: DHT11 sensor monitors
- temperature and humidity for optimal plant conditions.

6 Commercial Values

- Product Costing: The AquaFlora Hydroponics System costs RM200.00, covering all essential components. Market
- Survey: A survey in the Port Dickson area indicated interest from around 450 households, highlighting a demand for indoor gardening solutions. Target Audience: Ideal
- for housewives and apartment dwellers, the system enables indoor gardening in limited spaces.

7 Conclusion

The AquaFlora Hydroponics System presents a viable solution to modern agricultural challenges. By integrating IoT technology with hydroponic practices, it promises enhanced crop yields, efficient resource use, and a sustainable approach to food production.

8 Diagram AQUAFLORA HYDROPONICS SYSTEM

Figure 3 : AQUAFLORA HYDROPONICS SYSTEM

AUTISM RELAXATION TOY

POLITEKNIK MALAYSIA PORT DICKSON

TEAM MEMBERS
Khaireen Afiq Bin Khairuddin - 06DEP22F1022
Muhammad Syahrul Nizam Bin Sharun - 06DEP22F1030
SV - Ts. Dr. Norhanani Binti Abd Rahman.

Background

- The Autism Relaxation Toy is designed to help individuals with Autism Spectrum Disorder (ASD) manage breakdowns and promote calmness.
- Breakdowns often occur due to overstimulation from environmental factors such as loud noises, bright lights, or crowded spaces.
- The Autism Relaxation Toy combines calming sensory stimuli and interactive gameplay to create a therapeutic experience

Objectives

Student 1:

- To design a system that activates three outputs of light, speaker, and toy movements based on color sensor detection.
- To monitor and analyze the behavior of autistic children engaging in enjoyable activities using autism relaxation toys.

Student 2:

- •To develop a mechanism that accurately controls and guides the ball's movement back to the starting line.
- •To analyze the presence of ball, and trajectory from the end position to its return to the starting line.

Problem Statement

- Lack of effective tools for managing stress and anxiety in autistic individuals : Many autistic individuals struggle to cope with overwhelming situations, which can lead to self-harm or withdrawal
- •Limited accessibility of support for autistic individuals : The availability of specialized support for autistic individuals, particularly in non-institutional settings like homes, is often insufficient.

Conclusion

- Lack of effective tools for managing stress and anxiety in autistic individuals : Many autistic individuals struggle to cope with overwhelming situations, which can lead to self-harm or withdrawal
- •Limited accessibility of support for autistic individuals : The availability of specialized support for autistic individuals, particularly in non-institutional settings like homes, is often insufficient.

Commercial Value

- Product Cost : RM450
- Potential costumers : parents, caretakers, autism clinics/day care.
- Market survey: approximately 1 in 100 children in the world are born with autism as (Source: World Health Org Autism Ariticle)

Innovation highlights

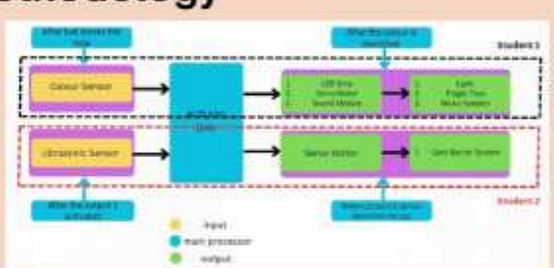
Personalized Sensory Stimulation:

- Tailored to individual needs and preferences through customizable settings for light intensity, sound volume, and toy rotation speed.
- Offers a personalized and effective calming experience for each user.

Social Impact:

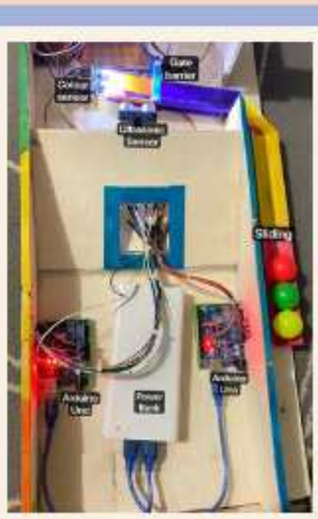
- Addresses a significant need for individuals with ASD and their families by providing a valuable tool for managing symptoms and improving quality of life.
- Contributes to a more inclusive and supportive society.

Methodology



Operation :

- Ball Selection: The user selects one of the three colored balls (red, green, or yellow) to initiate the corresponding sensory output.
- Sensory Output:
  - Red Ball: Activates the LED lights, emitting a soft, calming glow.
  - Green Ball: Initiates the spinning toys, providing gentle tactile stimulation.
  - Yellow Ball: Plays soothing music or sounds, creating a relaxing auditory environment.
- Gate Barrier: When the ultrasonic sensors detects the scored ball, there will be a 5 seconds delay before the gate barrier activates. Sending the ball to slide.



Politeknik Port Dickoson
Produck ID :3036

Product Name: Automated IoT Solution for Plant Health

Hoo Teck Guan (F1017), Lim Zing Tou (F1027)
Penyelia: Puan Alizawati Binti Mat Zim

1 Background

Many people love gardening but struggle to care for their plants due to busy lives. Plants need proper water, light, and temperature to thrive, which can be hard to manage. To help, we created a smart plant care system that automatically waters plants, turns on lights, and checks soil moisture and temperature. This makes it easy for anyone to keep their plants healthy, even with a busy schedule.

2 Problem Satement

Inconsistent watering and inadequate light are common challenges for plant owners, often leading to unhealthy plants. Busy schedules make it easy to forget watering or neglect monitoring crucial conditions like soil moisture and temperature. This lack of consistent care leaves plants vulnerable, highlighting the need for an automated system to ensure proper care and promote healthy growth.

3 Objective

- To check the situation by using phone application
- To automatically control plant light for optimal plant growth by using timer
- To observe the condition around the plant by using soil moisture sensor and temperature sensor
- To automate plant watering by using water pump

4 Methodology

To develop an automated plant care system, we'll design an architecture using sensors and actuators controlled by an ESP32 microcontroller. A soil moisture sensor will trigger a water pump when needed, and a temperature sensor will track conditions. Plant lights will operate on a predefined schedule. Software will process sensor data and control the actuators. Testing and adjustments will ensure optimal performance and reliability.

5 Innovation Highlights

An automated plant care system handles watering, provides smart lighting for optimal growth, and monitors soil moisture and temperature. It ensures plants get the right care without human input, while sending alerts if conditions need adjustments.

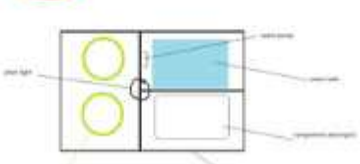
6 Commercial Values

A smart plant care system is ideal for busy individuals, offering automated watering, lighting, and nutrient delivery to ensure optimal plant conditions. It promotes healthier growth and vibrant blooms, providing peace of mind to plant owners with hectic schedules or limited gardening knowledge. As indoor gardening grows in popularity, this convenient and efficient solution appeals to both seasoned gardeners and novices, making it a valuable addition to any home.

7 Conclusion

In conclusion, the automated plant care system effectively addresses the need for consistent and reliable plant maintenance by integrating sensors and actuators to monitor and control soil moisture, temperature, and lighting. By utilizing microcontroller-based automation, the system ensures that plants receive optimal care with minimal human intervention, leading to healthier plant growth and reduced resource wastage. The successful testing and optimization of the system demonstrate its potential for use in small-scale gardening and agricultural applications, offering a practical and efficient solution for plant care.

8 Diagram/ Picture



POLITEKNIK MALAYSIA PORT DICKSON

INSTITUTION NAME: POLITEKNIK PORT DICKSON
PRODUCT ID: 3037
PRODUCT NAME: SMART ANTI-THEFT SYSTEM FOR HOME USING IOT

TEAM MEMBER:
1) SARVINNASH A/L MATHAVAN (06DEP22F1010)
2) ALEEYA NATASHA AZMAN (06DEP22F1020)

SUPERVISOR:
PN ALIZAWATI BINTI MAT ZIM

BACKGROUND

The difficulties of maintaining home security changed along with urban living. Many homeowners felt insecure as a result of rising crime rates, especially in locations with high population density. The intended peace of mind was not achieved by traditional security systems, which were frequently expensive and inconvenient. To help, we created a Smart Anti-Theft System using IoT provides a complete solution to home security from combining many technologies for effective detection and response. These systems will grow in intelligence as technology develops, giving homeowners peace of mind.

OBJECTIVES

•~ To develop compliance with relevant regulations and standards governing security systems to meet legal requirements and protect user privacy. ~ To monitor remote access and control of the system through mobile apps or web interfaces to check the status of assets and receive alerts from anywhere. ~ To build customers with a reliable, effective, and user-friendly anti- theft system that meets their security needs and provides peace of mind.

INNOVATION HIGHLIGHT

- Double Image Capture: Instead of just sending a single image, it takes two (one normal and one with flash) for better identification of intruders. - Two Sensors: The combination of a motion sensor and a door sensor helps cover more areas, increasing the chances of detecting a break-in. - Easy Alerts: Using a Telegram bot means people get alerts directly on their phones without needing to install any special apps.

CONCLUSION

Overall, there has been a advancement in home security with the use of IoT technology in Smart Anti Theft System For Home. This system gives homeowners peace of mind by combining sensors, cameras, and smart devices to provide a real time monitoring alerts. This application improves every users engagement and response time in the event of security breaking by providing a simple access and control . And also offers a practical, friendly budget solution for enhancing home safety and security.

PROBLEM STATEMENT

Mostly every people worry about home break ins and existing security system are often too expensive or don't alert fast enough. So for that a simple and affordable system is needed to able to detect the intruder. Alert the homeowner immediately and notify the proof like message and pictures.

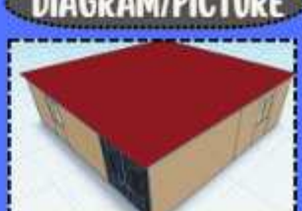
METHODOLOGY

This project uses both hardware and software to create a smart home security system. The hardware consists of an ESP32-CAM for taking pictures, a motion sensor to detect movement, and a magnetic door sensor to detect if a door is opened. Additionally, a buzzer are included to alert anyone nearby if an intruder is detected. The software is programmed so that when the motion sensor or door sensor is triggered, the ESP32-CAM takes pictures. These images are then sent directly to the homeowner via a Telegram bot, along with an alert message.

COMMERCIAL VALUE

- Affordable: The system uses inexpensive parts, so it's budget-friendly for most people.
- Easy to Expand: The system can be upgraded with more sensors or cameras if needed. - Convenient: Since alerts are sent through Telegram, it's very user- friendly and easy to set up. - Added Safety: The buzzer and flash can also act as deterrents to scare off intruders, adding an extra layer of security.

DIAGRAM/PICTURE



POLITEKNIK PORT DICKSON
PRODUCT ID : 3058
SUPER AUTOMATIC CAT LITTER BOX

TEAM MEMBERS

MUHAMMAD FARISH DANISH BIN MOHD FAIZAL
HAIKAL AKMAL BIN KAMARUZAMAN

SUPERVISOR

PUAN ALIZAWATI BINTI MAT ZIM

Background

Automatic Cleaning: The litter box uses IoT for self-cleaning, keeping the area tidy without manual effort.
Remote Access: Owners can control and monitor the box via smartphones or computers, ideal for those frequently away.

Problem Statement

1. Difficult Cleaning: Litter box cleaning is unpleasant and requires frequent attention to prevent mess.
2. Health Concern: A dirty box leads to odors and potential health risks for pets and owners.
3. Impact on Cats: A dirty box can stress cats, making them avoid it and causing problems for owners.

COMMERSIAL VALUE

1. Affordable: The multi-feature cat litter box costs RM300 and has features like Blynk Apps and IoT.
2. Easy to Clean: It includes a removable filter for quick cleaning
3. Odor Control: A built-in air freshener keeps the litter box clean and minimizes bad smells, enhancing user experience.

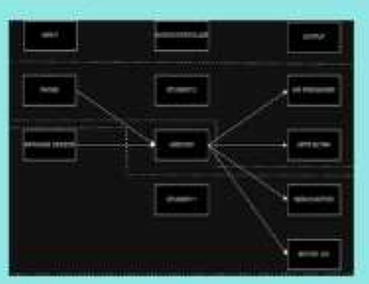
Innovation Highlights

1. Power Window Motor: Enables automatic self-cleaning for busy cat owners.
2. Servo Motor Air Freshener: Reduces odors and bacteria, keeping the area clean.
3. IoT Smart System: Allows remote monitoring and control, promoting eco-friendly litter use.

OBJECTIVES

- Design an IoT-enabled automatic cat litter box that efficiently disposes of waste.
- Design an IoT-enabled air freshener that dispenses scent at precise intervals to maintain freshness in the cat litter box, controlled manually by a button.

METHODOLOGY



Student 1 Responsibilities: Power Window Motor
- Test Arduino for sensor and motor control.
- Use infrared sensors to detect litter depletion; control via smartphone app.

*Student 2 Responsibilities: Automatic Air Freshener System
- Develop automatic air freshener function.
- Integrate with smartphone app (Bluetooth/Wi-Fi).
- Create Blynk apps with new features for easy control.

DIAGRAM / PICTURE

CONCLUSION

The Super Automatic Cat Litter Box project effectively addresses key concerns associated with manual litter box maintenance by integrating IoT technology, an automatic cleaning system, and air freshening features. By using a power window motor for self-cleaning and a servo motor for air freshening, the design ensures cleanliness, odor control, and convenience for cat owners. The IoT-enabled system allows remote monitoring and control, enhancing user experience and promoting hygiene. Additionally, its affordable cost and user-friendly features like Blynk apps make it accessible to a broader audience.

KOMPILASI POSTER
ESITEX
SESI I 2024/2025

PROGRAM DIPLOMA KEJURUTERAAN ELEKTRIK (TENAGA HIJAU) [DEG]

SENARAI PROJEK & PINGAT
ESITEX SESSION I 2024/2025

PROJEK DEG 5A

BIL.	NO PENDAFTARAN	NAMA PELAJAR	ID PROJEK	TAJUK PROJEK	PENYELIA	PINGAT
1	06DEG22F1028	AMELIYN BINTI HAZLI	1718	OFFGRID SOLAR PV TRAINER EDUKIT USING MPPT	AZRUL MUHAIRI BIN MOHD BADRI	GOLD
2	06DEG22F1008	NURUL SYAFIQAH AIYUNI BINTI SHAMSUDIN				
3	06DEG22F1040	NUR KHAIRUNNISA BINTI RUSLI				
4	06DEG22F1002	MUHAMMAD ARIF FIKRI BIN NORIZAN	1687	SOLAR RABBIT HATCHES		BRONZE
5	06DEG22F1014	MUHAMMAD FARHAN BIN ILIAS				
6	06DEG22F1022	MUHAMMAD NAQIB BIN MOHD LIZAM	1688	WIND TURBINE TRAINER		GOLD
7	06DEG22F1018	MUHAMAD RASHID BIN MOHD NASIR				
8	06DEG22F1016	AZIZUL HAKIM BIN JAINUDDIN	1720	SunCart MOVER	NOOR ASILAH BINTI YAACOB	GOLD
9	06DEG22F1038	ADAM SYAKIR BIN SHOFIAN				
10	06DEG22F1012	LUQMAN NOR HAKIM BIN ABDUL SALAM	1726	VERTICAL AQUAPONIC WITH WATER MONITORING SYSTEM		BRONZE
11	06DEG22F1020	MIR MUHAMMAD AFIQ AIMAN BIN KHAIRUL AZLAN				
12	06DEG22F1006	IMRAN GHAZI BIN SOHAIMI	1740	SEMI-AUTOMATED SOLAR PANEL CLEANING AND COOLING SYSTEM		NONE
13	06DEG22F1026	NABHAN SYAQEEL BIN NOR RIZAM				
14	06DEG22F1004	MORA BONGSU BIN ABD RAHMAN	1741	SOLAR NOMAD POWER HUB	NORLIE YUZZANA BT IBRAHIM	SILVER
15	06DEG22F1033	NIK MUHAMMAD HAFIQ DANIEL BIN NIK ROSLI				
16	06DEG22F1031	MUHAMAD AIZAT BIN MOHD NASIR	1683	HYBRID SOLAR AEROPONIC & AQUAPONIC (HSAA)		BRONZE
17	06DEG22F1036	JEFFRIE SOO BIN MATIN SOO TECK GUAN				
18	06DEG22F1024	MOHAMMAD KHAIRUL AMIN BIN JAMSARI	1697	CHICK HATCH INCUBATOR		BRONZE
19	06DEG21F2013	AHMAD SUFI RAMADHAN BIN MOHD ZULKARNAIN				

INSTITUTION NAME : POLITEKNIK PORT DICKSON
PRODUCT ID : 1718
PRODUCT NAME : OFF GRID SOLAR PV TRAINER EDUKIT USING MPPT

TEAM MEMBER :
AMELIYN BINTI HAZLI 06DEG22F1028
NUR KHAIRUNNISA BINTI RUSLI 06DEG22F1040
NURUL SYAFIQAH AIYUNI BINTI SHAMSUDIN 06DEG22F1008

SUPERVISOR : TUAN AZRUL MUHAIRI BIN MOHD BADRI

BACKGROUND

Practical work in the subject DET50093 has a learning subtopic related to solar. I found that the edukit trainers that have been available are less efficient and the usage period will be disposed of later because of the long lifespan,so I did research to overcome this problem by building a more innovative and user-friendly educational kit.

OBJECTIVE

I.To create an instructional kit capable of instructing Polythecnic students on the use of solar systems II.To build an offgrid solar system edukit trainer that has two types of wiring systems using Lifepo4 battery and Mppt charger controller III.To provide learning materials based on labelling and connection.

INNOVATION HIGHLIGHT

- MPPT for optimal power effciency
- Battery integration for storage
- Focus on renewable energy
- DC and AC power output
- Built-in safety features
- Comprehensive solar PV education
- Modular components for flexible use

COMMERCIAL VALUE

cable tray as cable path
solar panel can be changed multiple angles
MC4 Connector installation
The battery is maintained by the Battery Management System
Easy to understand edukit with manual book

CONCLUSION

This project provides users with advanced knowledge of single-phase and three-phase solar connections. Next, users can track key performance data, allowing a deeper understanding of system operation, easy to set up and transport, making it adaptable for a variety of learning environments. Also suitable ,for beginners and advanced students, accommodating different levels of education.

PROBLEM STATEMENT

The gap between theoretical knowledge and practical application in solar panel systems creates challenges for learners, leading to confusion about component connections and functions. Our advanced training platform offers a hands-on learning environment that allows students and professionals to engage directly with solar technology, enhancing their understanding and competence in designing and implementing solar PV systems.

METHODOLOGY

DIAGRAM/PICTURE

POLITEKNIK MALAYSIA
PORT DICKSON

INSTITUTION NAME : POLITEKNIK PORT DICKSON

PRODUCT ID : 1687
PRODUCT NAME : SOLAR RABBIT HACHTES
TEAM MEMBER :1)MUHAMMAD FARHAN BIN ILIAS
2)MUHAMMAD ARIF FIKRI BIN NORIZANMOHD BADRI
TEAM MEMBER : AZRUL MUHAIRI

01. BACKGROUND

In a world powered entirely by solar energy, "Solar Rabbit Hatches" are high-tech, self-sustaining pods designed to care for and shelter endangered rabbit species. These sleek, glass-topped hatches harness sunlight during the day to maintain an ideal habitat, providing warmth, light, and automated food dispensers. Nestled in a beautiful meadow surrounded by wildflowers and solar panels, the hatches are part of a futuristic sanctuary that preserves nature's delicate balance.

02. PROBLEM STATEMENT

- In this project, the identified issue revolves around ensuring a reliable and sustainable food supply for economically disadvantaged populations. The vision is to create a solution that uplifts communities by addressing their immediate needs and contributing to long-term self-sufficiency

03. OBJECTIVES

1. To engineer a solar power system that optimizes energy harvesting efficiency by utilizing solar power technologies and ensuring seamless integration with energy storage solutions, rabbit growth & optimizing the living conditions and growth environment for rabbits from infancy to adulthood.

04. METHODOLOGY

The methodology for the **Solar Rabbit Hatches** project involves designing solar-powered rabbit enclosures with integrated automated systems for cleaning and feeding. A prototype is developed to test the solar panels powering a water pump for cleaning and a remote-controlle feeding system. Performance tests are conducted to ensure efficiency and sustainability in various weather conditions. The system is optimized based on trial results, focusing on reducing manual labor and energy consumption while maintaining a healthy environment for the rabbits. Once validated, the design is scaled for larger installations in farms, shelters, or eco-tourism sites.

05. INNOVATION HIGHLIGHT

Our project features an eco-friendly, solar-powered water pump system that automatically cleans the rabbit hatches, maintaining a hygienic environment with minimal manual intervention. Additionally, the feeding system is automated and remotely controlled, allowing for precise and timely feeding from any location. These innovations reduce labor, improve efficiency, and ensure the rabbits' well-being while promoting sustainability.

06. COMMERCIAL VALUE

The **Solar Rabbit Hatches** project offers strong commercial value by reducing costs and increasing efficiency through automation and solar power. The automatic cleaning and remote-controlled feeding systems lower labor and operational expenses. Its eco-friendly design appeals to environmentally conscious buyers, making it ideal for farms, animal shelters, and eco-tourism businesses. This sustainable and low-maintenance solution is perfect for those looking to improve animal care while saving time and money.

07. CONCLUSION

In conclusion, the **Solar Rabbit Hatches** project provides an efficient and eco-friendly way to care for rabbits. Using solar power for cleaning and a remote-controlled feeding system, it reduces labor and supports sustainability. This project is a practical and cost-effective solution that benefits both animal care and the environment.

08. DIAGRAM/PICTURE

POLITEKNIK PORT DICKSON
PRODUCT ID: 1688
WIND TURBINE TRAINER

TEAM MEMBER:
MUHAMAD RASHID BIN MOHD NASIR(06DEG22F1018)
MUHAMMAD NAQIB BIN MOHD LIZAM (06DEG22F1022)

SUPERVISOR: ENCIK AZRUL MUHAIRI BIN MOHD BADRI

BACKGROUND

A wind turbine trainer should possess extensive knowledge of wind energy technology, including turbine mechanics, electrical systems, and energy conversion processes. Key areas of focus include aerodynamics, system efficiency, and maintenance practices. This expertise enables trainers to effectively instruct technicians on the operation and upkeep of wind turbines, fostering skill development in the renewable energy sector

OBJECTIVES

- To ensure the trainer wind turbine can generates enough energy to charge the user's battery.
- To enable the trainer to produce affordable electricity for the community and support learning.
- To observe an output from the generator that can be reasonable price,and only for knowledge purpose
- To create a simple wind turbine generator trainer that can easily to install.

INNOVATION HIGHLIGHT

A standout feature of my wind turbine trainer is the incorporation of wheels for effortless mobility, allowing for easy transportation and positioning during training sessions.

CONCLUSION

The wind turbine trainer program teaches how to measure voltage and current in wind turbines. It uses simple materials, so hands-on work isn't needed. Quizzes and feedback help you learn, making it a good option for anyone interested in renewable energy.

PROBLEM STATEMENT

The size of the wind turbine trainer significantly impacts its usability and effectiveness in training scenarios. Currently, there is uncertainty regarding how the dimensions of the trainer compare to those of my project, which may lead to challenges in integration and practical application. To optimize both designs, it is essential to evaluate the scale and spatial requirements of the wind turbine trainer relative to my project, ensuring that they can operate efficiently together in various training environments.

METHODOLOGY

To create a wind turbine trainer program focused on measuring voltage and current, define clear learning objectives related to electrical measurements. Develop a curriculum with theoretical lectures on key concepts and measurement techniques. Use multimedia presentations and simulations for demonstration. Include assessments to check understanding and offer certification upon completion. Finally, gather feedback to improve the program and provide additional learning resources.

COMMERCIAL VALUE

The wheel-based wind turbine trainer is a portable and engaging tool for hands-on learning about renewable energy. Its easy-to-move design allows students to set it up anywhere, making learning interactive and fun. By working with real turbine components, students gain practical skills and knowledge that prepare them for careers in the green energy field.

DIAGRAM/PICTURE

POLITEKNIK MALAYSIA
PORT DICKSON

SUNCART MOVER

PROJECT ID : 1720

STUDENT 1 : **AZIZUL HAKIM BIN JAINUDDIN (06DEG22F1016)**
STUDENT 2 : **ADAM SYAKIR BIN SHOFIAN (06DEG22F1038)**
SUPERVISOR : **PUAN NOOR ASILAH BIN YAACOB**

BACKGROUND

THE SUNCART MOVER PROJECT AIMS TO SIMPLIFY THE MOVEMENT OF HEAVY LOADS USING SOLAR POWER, REDUCING PHYSICAL STRAIN AND COSTS WHILE PROMOTING SUSTAINABILITY, ESPECIALLY ON CONSTRUCTION SITES AND FARMS. DESIGNED BASED ON RESEARCH, EXPERT FEEDBACK, AND USER NEEDS, IT WILL UNDERGO REAL-WORLD TESTING TO ENSURE OPTIMAL PERFORMANCE.

OBJECTIVES

- TO BUILD SUNCART MOVER USING SOLAR PV SYSTEM ACCORDING TO THE 24V 250W DC MOTOR.
- TO ENHANCE THE PERFORMANCE OF SUNCART MOVER USING AC MAIN CHARGER TO THE BATTERY.
- TO BUILD AN ELECTRONIC WEIGHING MACHINE WITH THE ARDUINO USING A LOAD CELL FOR SUNCART MOVER.
- TO MEASURE THE MAXIMUM WEIGHT THAT THE SUNCART MOVER CAN CARRY BY WARNING THE USER THROUGH A BUZZER AND DISPLAY UNIT.

PROBLEM STATEMENT

TRADITIONAL WHEELBARROWS OFTEN POSE SIGNIFICANT CHALLENGES IN ENVIRONMENTS WITH FREQUENT HEAVY LOADS, SUCH AS CONSTRUCTION SITES AND FARMS. THESE CHALLENGES INCLUDE:

- PHYSICAL STRAIN AND FATIGUE FROM MANUAL LABOR.
- LIMITED LOAD CAPACITY AND EFFICIENCY.
- ENVIRONMENTAL CONCERNS RELATED TO RELIANCE ON FOSSIL FUELS FOR MOTORIZED ALTERNATIVES

METHODOLOGY

INNOVATION HIGHLIGHT

- THE SUNCART MOVER FEATURES A DC MOTOR POWERED BY SOLAR PANELS, ALLOWING FOR EFFORTLESS TRANSPORTATION OF HEAVY LOADS WITHOUT MANUAL EFFORT.
- THE INTEGRATED WEIGHT SENSOR MONITORS THE LOAD IN REAL-TIME, PREVENTING OVERLOAD AND ENHANCING SAFETY DURING OPERATION.
- UTILIZING SOLAR ENERGY NOT ONLY MAKES THE SUNCART MOVER SUSTAINABLE BUT ALSO MINIMIZES RELIANCE ON FUEL, CONTRIBUTING TO A CLEANER ENVIRONMENT.
- IDEAL FOR AGRICULTURAL, CONSTRUCTION, AND COMMUNITY USE, THIS INNOVATIVE SOLUTION ADDRESSES THE NEEDS OF DIVERSE USERS WHILE IMPROVING EFFICIENCY.

CONCLUSION

SUNCART MOVER IS AN INNOVATIVE SOLUTION FOR TRANSPORTING HEAVY LOADS, MEETING THE NEEDS OF AGRICULTURAL WORKERS, DISABLED INDIVIDUALS, AND CONSTRUCTION WORKERS. WITH ITS USE OF SOLAR POWER, COMFORTABLE DESIGN, AND SAFETY FEATURES LIKE A WEIGHT SENSOR, THIS MODIFIED WHEELBARROW IMPROVES EFFICIENCY AND COMFORT WHILE BEING ENVIRONMENTALLY FRIENDLY. ITS STRONG COMMERCIAL VALUE AND VERSATILITY MAKE THE SUNCART MOVER A GREAT TOOL FOR BOOSTING PRODUCTIVITY AND ACCESSIBILITY IN EVERYDAY TASK.

COMMERCIAL VALUE

THE SUNCART MOVER OFFERS SIGNIFICANT COMMERCIAL VALUE BY ENHANCING PRODUCTIVITY FOR AGRICULTURAL WORKERS AND PROVIDING A USER-FRIENDLY SOLUTION FOR DISABLED INDIVIDUALS. IT SERVES AS A COST-EFFECTIVE ALTERNATIVE FOR THE CONSTRUCTION INDUSTRY, REDUCING OPERATIONAL AND MAINTENANCE EXPENSES WHILE PROMOTING ECO-FRIENDLINESS THROUGH SOLAR POWER. ITS VERSATILITY ALSO CREATES OPPORTUNITIES FOR PARTNERSHIPS WITH GOVERNMENTS AND NGOS, MAKING IT APPEALING ACROSS VARIOUS SECTORS AND POSITIONING IT FOR STRONG MARKET DEMAND

POLITEKNIK PORT DICKSON

PRODUCT ID:1726

VERTICAL AQUAPONIC WITH WATER MONITORING SYSTEM

TEAM MEMBER :
LUQMAN NOR HAKIM BIN ABDUL SALAM
06DEG22F1012
MIR MUHAMMAD AFIQ AIMAN BIN KHAIRUL AZLAN
O6DEG22F1020

SUPERVISOR:
PN. NOOR ASILAH BINTI YAACOB

01.BACKGROUND

Vertical aquaponics with water monitoring system combines fish farming and plant growth in a sustainable, space-efficient system powered by solar PV hybrid with traditional power. Fish waste feeds the plants, which in turn purify the water. This method uses minimal water, no chemicals, and works well for urban areas with limited space. Monitoring factors like pH, temperature, and water levels ensures a healthy environment for both fish and plants, making this approach suitable for urban agriculture.

02.PROBLEM STATEMENT

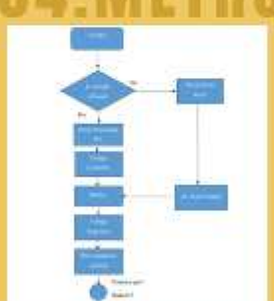
Traditional farming and fish farming is a space intensive and water consuming, making it less suitable for urban areas. Others problem also conclude:

- High setup costs for traditional farming and aquaculture
- Limited access to fresh, organic produce in urban areas forces residents rely on mass-produced food
- Water scarcity and environmental degradation in traditional farming and fish farming.

03.OBJECTIVES

1. To develop an aquaponic system using hybrid switching power supply that allows operation dependent on the grid or solar PV.
2. To construct a small scale aquaponic system using vertical recirculating hydroponic tower system that allows constantly cleaned water to raise fish and grow food.
3. To develop a remote aquaponic water monitoring system using Blynk Application in IoT.
4. To monitor the aquaponic water quality parameter for immediate corrective action by the user.

04.METHODOLOGY



05.INNOVATION HIGHLIGHT

This project represents a significant advancement in sustainable farming practices, some of the innovations include the following highlights:

· Reduces reliance on conventional energy by incorporating solar power, improving system sustainability and efficiency.
· Includes sensors for temperature, pH levels, and water levels, allowing for continuous monitoring and optimization of conditions for both fish and plants.
· Integrated Aquaponic System: Combines aquaculture and hydroponics to create a sustainable farming solution.

06.COMMERCIAL VALUE

· Consulting Services: Provide consultations for aquaponic farm setup and renewable energy integration.
· Education and Training: Offer workshops and online courses on aquaponics.
· Technology Integration: Help implement water monitoring and automation technologies.

07.CONCLUSION

This aquaponic project offers a sustainable solution for urban food production. The solar-powered system uses real-time water monitoring to maximize vegetable yield and minimize environmental impact. This approach allows quick responses to water quality issues, promoting resilience in urban farming. Collaboration among stakeholders is key to enhancing food production and building a more sustainable future.

08.DIAGRAM / PICTURE

POLITEKNIK MALAYSIA PORT DICKSON

INSTITUITION NAME : POLYTECHNIC PORT DICKSON
PRODUCT ID : 1740
PRODUCT NAME : SEMI-AUTOMATED COOLING & CLEANING FOR SOLAR PANEL

SUPERVISOR :
PUAN ASILAH BINTI YAACOB

GROUP MEMBER :

IMRAN GHAZI BIN SOHAIMI (06DEG22F1006)

NABHAN SYAQEEL BIN NOR RIZAM (06DEG22F1026)

BACKGROUND

The Semi-Automated Cooling and Cleaning for Solar Panel project aims to efficiently clean solar panel without manual cleaning interfere and reduce solar panel temperature. This reduce manual cleaning task can improve safety and cost saving. Automated cooling can reduce solar panel temperature that can increase solar panel output.

PROBLEM STATEMENT

Traditional solar panel often pose significant challenges in extreme weather and soiling. These challenges include :

- High temperature that reduce the efficiency of solar cells.
- Dust accumulate blocking sunlight and decreasing the output

OBJECTIVE

- To build a semi-automated cleaning system that utilize motorized wiper
- To enhance solar panel efficiency by reducing the temperature using a water mists
- To monitor and control the cooling and cleaning system using Blynk application.
- To develop a system that can detect temperature, humidity and dust using a suitable sensor

COMMERCIAL VALUE

- Increased energy output: Improved solar panel efficiency leads to higher energy production.
- Reduced maintenance costs: Automation saves time and labor, lowering maintenance expenses.
- Environmental benefits: Cleaner panels produce more clean energy and reduce waste.
- Scalability: Suitable for residential and commercial applications, including large-scale solar farms.
- Enhanced convenience: Remote monitoring and control through a smartphone app.

DIAGRAM / PICTURE

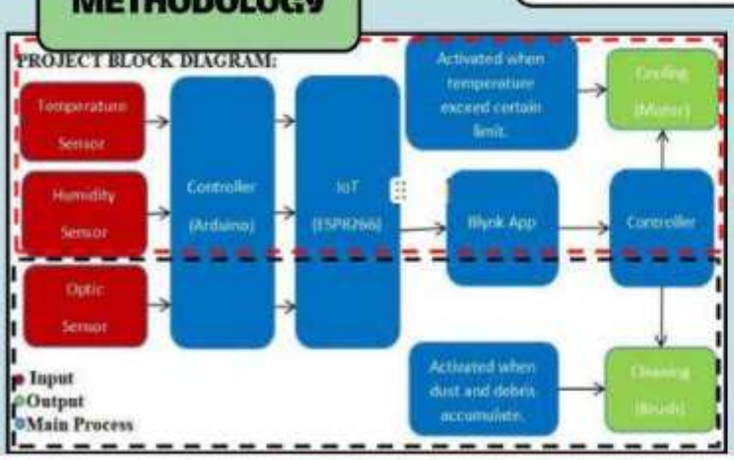
INNOVATION HIGHLIGTS

- IoT Integration: The system's integration of IoT technology enables remote monitoring and control.
- Intelligent Cleaning: Sensors and algorithms optimize cleaning cycles based on panel conditions.
- Energy-Efficient Cooling: The cooling system is designed to minimize energy consumption while maintaining optimal panel temperatures.
- Scalability: The system can be easily adapted to various solar panel sizes and configurations.

CONCLUSIONS

The semi-automated cooling and cleaning system for solar panels offers a comprehensive solution to enhance efficiency, reduce maintenance costs and improve overall solar energy production. By automating essential tasks this innovative technology ensures optimal performance, minimizes downtime and contributes to a more sustainable energy future.

METHODOLOGY



POLITEKNIK MALAYSIA
PORT DICKSON

SOLAR NOMAD POWER HUB

TEAM MEMBERS:
MORA BONGSU BIN ABD RAHMAN (06DEG22F1004)
NIK MUHAMMAD HAFIQ DANIEL BIN NIK ROSLI (06DEG22F1033)

SUPERVISOR:
PUAN NORLIE YUZZANA BT IBRAHIM

BACKGROUND

Solar panels convert sunlight into electricity through the photovoltaic effect, where absorbed photons excite electrons in a semiconductor, generating an electric current. The first solar panel, invented by Charles Fritts in 1883, achieved only 1% efficiency, but modern panels can reach efficiencies of 15% to 25%. Innovations like the Solar Nomad Power Hub provide portable solar solutions, allowing users to access electricity in remote locations or during outdoor activities.

OBJECTIVES

- To Design a portable socket and portable lamp using solar system.
- To develop solar off grid system as a portable power generator for socket and lamp.
- To control 3 lights from the terminal bluetooth application using arduino uno r3, bluetooth module and relay module. To provide a more
- convenient and quick way to control lights without needing to manually operate a switch.

INNOVATION HIGHLIGHT

Portable solar solutions, like the Mobisun 100W and Bluetti PV200, offer lightweight, foldable designs that enable easy transport and quick setup for outdoor activities, providing reliable power without traditional outlets. Utilizing advanced high-efficiency solar cell technology, these innovations maximize energy output while promoting sustainability by reducing reliance on fossil fuels and minimizing carbon footprints.

CONCLUSION

The Solar Nomad Power Hub is a well-designed portable solar solution, supported by literature on renewable energy. Its development focused on efficiency and ease of use. Troubleshooting features address common issues, and thorough testing ensures reliable performance in various environments.

PROBLEM STATEMENT

Consumers are increasingly seeking portable and efficient products that incorporate the latest technology for outdoor activities and emergency situations. The Solar Nomad Power Hub is a compact device that combines a solar panel, battery, and inverter, allowing users to harness and store solar energy for reliable power on the go. This innovative solution not only supports outdoor enthusiasts and emergency responders but also promotes renewable energy use to reduce reliance on fossil fuels and decrease carbon emissions.

METHODOLOGY

Solar panels are used in research to convert solar energy into electricity, often paired with real-time monitoring systems accessible through smartphone applications. The Solar Nomad Power Hub features a polycrystalline solar panel, inverter, and Arduino Nano, creating a portable and user-friendly solution. Designed for convenience, it includes wheels for easy transport and can power devices like fans, lights, and chargers through its output plug.

COMMERCIAL VALUE

Portable solar panel market and have high commercial value due to their convenience and utility. Overall, the commercial value of portable solar panels and related products lies in their alignment with global energy trends, providing practical, eco-friendly, and cost-effective power solutions for a wide range of users.

DIAGRAM/PICTURE

TEAM MEMBERS:
MUHAMMAD AIZAT BIN MOHD NASIR 06DEG22F1031
JEFFRIE SOO BIN MATIN SOO TECK GUAN 06DEG22F1036

POLITEKNIK MALAYSIA
PORT DICKSON



SUPERVISOR NAME:
PUAN NORLIE YUZZANA BINTI IBRAHIM

INSTITUTION NAME: POLITEKNIK PORT DICKSON
PRODUCT ID: 1683
PRODUCT NAME: HYBRID SOLAR AEROPONIC & AQUAPONIC

BACKGROUND

Solar aeroponic and aquaponic systems combine soilless & organic plant cultivation and fish farming in a sustainable, resource-efficient manner, powered by solar energy to reduce environmental impact and enhance food production.

OBJECTIVE

- ✓ To design an aeroponic & aquaponic system using off-grid solar system.
- ✓ To develop off-grid solar system as power source for the aeroponic system
- ✓ To monitor the hybrid aeroponic system using IOT system

INOVATION HIGHLIGHT

- ✓ Solar as the main supply.
- ✓ Combine aeroponic and aquaponic as a hybrid system.
- ✓ Create an automatic watering system and timer.

DESIGN SOLUTION

- ✓ Easy to use
- ✓ More organized and structured
- ✓ More compact than older hydroponic systems, portable, and convenient to store.

COMMERCIAL VALUE

- ✓ Individuals living in limited space e.g. condominium, flats, etc.
- ✓ Can sold to the agricultural sector.
- ✓ Teach others about sustainable agriculture, renewable energy & eco-friendliness

PROBLEM STATEMENT

- Space Limitations: Residents in flats and dense areas cannot engage in traditional farming.
- Economic Crises: Ongoing economic challenges exacerbate food supply issues.
- Nutritional Needs: Limited access to fresh vegetables and fish for healthy diets.

CONCLUSION

The research on Hybrid Solar Aeroponic & Aquaponic systems advances agriculture by showing how solar technology can improve energy efficiency and increase crop and fish yields. However, challenges like maintenance costs and system stability need to be addressed. Ongoing research and collaboration are essential for promoting sustainable farming and ensuring a resilient future.

CONJUNCTION




POLITEKNIK MALAYSIA
Port Dickson

CHICKEN HATCH INCUBATOR

SUPERVISIOR:PUAN NORLEE YUZZANA BINTI IBRAHIM

AHMAD SUFI RAMADHAN BIN MOHD ZULKARNAIN

MOHAMMAD KHAIRUL AMIN BIN JAMSARI

BACKGROUND

A chick hatch incubator is a tool that sets up the ideal environment to hatch bird eggs chicken eggs.It works like a bird's nest helping eggs grow outside their natural setting.Farmers often use these incubators in poultry farming. They give better control over heat, moisture, air flow, and egg turning. This leads to more eggs hatching and healthier baby chicks.

OBJECTIVES

- To design the modern hatch incubator for the chicken chic using solar system. To
- develop solar off grid system as in input for the modern hatch incubator system to
- monitoring temperature & motion for the solar hatch incubator using IOT system

DESIGN SOLUTIONS

PROBLEM STATEMENTS

- The Chick Hatch Incubator uses sunlight to reduce costs and be eco-friendly, making it affordable and sustainable for low-income farmers.
- The solar powerred incubator reduces reliance on unreliable grid power,cutting cost and benefiting the environment
- By lowering reliance on expensive energy, it helps people become more self suffiecient while addressing environmental concerns.

INNOVATION HIGHLIGHTS

Blynk App with sensor that can show real-time monitoring, custom alerts, remote control, and timer for a bulb system. Its user-friendly interface community support, and scalability make it a top choice for innovative lot projects

COMMERCIAL VALUES

Cost saving for lifetime

The design is using solar off grid which is a renewable energy that can cut cost from electricity costing

Easy for use

SENARAI PROJEK & PINGAT ESITEX SESI I 2024/2025

PROJEK DEG 5B

BIL.	NO PENDAFTARAN	NAMA PELAJAR	ID PROJEK	TAJUK PROJEK	PENYELIA	PINGAT
1	06DEG22F1001	MOHAMAD SYARIDZUAN BIN NOR SHAM	1694	ROTATING SOLAR PANEL WITH SUN TRACKING SYSTEM	SAFIRA BINTI DIN	GOLD
2	06DEG22F1017	MUHAMMAD FARIS SYAHMI BIN SYAIFUL KHAIRY				
3	06DEG22F1003	MUHAMMAD AMEERUL AZZIQ BIN AZHARRY	1695	SOLAR TISSUE DISPENSER		GOLD
4	06DEG22F1011	MUHAMMAD FAIZUDDIN BIN KHAIRUDIN				
5	06DEG22F1013	MUHAMMAD MUINUDDIN BIN EAMIZAN	1758	AUTOMATIC SOLAR GOAT FEED CONTAINER		GOLD
6	06DEG22F1015	MUHAMMAD SAIFUL IZZUAN BIN SHAMSUL				
7	06DEG22F1027	PARNITHARAN A/L K.SHANMUGAM	1690	SHOE WASHER AND DRYER (SWAD)	NOR JUHALIZA BINTI MD. NORDIN	NONE
8	06DEG22F1039	NURALLYSHIA				
9	06DEG22F1030	IFFAH SYAHIRAH BINTI ZAINUDIN	1691	AUTOMATIC SOLAR LAMP SHOE RACK DRYER WITH FRAGRANCE SPRAY		BRONZE
10	06DEG22F1032	SITI ZULAIKHA BINTI MOHD JIJI				
11	06DEG22F1021	UJESH A/L PARAMESWARAN	1692	SUN SWEEP SOLAR		SILVER
12	06DEG22F1023	JEVERAYLDY JEBOS				
13	06DEG22F1029	MAULIDUL AMRI BIN ZULKIFLI	1689	SOLAR POWERED REVERSED VENDING MACHINE	MOHD NORHAZREE BIN EASA	BRONZE
14	06DEG22F1019	MUHAMMAD SUFIAN HAKIMI BIN MOHD SULBAKRI				
15	06DEG22F1009	SITI NURZAIRIEN ZAIMAH BINTI MAT KAMIR	1693	SOLAR POWERED TEMPORARY TRAFFIC LIGHTS		GOLD
16	06DEG21F2010	NOR IZATY NASUHA BINTI ZAINI				
17	06DEG22F1025	SAIDANAJWA BINTI MD SABAK @ MOHD KAMAL	1696	SOLAR POWERED PORTABLE BOOTH		SILVER
18	06DEG22F1005	QAISYUM BINTI MOHAMED NOR HASAN SAZALI				

POLITEKNIK MALAYSIA PORT DICKSON

POLITEKNIK PORT DICKSON
PRODUCT ID: 1694
PRODUCT NAME: Rotating Solar Panel with Sun Tracking System

TEAM MEMBER:
Mohamad Syaridzuan Bin Nor Sham (06DEG22F1001)
Muhammad Faris Syahmi Bin Syaiful Khairy (06DEG22F1017)

SUPERVISOR: Puan Safira Binti Din

BACKGROUND

A rotating solar panel with a sun-tracking system optimizes energy production by following the sun's movement throughout the day. Using sensors like LDRs to detect sunlight intensity, the system adjusts the panel's position via motors controlled by a microcontroller like Arduino Uno . This design increases energy yield by 20-40% compared to fixed panels, offering greater efficiency and return on investment despite higher initial costs and maintenance.

PROBLEM STATEMENT

Current solar panel installations are often fixed in position, limiting their ability to capture the maximum amount of solar energy throughout the day. Fixed panels are suboptimal, as they cannot adjust to the sun's changing position, reducing energy efficiency, especially during mornings and late afternoons. The goal is to design and develop a single-axis rotating solar panel with a sun-tracking system that can adjust its position in real-time based on the sun's movement across the sky. This system should increase energy output by maintaining the solar panel at an optimal angle to the sun throughout the day.

OBJECTIVES

Our product want to peraue better energy production and sustain more clean environment. In this project, we are set to;

Student 1

- Design the rotating mechanism that suitable for this project.
- Increase the efficiency by operating at the best condition.

Student 2

- Intergrate automated system to control the angle of solar panel
- Develop the coding that suitable for project rotating solar panel with sun tracking system

METHODOLOGY

Designing a single-axis rotating solar panel with a sun tracking system involves selecting key components such as an efficient solar panel, a motor, light sensors, and a microcontroller for control. The system typically tracks either east-west or north-south, depending on geographic location. Light sensors are arranged to compare sunlight intensity, allowing the microcontroller to adjust the panel's position towards the brighter side. A robust frame supports the setup, while the motor must be securely mounted to enable smooth rotation. Power management is crucial, potentially incorporating a solar charge controller. Initial calibration involves positioning the panel to face the sun at noon, with further field testing conducted throughout the day and across seasons to evaluate performance.

INNOVATION HIGHLIGHT

- **Simplified Design**: The single-axis design offers a more cost effective solution compared to dual-axis systems, making it easier to install and maintain.
- **Reduced Land Footprint**: Efficient tracking allows for higher energy output on smaller plots, maximizing land use.
- **Adaptive Algorithms**: Integrated smart technology adjusts tracking based on weather conditions and solar intensity, optimizing performance.

COMMERCIAL VALUE

- **Competitive Edge for Solar Manufacturers and Installers**: Offering a sun-tracking system provides an additional feature that can differentiate solar panel manufacturers and installers from competitors. This added value can help capture a larger share of the growing solar market.
- **Residential and Commercial Markets**: Single-axis systems can be scaled down to meet residential needs or scaled up for larger commercial projects, making them versatile and adaptable across various segments.

CONCLUSION

In conclusion, the design and implementation of a single-axis rotating solar panel with a sun tracking system significantly enhance solar energy efficiency by optimizing the angle of exposure throughout the day. By utilizing sensors, a microcontroller, and a robust mechanical structure, the system dynamically adjusts to the sun's position, resulting in increased energy generation compared to fixed installations. This project not only showcases innovative technology in renewable energy but also highlights the potential for cost-effective solutions in harnessing solar power, paving the way for further advancements in solar technology and sustainability.

DIAGRAM/PICTURE

INSTITUTION NAME : POLITEKNIK PORT DICKSON
PRODUCT NAME : SOLAR TISSUE DISPENSER

SUPERVISOR : PN. SAFIRA BINTI DIN

TEAM : 1. MUHAMMAD FAIZUDDIN BIN KHAIRUDIN
2. MUHAMMAD AMEERUL AZZIQ BIN AZHARRY

BACKGROUND

Kotak Tisu Automatik Solar adalah penyelesaian cekap tenaga yang mesra alam. Dikuasakan oleh tenaga solar, ia dilengkapi dengan sistem pengedaran automatik untuk mengeluarkan tisu dan juga mempunyai fungsi tanpa sentuh untuk mengurangkan risiko kuman. Dengan reka bentuk yang moden dan sensor automatik, kotak ini menawarkan kemudahan dan efisiensi dalam penggunaan tisu.

OBJECTIVE

1. Untuk mencipta kotak tisu yang menawarkan pengeluaran tisu yang lancar, mencegah isu seperti koyak atau pembaziran yang biasa ditemui dengan kotak sedia ada.
2. Untuk memudahkan pengguna kurang upaya dan kanak-kanak, dan memastikan kotak tisu mudah diakses dan boleh digunakan untuk semua individu.
3. Untuk mencipta kotak tisu automatik yang boleh menunjukkan kuantiti tisu yang masih ada dalam mesin (penunjuk merah dan hijau).

COMMERCIAL VALUE

1.**Menggunakan tenaga solar**
menarik minat pengguna yang peka terhadap alam sekitar. Kesihatan dan Kebersihan Operasi tanpa sentuhan meningkatkan standard kebersihan, penting di tempat awam.

2.**Teknologi Inovatif**: Penggunaan penderia ultrasonic dan indikator LED membezakan produk di pasaran.Kesihatan dan Kebersihan Operasi tanpa sentuhan meningkatkan standard kebersihan, penting di tempat awam.

3. **Permintaan Pasaran**
Meningkatnya permintaan untuk penyelesaian pintar dalam produk harian menjadikan produk anda relevan dengan tren semasa.

DESIGN SOLUTION

1. Reka Bentuk Modular
Memudahkan penggantian bahagian dan penyelenggaraan.

2. Bahan Mesra Alam
Gunakan bahan kitar semula untuk casing bagi menyokong keberlanjutan.

7. Reka Bentuk Ergonomik
Memudahkan pengguna untuk mengambil tisu dengan selesa.

PROBLEM STATEMENT

pprojek kami bertujuan untuk mereka bentuk kotak tisu automatik yang menggunakan tenaga solar sebagai sumber kuasanya. Seterusnya, orang biasanya mengambil lebih banyak tisu daripada yang mereka perlukan. Hal ini akan berlakunya pembaziran tisu . Kemudian manusia sukar untuk mengambil tisu dengan tangan yang basah, jadi dengan adanya projek ini sedikit sebanyak akan membantu menangani masalah itu. Dispenser ini sesuai untuk diletakkan di tempat awam tempat untuk mempercepatkan proses pengeluaran tisu. Ia juga mengurangkan kesesakan di tempat pengumpulan tisu.

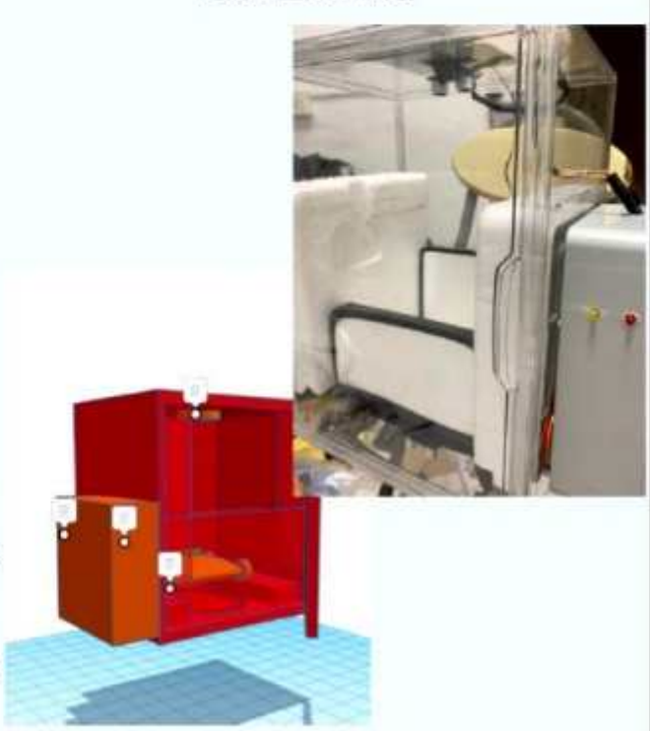
INNOVATION HIGHLIGHTS

1. **Menghadkan Pengeluaran Tisu**
Kotak tisu automatik solar membolehkan pengguna mengambil tisu dalam jumlah yang ditetapkan, mengurangkan pembaziran dan menjimatkan kos.

2. **Menggunakan Tenaga Boleh Diperbaharui**
Beroperasi dengan tenaga solar, kotak ini mengurangkan kebergantungan kepada elektrik TNB dan menyokong pemeliharaan alam sekitar.

3. **Menggunakan Teknologi Terkini**
Dengan penderia ultrasonic, kotak tisu membolehkan pengeluaran tisu tanpa sentuhan, memastikan kebersihan dan mengurangkan risiko penyebaran kuman.

DIAGRAM



POLITEKNIK MALAYSIA
PORT DICKSON

INSTITUTION NAME: POLITEKNIK PORT DICKSON
ID PROJECT: 1758
PRODUCT NAME: SOLAR GOAT FEED CONTAINER

TEAM MEMBER: MUHAMMAD MUINUDDIN BIN EAMIZAN (06DEG22F1013)
MUHAMMAD SAIFUL IZZUAN BIN SHAMSUL (06DEG22F1015)
SUPERVISOR: SAFIRA BINTI DIN

BACKGROUND

An automatic solar goat feed container is an innovative solution designed to streamline livestock feeding, particularly in rural or off-grid areas. It combines automation with renewable energy, allowing farmers to dispense feed to goats at regular intervals without manual intervention. Powered by solar panels, this system eliminates the need for electricity, making it both cost-effective and environmentally friendly. The device typically includes a feed storage unit, a dispensing mechanism, and sensors to control feeding times. This ensures consistent nutrition, reducing feed waste and promoting better animal health. The automatic solar goat feed container reflects the growing trend toward sustainable and automated farming practices, offering an efficient way to manage livestock with minimal labor while harnessing clean energy.

OBJECTIVES

- To provide a reliable and efficient system to automatically dispense feed at scheduled intervals for consistent goat nutrition.
- To leverage solar energy by using solar power to operate the system.
- To control feed distribution to minimize waste, ensuring efficient use of resources and preventing overfeeding or spoilage.

INNOVATION HIGHLIGHT

The innovation in the automatic solar goat feed container project lies in its integration of solar energy with automated feeding technology, creating a sustainable and efficient solution for livestock management. By harnessing solar power, the system operates independently of the electrical grid, making it ideal for remote farming areas where electricity is unreliable or unavailable. The automated feed dispensing mechanism, equipped with sensors and timers, ensures precise portions of feed are delivered at scheduled intervals, promoting optimal nutrition and health for the goats while minimizing waste.

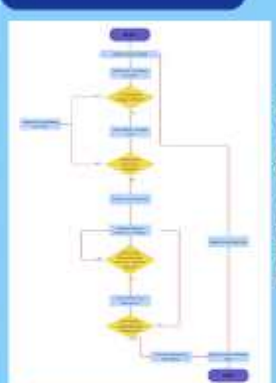
CONCLUSION

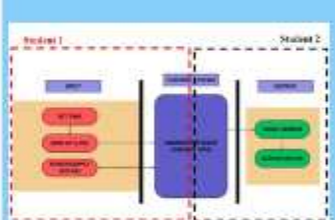
In conclusion, our project on the automatic solar goat feed container has highlighted the importance of integrating technology and sustainability in modern agriculture. By utilizing solar energy, we have created a system that operates independently from the electrical grid. The automated feeding mechanism not only ensures that goats receive consistent and accurate portions of feed but also reduces the labor burden on farmers. Through this project, we have gained valuable hands-on experience in design, engineering, and problem-solving, while also understanding the practical applications of renewable energy in livestock management.

PROBLEM STATEMENT

Goat farmers, especially in remote or off-grid areas, face challenges in ensuring consistent and timely feeding due to limited access to electricity and the labor-intensive nature of manual feeding. Irregular feeding can harm goat health, increase feed waste, and raise operational costs. To address this, there is a need for a solar-powered, automated feed system that reduces labor, operates independently of the power grid, and ensures regular, efficient feeding for improved livestock management.

METHODOLOGY





COMMERCIAL VALUE

Sustainability and Eco-Friendliness

Solar power is renewable, reducing reliance on electricity or fuel, which appeals to environmentally conscious buyers.

Labor Savings

Automating the feeding process saves time and effort for farmers, allowing them to focus on other aspects of farm management.

DIAGRAM/PICTURE

POLITEKNIK PORT DICKSON

PRODUCT ID: 3049
PRODUCT NAME : SHOE WASHER AND DRYER (SWAD)


NURALLYSHIA (06DEG22F1039)


PUAN NOR JUHALIZA BINTI MD. NORDIN


PARNITHARAN A/L K.SHANMUGAM (06DEG22F1027)

BACKGROUND

Maintaining the safety and comfort of the feet requires proper shoe maintenance, particularly while engaging in outdoor activities or being around wetness and dirt. Shoes can be kept clean and in good shape by using a shoe washer and dryer. However, manual washing and drying can take a lot of time, particularly for people who are busy or have limited access to laundry facilities. By utilizing green energy sources like solar energy to lower expenses and electricity consumption, an efficient shoe washer and dryer (SWAD) can greatly enhance daily routines.

PROBLEM STATEMENT

- Mostly frequent use and exposure to environmental factors can also cause premature wear and tear if not washed and dried properly
- washing shoes manually can take a long time and is not guaranteed to be clean. This can cause the shoes to quickly break down and waste users time
- It be a waste of water and soap due to the excessive use of water to wash shoes manually

OBJECTIVES

- To create a shoe washer and dryer using solar energy
- To develop a real time monitoring system using for washing process using esp32 camera
- To develop an iot control system using bot telegram
- To develop the drying process using fans and ptc heater

DESIGN SOLUTION

- preparing a capable camera for monitor the washing process by uploading the link to internet browser
- implement buzzer that act as alarm to notify the user once the washing and drying process are complete
- utilize on and off switch to activate or deactivate the product manually

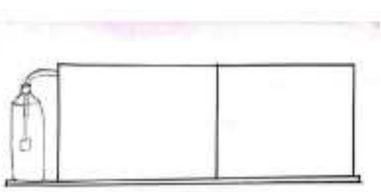
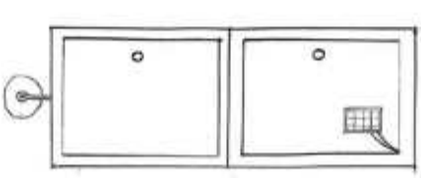
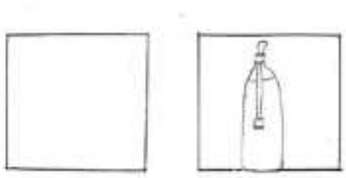
INNOVATION HIGHLIGHT

The machine is designed to be compact and portable, leveraging solar power and efficient components, reducing its carbon footprint which is ideal for personal and commercial use, especially in areas with limited access to electricity. Buzzer is integrated to notify the user once the cleaning and drying process is complete which can help to enhances user convenience, allowing them to attend to other tasks without constantly monitoring the machine Positive Temperature Coefficient (PTC) heater provides controlled heat, paired with a fan to evenly circulate warm air as it self-regulates temperature preventing overheating and ensuring optimal drying conditions. real-time monitoring and control capabilities using smartphone

COMMERCIAL VALUE

- The use of reliable components like the PTC heater and the simplicity of the servo motor and sponge system ensure that maintenance costs remain low, further enhancing the product's long-term commercial value
- The use of solar energy eliminates the need for electricity, saving on energy costs, especially in areas with consistent sunlight
- Remote monitoring and control using smartphone help to ease waste of energy and appliance oversight, catering to busy lifestyles.

DIAGRAM / PICTURE

INSTITUTION NAME : POLITEKNIK PORT DICKSON
PRODUCT NAME : SOLAR-POWERED RACK SHOES DRYER WITH AUTOMATIC LAMP FRAGRANCE SPRAY
TEAM : 1. SITI ZULAIKHA BT MOHD JIJI
2. IFFAH SYAHIRAH BINTI ZAINUDIN
SUPERVISOR : PN. NOR JUHALIZA BT MD.NORDIN

BACKGROUND

The Automatic Solar Lamp Shoe Rack Dryer with Fragrance Spray is an energy-efficient solution powered by solar energy, making it eco-friendly. It features an automatic drying system to dry wet shoes and a fragrance spray to eliminate odors. With a tiered design and automatic sensors, it provides convenience and efficiency in shoe care.

OBJECTIVE

1.To create a fragrance spray system that successfully gets rid of offensive smells from shoes.
2.To develop a shoe dryer that effectively removes moisture to keep shoes dry and clean.
3.To install an automated lighting system that runs on solar power and offers enough light to make the shoe rack visible and easy to use.
4.To create security locks on shoe racks in order to guard stored shoes and stop theft.

DESIGN SOLUTION

1. **Compact**
- A space-saving, tiered rack structure accommodates up to 3 pairs of shoes. The compact design fits in small spaces, ideal for homes or apartments
2. **Automated LED Lighting**
- LED lights are strategically placed to provide lighting to people use it. The lights can be automated to turn on while open the door and turn off when closed the door
3. **Password Integration**
- make it more safe when user keep it their shoes in there
4. **Fragrance Spray**
- A built-in, easy-to-refill fragrance spray system at the top or side of the rack releases a gentle mist, keeping shoes fresh without overpowering odors.

PROBLEM STATEMENT

With unpredictable weather conditions and limited space in modern homes, drying shoes efficiently without causing damage is a common challenge. Traditional shoe-drying methods, such as air drying or using heat-based devices, often result in prolonged drying times, unpleasant odors, and potential material damage, especially for delicate fabrics like leather or suede. Additionally, the energy consumption of electric dryers is not eco-friendly, contributing to higher electricity bills and a negative environmental impact.

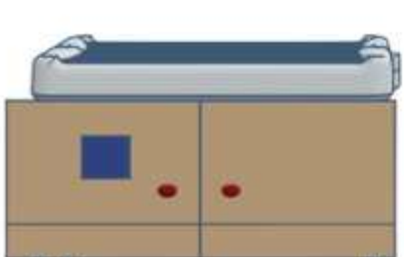
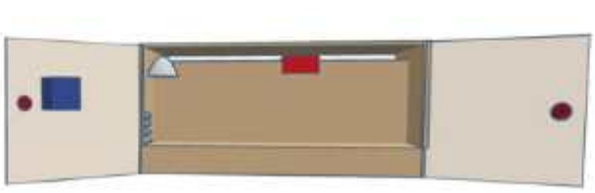
INNOVATION HIGHLIGHTS

1. **Automated LED Lighting**
- The integrated LED lights activate during open the door, ensuring user see the shoes,and not mistaken the shoes while use the rack as a usual rack
2. **Eco-Friendly Solar Power**
- Powered by renewable solar energy, the dryer offers a sustainable and cost-effective solution, reducing electricity usage while drying shoes efficiently.
3. **Fragrance Spray For Freshness**
- e built-in fragrance spray automatically releases a mist to keep shoes fresh and odor-free, providing a complete care solution for footwear.

COMMERCIAL VALUE

1. **Energy Savings**
- Solar power reduces electricity costs, appealing to eco-conscious consumers and those seeking lower utility bills
2. **Luxury Appeal**
- Premium features like LED lighting and fragrance spray add a touch of luxury, making it attractive to high-end markets.
3. **Convenience**
- The dryer offers drying,deodorizing,and lighting in one, providing an efficient, all-in-one solution.Easy to change position cause of wheel integrated

DIAGRAM


POLYTECHNIC PORT DICKSON

PRODUCT ID : 3086

PRODUCT NAME : SUN SWEEP SOLAR

SUPERVISOR : NOR JUHALIZA BINTI MD NORDIN

UJESH A/L PARAMESWARAN
(06DEG22F1021)

JEVERAYLDY JEBOS
(06DEG22F1023)

BACKGROUND

One of the most innovative projects in the field of environmentally friendly lawn care is the Sun Sweep Solar project. While human mowing takes a lot of time and work, traditional ways of cutting the grass frequently include gas-powered mowers that contribute to noise pollution and environmental degradation. Aware of these difficulties, the Sun Sweep Solar project aims to transform lawn maintenance by utilizing solar energy and cutting-edge technology to produce an autonomous grass cutter.

PROBLEM STATEMENT

In our area, most grass cutting is done with machines that use fossil fuels. This harms the environment and uses up resources. Plus, when extra grass clippings aren't collected properly, it causes problems with waste and can hurt people's health and the local environment. With cities growing fast, it's really important to start using lawn care methods that are better for the environment.

OBJECTIVES

- To develop a solar-powered automated grass cutter that utilizes renewable energy to operate efficiently, reducing environmental impact while providing an eco-friendly solution for lawn maintenance. To integrate IoT platforms (Telegram Bot) into the Sun Sweep Solar system for remote monitoring and control, aiming to enhance user experience and system efficiency. To design a vacuum system to collect grass clippings during mowing maintain a clean and tidy lawn. Integrate safety mechanisms such as obstacle detection and emergency stop functions to prevent the grass cutter from causing harm to people, pets, or objects in its path.

INNOVATION HIGHLIGHTS

- The integration of sensors that measure the grass height sets SunSweep apart from standard robotic lawn mowers
- Unlike many autonomous mowers, SunSweep features a built-in vacuum system that collects grass clippings as it mows
- SunSweep harnesses solar energy to operate autonomously, making it more eco-friendly and cost-effective than traditional fuel-powered or battery-dependent grass cutters.

DESIGN SOLUTION

- Integrate high-efficiency solar panels to power the mower's battery, allowing SunSweep to operate without external energy sources.
- Implement a sensors to allow SunSweep to autonomously map and navigate the lawn.
- Develop a mobile app with a user-friendly interface that allows remote control of the grass cutter.
- Design a vacuum attachment that collects grass clippings into a storage bin while mowing.

COMMERCIAL VALUES

- Reduces reliance on electricity or fuel, significantly lowering operating costs for users compared to traditional gas-powered or electric lawnmowers.
- Low environmental impact and zero emissions make it attractive to environmentally-conscious buyers.
- Saves users valuable time and effort by eliminating the need for manual mowing.
- Advanced features justify a higher price point and attract a tech-savvy market that values convenience, automation, and precision

DIAGRAM

1.MUHAMMAD SUFIAN HAKIMI BIN MOHD SULBAKRI
2.MAULIDUL AMRI BIN ZULKIFLI

SUPERVISOR

ENCIK MOHD NORHAZREE BIN EASA

POLITEKNIK MALAYSIA
Port Dickson

BACKGROUND

This project uses a solar power and stored in a battery for the reverse vending machine and charging system. Solar as the main energy for the servo motor and charging port.

OBJECTIVES

- To develop a solar powered reverse vending machine
- To create sensor technology by using IR sensor into reverse vending machine
- To build coin dispenser rewarding system
- To design a charging mobile based on coin insertion and arduino To monitor of amount the charging time duration

INOVATION HIGHLIGHT

Combine reverse vending machine and coin based mobie charger Solar for supporting energy Create a coin based mobile charger on reverse vending machine using an arduino to control the amount of time charging

DESIGN SOLUTION

System give and take Easy to use

COMERCIAL VALUE

Can be sold on every crowd places Provides financial incentives and encouraging more people to recycle Maximize renewable energy and save electricity Potential to generate income through the collection and resale of recyclable materials

CONCLUSION

In conclusion, this project is a merging the functionalities, users can both recycle and charge their devices in one go. This dual utility increases the attractiveness and use of these machines. Other, offering a mobile charging service can draw more users to the RVMs, boosting recycling rates. Similarly, the act of recycling can become a more engaging activity with the added benefit of mobile charging

PROBLEM STATEMENT

Limited access to recycling centers: In some communities, access to recycling facilities is limited, requiring residents to transport recyclables to distant locations.

Burden of transportation: Individuals face the challenge of accumulating and transporting large volumes of recyclables like plastics, metals, glass, and paper to remote recycling centers.

High transportation costs: The cost of hiring transportation, such as lorries, often exceeds the value of the recyclable materials, creating a financial barrier.

Need for mobile charging stations: In some areas, there is a lack of easily accessible mobile charging stations, which inconveniences users when they are unable to charge their devices when needed.

METHODOLOGY

The project design serves as guide as how it will be carried out. It also requires the development of one or more designs that can be used to implement the project objectives. The project overview, which is usually developed before the project begins, is the master plan of action for the entire project.

POLITEKNIK MALAYSIA
PORT DICKSON

INSTITUTION NAME: POLITEKNIK PORT DICKSON
PRODUCT ID:1693
PRODUCT NAME: SOLAR POWERED TEMPORARY TRAFFIC LIGHT

SUPERVISOR: TUAN MOHD NORHAZREE BIN EASA

TEAM MEMBER: NOR IZATY NASUHA BT ZAINI (06DEG21F2010)
SITI NURZAIRIEN ZAIMAH BT MAT KAMIR (06DEG22F1009)

BACKGROUND: solar-powered temporary traffic light is a portable system used to manage traffic at roadworks, construction sites, or events without needing electricity from the grid. It runs on energy from solar panels, stored in batteries, and uses LED lights to save power. A controller, like the ESP32, handles the timing of the lights, and sensors, such as ultrasonic, help adjust the lights based on traffic. These systems are eco-friendly, cost-effective, and easy to move.

PROBLEM STATEMENT: Manual traffic control with walkie-talkies and flags often leads to mistakes and accidents, while poor communication in crowded areas confuses drivers. Workers can get tired from managing traffic, reducing safety. Fixed-timer traffic lights can't adjust to real traffic, causing congestion and wasting energy. In bad weather or low light, sensors like cameras or infrared may struggle to detect vehicles, leading to lights staying on too long or too short, which disrupts traffic flow.

OBJECTIVES: To build a solar-powered traffic light system using ESP32, waterproof ultrasonic sensors, solar panels, and a step-down module. The project provides backup power for traffic intersections and develops a prototype using solar-powered LED lights. The performance of the solar charge controller will be evaluated to ensure efficient battery management. An IoT system will be developed to enable two traffic lights to communicate and operate simultaneously. The effectiveness of LED bar lights will also be tested to ensure sufficient illumination, especially at night.

METHODOLOGY:

INNOVATION HIGHTLIGHT: IoT communication: Allows multiple traffic lights to communicate and coordinate seamlessly for smoother traffic management.

Energy-Efficient LEDs: Uses low-power LED lights, maximizing battery life and reducing energy consumption.

COMMERCIAL VALUE: Remote Areas: In areas with limited or no access to the electrical grid, this system provides an essential solution for traffic management, opening opportunities for markets in developing regions.

Scalability: The project can be scaled to create larger, interconnected systems for more extensive traffic management needs, appealing to larger urban development projects.

CONCLUSION: The solar-powered temporary traffic light system improves traffic management by reducing reliance on conventional electricity, making it ideal for remote or off-grid areas. It uses solar panels to power LED lights, with an ESP32 microcontroller managing relay operations and ultrasonic sensors detecting traffic to optimize light cycles. However, its limitations include reduced visibility range during adverse weather and limited night-time operation due to battery constraints. Potential enhancements, such as increasing battery capacity, using higher-luminosity LEDs, or integrating backup power sources, could improve its reliability, particularly in low-light or extended night conditions.

DIAGRAM:

POLITEKNIK MALAYSIA
Port Dickson

INSTITUTUION NAME : POLITEKNIK PORT DICKSON
PRODUCT ID : 1969
PRODUCT NAME : PORTABLE BOOTH

TEAM MEMBER :
QAISYUM BINTI MOHAMED NOR HASAN SAZALI (06DEG22F1005)
SAIDANAJWA BINTI MD SABAK @ MOHD KAMAL (06DEG22F1025)

SUPERVISOR :
ENCIK MOHD NORHAZREE BIN EASA

BACKGROUND

An exhibit, ticket booth, or information booth are just a few uses for a portable building known as a PORTABLE BOOTH. This device is designed to be lightweight, simple to install, eco-friendly, and able to fulfill a variety of demands. There exist various forms and dimensions for portable booths. In order to install or remove them, no specialized tools or equipment are needed because they are frequently made of lightweight materials like plastic or aluminum. At events like fairs, outdoor markets, trade shows, and carnivals, the stalls are frequently present. Subsequently, the management will provide temporary spaces for businesses, organizations, or individuals to showcase their products or promote their offerings. That being said, this tool is highly practical and frequently utilized, particularly in the field of marketing

OBJECTIVES

- ✓ To upgrade IOT system on LED Display using ESP8266 for greating
- ✓ Integrates solar power on a Portable Booth to supply the electricity source and power the equipment
- ✓ To build a speaker system with IOT devices that can play recordings and song
- ✓ Integrates lights and fans using IOT systems and controlled via switches and smartphone

INNOVATION HIGHLIGHT

- A solar-powered booth can operate in remote or off-grid locations without relying on traditional energy sources.
- After the initial investment in solar panels and batteries, ongoing energy costs are minimal.
- Create a speaker system that can adjust to next,pause and previous with smartphone using blynks
- Create a LED Display using MQTT to adjust the words
- Control lamp and fan using smartphones using blynks and manually switch to turn on and off

COMMERCIAL VALUE

By utilizing renewable energy sources like solar energy and making sure they run well without relying on conventional energy grids, portable booths prioritize environmental sustainability. With a lower carbon footprint, this lightweight and environmentally responsible option is perfect for off-grid or outdoor activities. Additionally, the booth's integrated LED display and speaker system which can be managed remotely using Blynk technology improve visibility and communication. By making it simple for users to disseminate safety warnings or alerts, this enhances public places and event settings' general safety and awareness. Convenience and adaptability are guaranteed by the booth's capacity to regulate its lighting and ventilation using a manual switch or a smartphone app, making it suitable for a range of applications.In addition to promoting sustainable energy consumption, this clever and user-friendly design also provides improved safety and comfort. This all-encompassing strategy meets the practical requirements for public gatherings, transit hubs, or roadside assistance stations while also being in line with contemporary eco-friendly standards. By striking a balance between sustainability, safety, and convenience, it encourages responsible infrastructure that enhances both user well-being and the environment.

CONCLUSION

Off-grid users, public places, and event planners have found that solar- powered portable booth systems with integrated smart technologies for control are a practical and ecological alternative. Through the use of solar energy, the booth produces electricity in a dependable manner without utilizing fossil fuels, so promoting environmental sustainability. Remote control of the lights, fans, and speakers is made possible by the integration of booth IoT technology through Blynk, which enhances user experience and comfort. In addition to promoting sustainability, energy-efficient LED lighting and display systems also guarantee visibility and communication. The integration of renewable energy, automation, and intelligent control yields inventive and eco-friendly solutions that not only benefit customers but also open up business prospects for providers of sustainable infrastructure.

PROBLEM STATEMENT

- The management had to pay the cost to install and rent the canopy
- There are several disadvantages to using generator current as an electrical supply, including expensive purchase and maintenance.
- Environmental imbalances can result from the use of generators, which also pollute the air and produce noise pollution.
- The problem arises when the location of the business site provided by the management is far from the power supply source, requiring a connecting wire to supply the electricity source to the booth

METHADOLODY

DIAGRAM / PICTURE

KOMPILASI POSTER ESITEX

SESI I 2024/2025

PROGRAM DIPLOMA KEJURUTERAAN ELEKTRIKAL (KECEKAPAN TENAGA) [DEQ]

SENARAI PROJEK & PINGAT ESITEX SESI I 2024/2025

PROJEK DEQ 5A

BIL.	NO PENDAFTARAN	NAMA PELAJAR	ID PROJEK	TAJUK PROJEK	PENYELIA	PINGAT
1	06DEQ22F1033	THINESHWARMA A/L MURTHY	1765	AUTO GRID SWITCHING SYSTEM FOR GREEN ENERGIES	AIDA NORMARDIANA BINTI AYOB	BRONZE
2	06DEQ22F1006	ADRIE NAZHAN SYAFI BIN AZHAR				
3	06DEQ22F1012	MUHAMMAD UMAR FIRDAUS BIN MOHD ZAMRI	1766	MULTIFUNCTION TABLE		BRONZE
4	06DEQ22F1035	BASYIR BIN BATOLJI	1780	SMART ENERGY NOTIFY METER		BRONZE
5	06DEQ22F1040	MUHAMMAD SYAHMI BIN AZMI				
6	06DEQ22F1018	NEELLESH RAM A/L SARAVANAN	1761	POWER MONITORING AND RECORDING USING IOT FOR SINGLE PHASE	MOHD IZHAR BIN AHMAD	GOLD
7	06DEQ22F1023	MUHAMMAD NOOR HAIKAL BIN MOHAMAD YUSOFF	1762	MOBILE SWITCHING FLUORESCENT LAMP		SILVER
8	06DEQ22F1010	MUHAMMAD HAFIZUDDIN BIN MUHAMMAD ISA				
9	06DEQ22F1002	YUSMAN FAHMIE IRFAN BIN YUNUS	1770	AIR HOLDING UNIT TRAINER		GOLD
10	06DEQ22F1014	MUHAMAD SYAZWAN BIN MUHAMAD SHAH				
11	06DEQ22F1004	MUHAMMAD AFFIN IKMAL BIN ABDUL QAIYUM	1767	INTERGRATED VENTILATION HOME SYSTEM USING ARDUINO ESP32 AND BLYNK APPS	NORAZIAH BTE ABU BAKAR	SILVER
12	06DEQ22F1025	MUHAMMAD HAZIM BIN AYUP				
13	06DEQ22F1031	MUHAMMAD SHAHRIL BIN SUHAMI @ SUHAIMI	1772	AUTOMATIC FLOOD GARAGE USING ESP32		BRONZE
14	06DEQ22F1016	NURHAN AHMAD HAZIQ BIN MOHD RIZAL				
15	06DEQ22F1008	WAN MUHAMMAD FATAH AIMAN BIN WAN ROSLEE	1775	3 PHASE MONITORING CURRENT, VOLTAGE AND POWER FOR ENERGY EFFECIENCY TRAINNER		GOLD
16	06DEQ22F1021	MUHAMMAD AFIQ BIN MOHD ANUAR				

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
PORT DICKSON

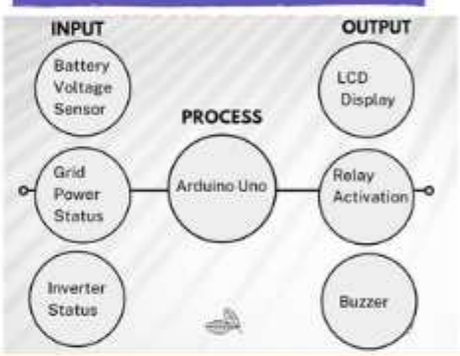
AUTO GRID SWITCHING SYSTEM FOR GREEN ENERGIES (AGSS)

SUPERVISOR : PUAN AIDA NORMARDIANA BINTI AYOB **PRODUCT ID: 1765**

BACKGROUND

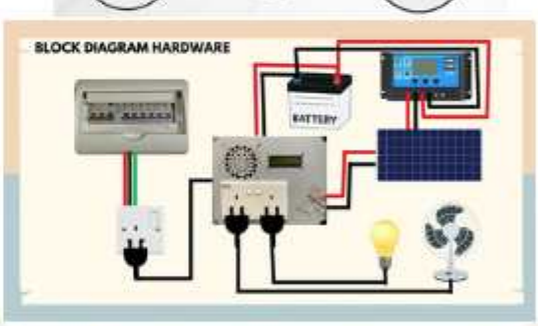
The automatic grid switching system aims to provide a reliable and sustainable energy solution for residential applications by efficiently managing power sources. It switches between the electric grid, solar battery storage, and inverter based on energy availability and demand. We uses an ESP32 microcontroller to manage power sources for a residential solar setup. It switches between the electric grid, solar battery, and inverter using relays based on data from voltage, current, and temperature sensors. The system prioritizes solar energy when available, uses battery power when charged, and defaults to the grid when needed. It includes safety checks to prevent overheating and integrates with monitoring apps for remote control. The system is coded using the Arduino IDE software, with logic to optimize energy use and ensure an uninterrupted power supply.

METHODOLOGY



PROBLEM STATEMENT

1. The reliance on grid power alone is often costly, inefficient, and unsustainable for residential energy management.
2. There is a lack of automated systems to seamlessly switch between solar, battery, and grid power sources, resulting in energy wastage and increased expenses.



COMMERCIAL VALUE

This Auto Grid Switching System For Green Energies using solar panel and have potential to make a selling because it can reduce electricity consumption and can reduce electric bill monthly for the house and shop owner with the appropriate range.

INNOVATION HIGHLIGHT

- Supply auto switching
- System IOT, get notification when switching the system
- Buzzer will sound when AC-DC, DC-AC grid switching

OBJECTIVES

- To develop model and specification of auto grid
- To build ESP 32 controller software program and telegram apps to operated
- To analyze monitoring data value

CONCLUSION

This AGSS can also improve the country's economy .If this AGSS is marketed throughout Malaysia, it is certain that the people will be more careful in selecting more efficient products. AGSS is also easy to maintain with presence of IOT system and advanced technology. Furthermore, the environments is more secure when people choose energy-efficient products. Therefore, we can reduce pollution and preserve the environment to be more secure.

DIAGRAM

ADRIE NAZHAN SYAFI BIN AZHAR
06DEQ22F1006

THINESHWARMA A/L MURTHY
06DEQ22F1033

1766 : MULTIFUNCTION TABLE

TEAM MEMBER: MUHAMMAD UMAR FIRDAUS BIN MOHD ZAMRI
SUPERVISOR:PUAN AIDA MORMARDIANA BINTI AYOB

POLITEKNIK MALAYSIA
PORT DICKSON

BACKGROUND

The study table is designed with student comfort in mind, allowing users to study easily with its convenient features. Its compact size makes it space-saving and easy to carry, perfect for small study tasks or homework. Additionally, I'm using an Arduino to trigger a sensor that enhances functionality by automatically activating the table when needed. This energy-saving design ensures that the table conserves power when not in use, contributing to sustainability efforts. Furthermore, its adaptability to changing weather conditions showcases the innovative technology behind it, making it a versatile solution for today's students.

PROBLEM SATEMENT

- There is no time students can charge phone like in the class and worker at work place.
- Politeknik Port Dickson still doesn't have multifunction table that can use for student facility.
- Student also uncomfortable while studying with hot weather and they cannot see while writing on the table if there is no light.

OBJECTIVES

- To design a circuit diagram for a multifunction table that integrates features and the position for the features that have at the table.
- To develop coding that can use for the PIR motion, LDR sensor and temperature sensor that make it work.
- To develop a multifunction table solution that provides students with an easy and convenient way to charge their mobile phones and access other functionalities.

HIGHLIGHT INNOVATION

1.Motion and LDR sensor lamp.
2. Temperature Sensor for Fan depends on the level temperature

COMMERCIAL VALUE

1.save space
2.provide multiple uses
3.Save energy
4.good for education

METHODOLOGY

PROBLEM IDENTIFICATION

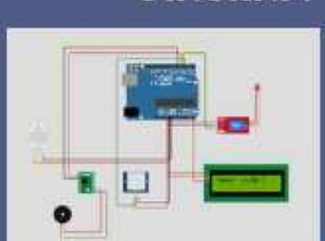
DEVELOP OBJECTIVES

DESIGN THE PROTOTYPE

CONSTRUCT THE CODING FOR THE SENSOR

DEVELOP THE DESIGN AND THE SOFTWARE TO THE PROTOTYPE

DIAGRAM / PICTURE



CCO ON NC CL UL SU I SOI ON N

In conclusion, Multifunction table has been create for student comfortable also conclude as a facility for all user. We can see that the table is energy saving with the software and technology used. It doesn't cost more money for bill.

INSTITUTION NAME: POLITEKNIK PORT DICKSON
PRODUCT ID: 1780
PRODUCT NAME: SMART ENERGY NOTIFY METER

Name:
1.Muhammad Syahmi Bin Azmi(06DEQ22F1040)
2.Basyir Bin Batolji (06DEQ22F1035)

Supervisor:
Puan Aida Normardiana Binti Ayob

Smart Energy Notify (SEN) Meter

Background

Energy consumption is a critical concern in modern households and businesses, leading to rising electricity costs and environmental impacts. To address this issue, our project focuses on developing a Smart Energy Notification Meter designed to help users monitor and control their power usage more effectively. Utilizing the ESP32 microcontroller and a simple LED notification system, the meter provides real-time feedback on energy consumption. The device alerts users when their usage reaches 75% of the set limit with a yellow LED and signals when consumption exceeds the limit with a red LED. This system encourages energy-saving behaviors and helps reduce both energy use and costs.

Objectives

1.To design circuit diagrams and casing hardware.
2.To assemble the power meter with the notification lamp.
3. To construct coding in the Arduino.
4.To set the total amount of power use
5.To connect with the Blynk App
6.To develop the full design of project

Problem Statement

Without real-time data, users often don't know how much power they are using until they get their electricity bills. This can cause them to leave appliances on or use more energy than needed. A good energy monitoring system helps users adjust their habits, reducing waste and improving energy use.

Innovation Highlight

1.Real-Time Energy Monitoring and Notification
2.Visual Power Usage Alerts
3.Customizable Power Limits
4.Cumulative Power Tracking
5.Compact and Integrated Design

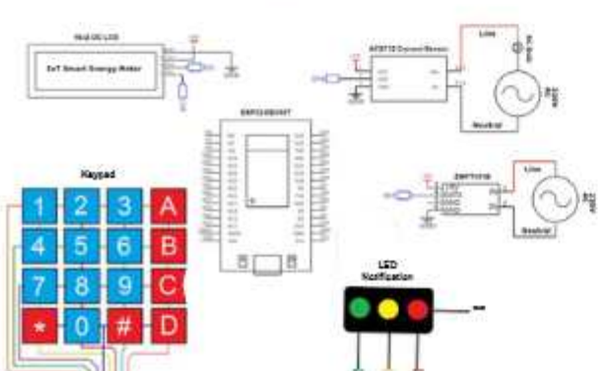
Methodology

1.Data Collection Methods
2.Data Analysis Techniques
3.Study Design
4.Procedures and Tools used
5.Testing and Calibration

Commercial value

1. Energy Cost Savings
2. Targeting Sustainability
3.Scalability for Residential and Commercial Use
4. Cost-effective Energy Management.

Diagram



Conclusion

In conclusion, the Smart Energy Notify (SEN) Meter offers a simple and effective way to monitor and control energy use in real-time. It lets users track power consumption, set limits, and receive alerts through LEDs and an LCD display. This helps reduce energy costs and avoid overuse. Its easy to use design makes it a great tool for homes and small businesses, promoting better energy management and sustainability.

POLITEKNIK PORT DICKSON
PROJECT ID : 1761

POWER MONITORING AND RECORDING USING IOT FOR SINGLE PHASE

INDIVIDUAL :
NEELLESH RAM A/L SARAVANAN
06DEQ22F1018

SUPERVISOR :
ENCIK. MOHD IZHAR BIN AHMAD

BACKGROUND

The Power Consumption Monitoring and Recording System using IoT for Single-Phase utilizes the **SCT013-010** current sensor and **ZMPT101B** voltage sensor to measure real-time electrical parameters. An ESP32 microcontroller processes and uploads the data to **Google Sheets** through **Apps Script**, enabling cloud- based storage. Users can access the recorded data from any device via a shared link to the Google Sheet, facilitating remote monitoring of voltage, current, and power consumption. This system provides a reliable and efficient way to analyze energy usage trends without notifications or alerts.

OBJECTIVE

1.To develop a system using SCT013- 010, ZMPT101B, and ESP32 to unable meauasruing voltage, current, and power.This helps to ensure data collection and real-time cloud communication.

2. To Optimise ESP32 coding to process sensor data and uploading it to Google Sheets via Apps Script for efficient transfer and multi-device access.

3. To enable real-time monitoring to help users identify inefficiencies, reduce waste, and promote sustainable energy management.

DESIGN SOLUTION

1. Modular Hardware Design: The system incorporates easily integrable sensors and an ESP32 microcontroller, allowing for flexible installation and scalability to different applications.

2. Cloud-Based Data Management:
Utilizing Google Sheets for data storage and visualization streamlines access and analysis, enhancing user engagement and usability.

METODOLOGY

1. Planning: Select sensors, ESP32, and design data flow.
2. Hardware: Assemble, integrate, and test sensors.
3. Software: Code and upload data to Google Sheets.
4. Testing: Calibrate and ensure smooth recording.
5. Deployment: Connect and share access links.
6. Evaluation: Monitor and improve performance.

CONCLUSION

In conclusion, the Power Consumption Monitoring and Recording System using IoT provides real-time tracking of voltage, current, and power consumption, helping users identify inefficiencies and manage energy effectively. With seamless data transmission to Google Sheets via ESP32 and Apps Script, the system ensures easy access and analysis from any device. This project not only promotes energy efficiency but also encourages sustainable practices through informed decision-making. Its cost-effective design and user-friendly interface make it suitable for residential and commercial use. Overall, the solution addresses key challenges related to energy management and empowers users to reduce energy waste.

PROBLEM STATEMENT

1. Single-Phase Power Supply
- Two-wire AC circuit (phase + neutral). - Used in residential homes for lighting and heating.

2. Challenges in Malaysia
- Voltage Fluctuations & Unstable Supply: Causes appliance damage and inefficient operations.
- Power Outages: Disrupts daily activities. - Voltage Imbalances: Leads to poor performance and higher energy costs.

3.Limitations of TNB App - Monitors only monthly bills.
- No real-time tracking of energy use by individual areas or appliances.

4. Impact on Consumers -No effective tools to manage and optimize energy consumption.

INOVATION HIGHLIGHT

1. Real-Time Monitoring and Recording: Continuous voltage, current, and power consumption tracking allows users to analyze energy usage patterns in real-time.

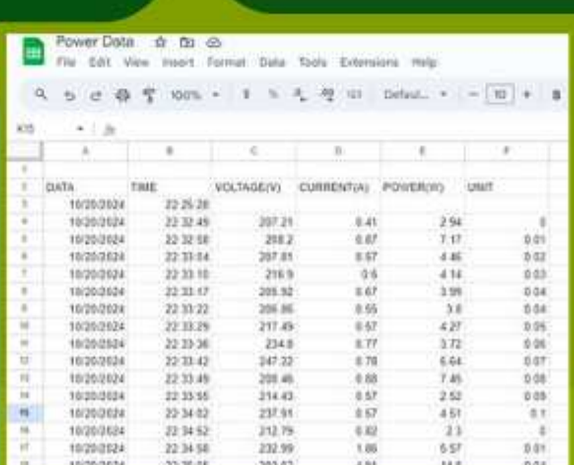
2. IoT Integration: The ESP32 microcontroller and cloud technology enable seamless data transmission to Google Sheets for easy access and analysis.

3. Sustainability Focus: Promotes sustainable energy management practices by encouraging users to minimize energy waste and enhance conservation efforts.

COMMERCIAL VALUE

1. Growing Demand for Energy Efficiency: The project meets increasing market demand for innovative energy monitoring solutions, helping consumers and businesses optimize their energy usage.

2. Data Analytics Opportunities: The collected power consumption data can enable advanced analytics services, creating potential revenue streams through subscription models or consulting on energy management.



Power Data

	A	B	C	D	E	F
1						
2	DATA	TIME	VOLTAGE(V)	CURRENT(A)	POWER(W)	UNIT
3	19/20/2024	22:25:28				
4	19/20/2024	22:32:49	207.21	0.41	2.94	0
5	19/20/2024	22:32:58	208.2	0.67	7.17	0.01
6	19/20/2024	22:33:04	207.81	0.67	4.46	0.02
7	19/20/2024	22:33:10	216.9	0.6	4.14	0.03
8	19/20/2024	22:33:17	209.92	0.67	3.99	0.04
9	19/20/2024	22:33:22	206.86	0.55	3.8	0.04
10	19/20/2024	22:33:29	217.49	0.67	4.27	0.05
11	19/20/2024	22:33:36	234.8	0.77	3.72	0.06
12	19/20/2024	22:33:42	247.22	0.78	6.64	0.07
13	19/20/2024	22:33:49	208.46	0.68	7.45	0.08
14	19/20/2024	22:33:55	214.43	0.57	2.52	0.09
15	19/20/2024	22:34:02	237.91	0.57	4.51	0.1
16	19/20/2024	22:34:52	212.79	0.62	2.3	0
17	19/20/2024	22:34:58	232.99	1.86	6.57	0.01
18	19/20/2024	22:35:05	203.62	4.91	14.8	0.04

RESULT OF DATA

PICTURE

PICTURE OF THE PROJECT

POLITEKNIK MALAYSIA Port Dickson

MOBILE LED FLUORESCENT LAMP

MUHAMMAD HAFIZUDDIN BIN MUHAMMAD ISA
06DEQ22F1010

ENCIK IZHAR BIN AHMAD
SUPERVISOR

MUHAMMAD NOOR HAIKAL BIN MOHAMAD YUSOFF
06DEQ22F1023

01 BACKGROUND OF STUDY

Traditional lamps waste energy by staying on continuously, even when not needed. With rising energy costs and a focus on sustainability, there's a need for smarter lighting solutions that reduce power consumption while maintaining safety and efficiency.

02 PROBLEM STATEMENTS

Fluorescent lamps in public spaces often stay on for long hours, wasting electricity and increasing costs. These lamps also operate at full brightness regardless of whether the area is occupied, reducing their lifespan. A smart solution is required to address these inefficiencies.

03 OBJECTIVE

1. Design a lamp that detects motion and adjusts lighting automatically.
2. Develop an energy-efficient system using motion and light sensors.
3. Reduce energy consumption and operational costs.
4. Enhance safety in frequently used areas.

04 INNOVATION HIGHLIGHT

- Motion Detection: Automatically switches on/off based on presence.
- Light Adjustment: Modifies brightness according to ambient light.
- Energy Efficient: Saves up to 50% power using LED technology.

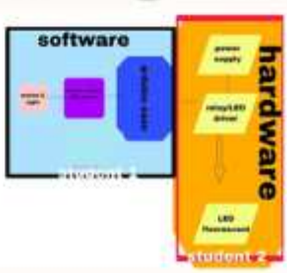
05 COMMERCIAL VALUES

- Cost Savings: Lower electricity bills and maintenance costs.
- Environmental Impact: Reduces energy use and carbon emissions.
- Scalable: Suitable for various applications in public and private spaces.
- Marketable: Appeals to businesses, government agencies, and institutions focusing sustainability

06 CONCLUSION

In conclusion, our mobile-controlled lighting system, using motion sensors and LDRs, effectively reduces energy waste and improves street lighting. It saves electricity, lowers costs, and extends light lifespan, with environmental benefits. Despite challenges, we've created a practical solution that can be improved and scaled for wider use.

07 BLOCK DIAGRAM



SCAN ME:

POLITEKNIK MALAYSIA
PORT DICKSON

AIR HANDLING UNIT (AHU) TRAINER

KEMENTERIAN PENDIDIKAN TINGGI

MUHAMAD SYAZWAN BIN MUHAMAD SHAH
06DEQ22F1014

SUPERVISOR
ENCIK MOHD IZHAR BIN AHMAD

YUSMAN FAHMIE IRFAN BIN YUNUS
06DEQ22F1002

1 BACKGROUND OF STUDY

The project topic, centered around the development of an educational Air Handling Unit (AHU) trainer, delves into the realm of HVAC (Heating, Ventilation, and Air Conditioning) systems. In the context of modern building infrastructure, AHUs play a pivotal role in ensuring optimal indoor air quality, temperature regulation, and humidity control.

2 PROBLEM STATEMENTS

Electrical engineering (Energy Efficiency) student are having problem to completely understand about AHU system during study Energy Efficiency 1 in semester 4 because the subject only study using theoretical method.

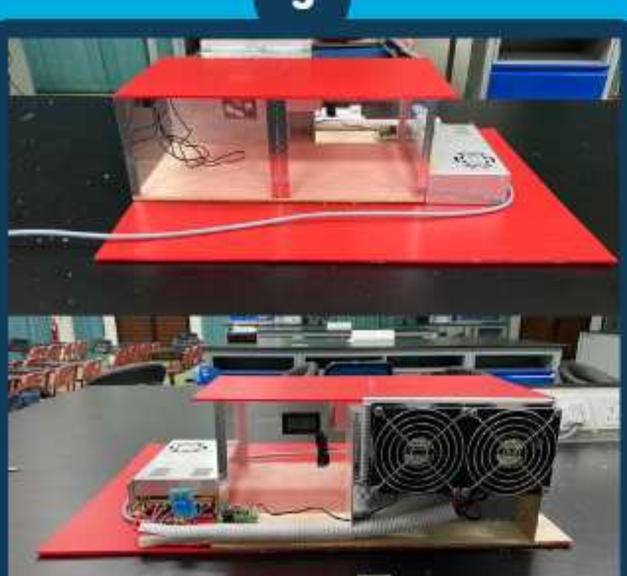
3 OBJECTIVE

1. to design a AHU model room system and the air circulation. 2. to create a model of cooling system using peltier and combine with full model 3. to install temperature sensor for monitoring 4. to create a ducting for airflow to each room

4 INNOVATION HIGHLIGHT

- Using peltier instead of HVAC to minimize the size and space of this trainer
- Create a smaller size of AHU for student to see the circulation of AHU
- Install the humidity and temperature sensor for monitoring.

5

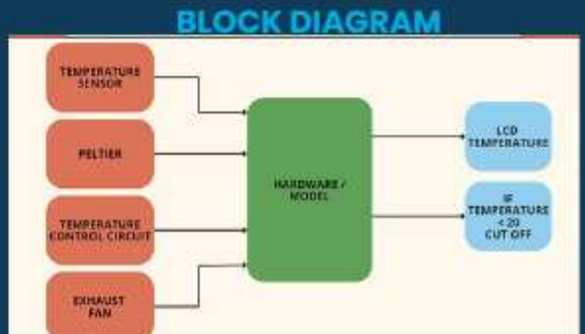


6 COMMERCIAL VALUES

This project can be used for polytechnic student

- for electrical engineering student (Energy Efficiency)
- More efficient by using peltier as cooling system because peltier consume lower watt.

7 BLOCK DIAGRAM



INTEGRATED VENTILATION HOME SYSTEM USING ESP32 + BLYNK APP

Project ID : 1767
Team Member :
Muhammad Affin Ikmal bin Abdul Qaiyum I Muhammad Hazim bin Ayup
Noraziah binti Abu Bakar (SV)

BACKGROUND

- This project explores passive cooling strategies, such as improved ventilation, to reduce energy use and enhance comfort in Malaysia's traditional terraced houses. By improving these methods, the project aims to decrease air conditioning reliance and support sustainability efforts.

PROBLEM STATEMNT

- B40 categoriees cannot aford to buy air conditioner.
- Most of the resident house usualy use manual controlling system.
- Most of the humidifier in market dont have humidity level detection (On and Off manually)

OBJECTIVE

- To construct model prototype automatic control for exhaust fan and air humidifier system.
- To develop Esp32 programing control system with blynk apps.
- To analyze functional, data monitoring temperature and air humidity system.

INNOVATION HIGHLIGHT

- An affordable automated system that adjusts temperature and humidity without manual effort. Uses low-cost components, making it
- accessible for B40 households. Provides energy-efficient cooling, improving comfort
- and saving on electricity bills.

COMMERCIAL VALUE

- Low cost and affordable
- This product can control humidifier and exhaust fan automatically or manually using smartphone (Blynk App)

METHODOLOGY

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

- **SOFTWARE : Esp32 HARDWARE :** When the
- temperature reach more than 30C , exhaust fan will turn on while humidifier will turn on when the humidity reach below than 50%. Then, exhaust fan will turn off when reach below 30C and humidifier will turn off when humidity reach more than 50%.

DIAGRAM/PICTURE

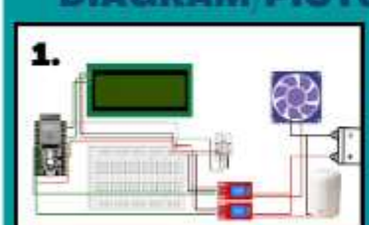


Figure 1 : Circuit Diagram
Figure 2 : Real circuit and Blynk App
Figure 3 : Mini House Prototype

Video Demo

SCAN ME

CONCLUSION

- The project outcome has achieved the objective in providing that affordable comfort and energy savings for B40 households.
- The function of the components is to reduce the temperature and stabilize the humidity in the house and it controlled by Esp 32 and blynk

AUTOMATIC FLOOD GARAGE USING ESP32

ID PROJECT : 1772

POLITEKNIK MALAYSIA
Port Dickson

TEAM MEMBER :
MUHAMMAD SHAHRIL BIN SUHAMI @ SUHAIMI
NURHAN AHMAD HAZIQ BIN MOHD RIZAL
PUAN NORAZIAH BINTI ABU BAKAR (SV)

01 BACKGROUND

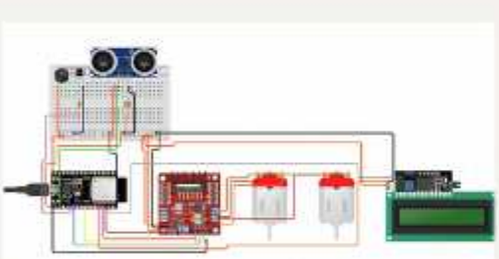
The Automatic Flood Garage Project aims to address the challenges posed by flooding in residential areas, particularly in relation to the protection of vehicles stored in garages. Flooding can cause extensive damage to vehicles, leading to financial losses and disruptions to daily life. This project seeks to mitigate these risks by developing a system that automatically detects rising floodwaters and lifts the garage platform to protect the vehicle.

02 OBJECTIVE

- To construct model prototype for automatic platform garage
- To develop programming an automatic garage using ESP 32
- To analyze functionality and monitoring water level system

03 PROBLEM STATEMENT

- Lack of Real-Time Information: mostly resident house don't have monitoring and automation system
- Inability to Prepare Early : People fall asleep, not be able to protect their furniture
- Risk Cars Sinking : floodwaters rise quickly, cars can sink resulting in total loss and potential safety hazards
- Area Resident house



04 INNOVATION HIGHLIGHT

- Real-Time Flood Monitoring and Response: monitoring water level sensors in garage connected to an Esp32 controller sends notifications and alarms to the user's smartphone.
- Automated Platform Lifting Mechanism : When floodwater reaches a certain level, a system automatically activates a DC motor-powered platform to lift the car, keep car safe This self- operating mechanism requires no human intervention, making it especially useful if the homeowner is away or asleep.

05 COMMERCIAL VALUE

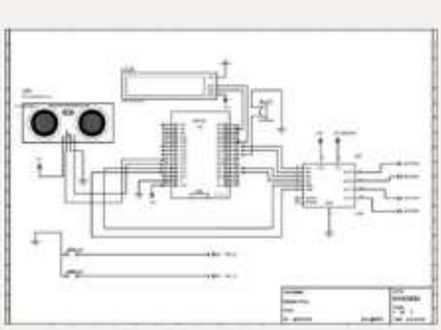
- Growing Market Demand: With using automatic monitoring waterflood system via Blynk app through smartphone
- this product can be controlled via smartphone Blynk app (automatic) and manual
- This area only specific 3 feet flood level

DIAGRAM

06 METHODOLOGY

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

- SOFTWARE : Arduino ESP32, Blynk apps. HARDWARE : Install the water level sensors at the desired
- points in the garage to monitor flood levels. Connect the sensors to the Arduino UNO R3 board. Set up the DC motor and jack system for the automatic lifting mechanism of the platform. Integrate a buzzer for local alarms and establish a communication interface (Bluetooth/Wi-Fi) for smartphone notifications. Power Supply : source for the DC motor and source for Arduino system Analya project :
- for this project collect data about real time waterflood
-



07 CONCLUSION

This project successfully demonstrates the development of an Arduino-based automatic garage flood prevention system that provides a reliable, automated solution for protecting vehicles in flood-prone areas. Through the use of water level sensors, an DC motor-powered lifting mechanism, and real-time smartphone notifications, the system addresses the common issues of flood damage, offering early detection and immediate response.

DIAGRAM SCHEMATIC

3 PHASE MONITORING PVI FOR ENERGY EFFICIENCY TRAINER


WAN MUHAMMAD FATAH AIMAN BIN WAN ROSLEE
06DEQ22F1008


PUAN NORAZIAH BTE ABU BAKAR
SUPERVISOR


MUHAMMAD AFIQ BIN MOHD ANUAR
06DEQ22F1021

VIDEO DEMOSTRATION

01 BACKGROUND OF STUDY

This project focuses on addressing The 3-phase trainer system, designed to provide students with a real-world demonstration based on feedback from supervisory control (SV). This hands-on experience allows students to observe and understand the actual values of current, voltage, and power in a 3-phase system. By using the trainer, students can gain practical knowledge essential for their subject in energy efficiency such as , making the learning process more interactive and effective. The system helps bridge the gap between theoretical concepts and real-world applications, enhancing their understanding of 3-phase systems.This system also monitoring from the phone via blynkk app

02 PROBLEM STATEMENTS

1.Lack of Specialized Trainers: Existing kits don't meet the needs for 3-phase monitoring, limiting students' learning and skill development.
2.No Suitable Equipment: Without proper 3-phase monitoring systems, students miss out on hands-on learning opportunities.
3.Manual Monitoring Systems: Current methods rely on manual data collection, which is slow and inefficient for educational purposes.

03 OBJECTIVE

1.To construct a 3 Phase Monitoring Current, Voltage, and Power for Energy Efficiency Trainer
2.To develop ESP32 programming for monitoring and integration with Blynk via smartphone
3.To analyze monitoring data value and effectiveness of the trainer kit

04 INNOVATION HIGHLIGHT

1.easy to monitor daily electricity manually by LCD
2.users can view their energy electricity using a phone via Blynkk apps
3.Develop new 3 phase trainer for JKE student at Polytechnic Port Dickson

05 SUSTAINABILITY ELEMENT

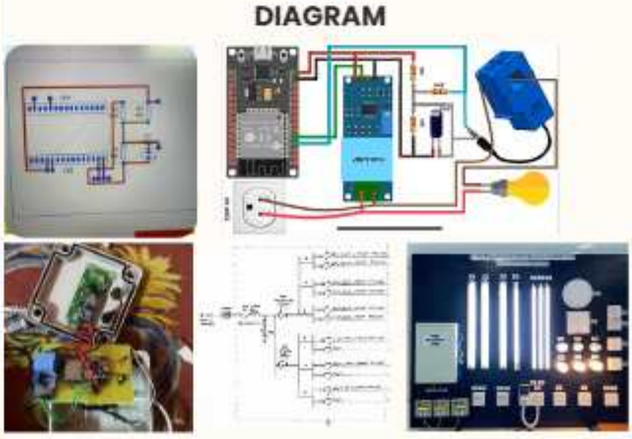
1.Promoting Energy Efficiency: The trainer aligns with global efforts to promote energy efficiency, which is crucial for achieving sustainability goals. By educating students and industrial users about the importance of efficient energy

2.Long-Term Impact on Educational Practices: Through hands-on learning, students are equipped with practical skills to assess energy consumption and optimize energy systems. These skills are key for future engineers and professionals tasked with designing energy-efficient systems

06 COMMERCIAL VALUES

1.IoT integration enables real-time monitoring via a smartphone using the Blynk app and measurement display on an LCD for PVI (Power, Voltage, Current).
2.A versatile application that is useful for lectures and students in educational institutions (JKE PPD) while also offering practical implementation for industrial energy auditing.
3.A hands-on learning approach is ideal for teaching energy management, auditing (DEQ 40023), and other electrical engineering subjects, giving students practical experience and a deeper understanding through real-world systems and experiments.

07 DIAGRAM



SENARAI PROJEK & PINGAT ESITEX SESI I 2024/2025

PROJEK DEQ 5B

BIL.	NO PENDAFTARAN	NAMA PELAJAR	ID PROJEK	TAJUK PROJEK	PENYELIA	PINGAT
1	06DEQ22F1015	MUHAMMAD NIZAMUDDIN BIN MUHAMMAD NASARUDIN	1734	AUTOMATIC WATER DISPENSER	HAMRIN BIN ABU HASAN	GOLD
2	06DEQ22F1030	MUHAMMAD HAZIM HAKIMI BIN YASMADI				
3	06DEQ22F1013	SYAHRULAIZIE BIN KHAIRUL ANWAR	1736	SMART DUSTBIN		SILVER
4	06DEQ22F1007	ABDUL WAHID BIN MOHD ARIFFIN				
5	06DEQ22F1011	MUHAMMAD ADAM YEOH BIN MUHAMMAD HADI YEOH	1724	SMART ROOM	ROZAINI BINTI RAHI	BRONZE
6	06DEQ22F1024	IRFAN SYAMIR BIN SUHAIRI				
7	06DEQ22F1032	MUHAMMAD NAZIF BIN BUDI	1733	HEADPHONE AF		BRONZE
8	06DEQ22F1003	MUHAMMAD ALI IMRAN BIN ZUNURAIN				
9	06DEQ22F1028	MUHAMMAD DANISH BIN AZLAN SHAH	1721	SMART TABLE STUDY	ZULKURNAIN BIN HASSAN	GOLD
10	06DEQ22F1039	MOHAMAD RAHMAN BIN ABDULLAH				
11	06DEQ22F1009	MUHAMMAD AMIRUL AZHIM BIN MAHDI	1784	SMART UMBRELLA		NONE
12	06DEQ22F1005	ZULHAIKAL ADAM BIN ZULKIFLI				
13	06DEQ22F1001	PUTERI NOOR HAZIQAH BINTI MOHAMAD YAHYA	1719	GARBAGE COLLECTOR ROBOT		BRONZE
14	06DEQ22F1034	NABILAH SYAMIMI BINTI MOHD FARID				

POLITEKNIK MALAYSIA PORT DICKSON

POLITEKNIK PORT DICKSON

PRODUCT ID: 1734

PRODUCT NAME: Automatic Water Dispenser

TEAM MEMBER :
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MUHAMMAD HAZIM HAKIMI BIN YASMADI (06DEQ22F1030)

SUPERVISOR :
SIR HAMRIN BIN ABU HASAN

BackGround

This project was developed to meet the growing need for a more convenient, hygienic, and eco-friendly water dispenser. Traditional dispensers often result in water waste and hygiene concerns due to manual operation. With features like automatic water flow, level sensors, and an emergency stop button, this dispenser promotes water conservation and touch-free use, addressing both environmental and safety concerns. It is designed for homes, offices, and public spaces, aligning with modern demands for efficiency and sustainability.

Problem Statement

Water dispensers are commonly found in households, but their use is limited during outdoor activities due to the lack of power sources

- Parents face challenges in supervising children while refilling water, increasing the risk of accidents, such as burns from hot water.
- Increased plastic waste, Relying on single-use plastic bottles may increase environmental pollution due to inadequate refillable options.
- Decreasing expenditure especially regular households or frequent travelers.

Objective

- The promotion of Portable water dispenser, instead of single-use plastic bottles, is a significant step towards environmental sustainability. To design tools or products
- that can minimize the cost saving used To build tools or items that can make it easier for users. To analyse ,
- preferences, and expectations of users
- different environments such as dispensing site, workplaces, or public spaces.

Innovation Highlight

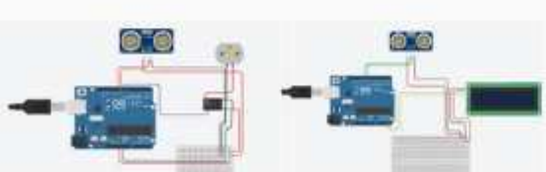
- **Automatic Water Flow** :Water flows automatically when a glass is placed under the tap.
- **Emergency Stop Button** :Quickly stops water in case of problems, preventing spills.
- **Water Level Sensor** :Shows how much water is in the container, preventing overfilling or running out
- **Touch-Free Operation** :No need to touch the dispenser, making it more hygienic

Design Solution

Commercial Value

The water dispenser project offers convenience, safety, and safety features, appealing to users in offices, homes, and public spaces. Its automatic water flow, level sensors, emergency shutoff, and touch-free design enhance hygiene, making it attractive to eco-conscious consumers and businesses.

Diagram/Picture



Methodology

The methodology involves identifying the need for an efficient, hygienic water dispenser, then designing a prototype with key features like automatic dispensing, water level sensors, and an emergency stop button. After building and testing the system for functionality and safety, user feedback is gathered for improvements. The final design is optimized for production and ready for market release.

Conclusion

The water dispenser project offers an innovative solution that combines convenience, efficiency, and safety. With automatic water dispensing, a water level sensor, and an emergency shutoff button, it enhances user experience while promoting hygiene and reducing water waste. Its touch-free operation and user-friendly design make it suitable for a wide range of environments, including offices, homes, and public spaces. By addressing common issues with traditional dispensers, this project provides a modern, eco-friendly alternative with strong commercial potential in various markets.

TEAM MEMBER:
SYAHRULAIZIE BIN KHAIRUL ANWAR
ABDUL WAHID BIN MOHD ARIFFIN
SUPERVISOR:
KPT. HAMRIN BIN ABU HASAN

SMART DUSTBIN

Smart Dustbin is an automatic waste disposal unit equipped with ultrasonic sensors, lid opening mechanisms, and waste level detection. It helps maintain cleanliness and convenience by reducing physical contact with the trash.

1. KEY FEATURES

- Automatic lid: Open when it detects objects near 20cm with sensors.
- Sensor range: usually 7-20 cm above the sensor. Waste level indicator:
- Warning when the junk is full of buzzer will sound. Replaced batteries: for sensor and motor operations.
-

SCHEDULE STUDENT CHECK-IN TIMES

- Lid operations:

-Your hand wave 20 cm above the sensor area. The lid will open automatically and open for 3-5 seconds after detecting no motion.
-If the bin is full, remove the bag manually before it overflows.

- Waste bag replacement:

-Open the lid manually or automatically, remove the filled bag, and replace it with a new one.

MAINTENANCE TIPS

- Cleaning:

- Clean the outside with a damp cloth. Avoid water near the sensor area. - Wipe the inside of the barrel with light soap and water. - Do not sink the electronic parts in the water.

- Maintenance sensor:

- Make sure the sensor area is clean from dust or debris for optimal performance.

- Battery replacement:

- Replace the battery when the lid is slow or not speaking.

TROUBLESHOOTING

- The lid is not open:

- Check the power supply or replace the battery.
- Make sure there are no obstacles to the sensor.

- Opened closing:

- The sensor may be dirty. Clean with a dry cloth.

- Bin does not feel the movement:

- Sensors may be damaged or protected. Check and clean the sensor.

SAFETY PRECAUTIONS

- Do not allow water to get into the sensor or motorized areas.
- Do not overload the bin, as this can damage the lid mechanism.
- Ensure children do not play with the bin to prevent accidents.

POLITEKNIK MALAYSIA
PORT DICKSON

POLYTECHNIC PORT DICKSON
PRODUCT NO: 1724



SMART ROOM

1) IRFAN SYAMIR BIN SUHAIRI (06DEQ22F1024)
2) MUHAMMAD ADAM YEOH BIN MUHAMMAD HADI YEOH (06DEQ22F1011)
SUPERVISOR NAME: PN. ROZAINI BINTI RAHI

BACKGROUND

A smart room is a space equipped with sensors, actuators, and other devices that collect data about the environment and its occupants, analyze this data, and respond accordingly to enhance comfort, convenience, and efficiency.

PROBLEM STATEMENT

- Increased wastage of electricity.
- Humans often forget to turn off lights and fans after use.
- Humans don't need to spend energy to open / close the switch, it can only be used through the application.

OBJECTIVE

i) To create a source code for this smart room

ii) To construct a smart room to lower the usage of electricity

iii) To design a way to control fans and lights only through a mobile phone.

METHODOLOGY

Smart room projects use a multidimensional strategy that integrates research design, circuit construction, model creation, and software implementation to realize the concept of intelligent living spaces. The key components of methodology—research design, block diagram, flow chart, circuit building, model creation, and coding/software utilization—are outlined in this introduction.

INOVATION HIGHLIGHT

i) The use of sensor and automation technology to intelligently control lighting and fans through mobile applications.
ii) A smart system that saves energy by minimizing electricity waste.
iii) Remote control for electronic devices that improve comfort and energy efficiency in the home.

COMMERCIAL VALUE

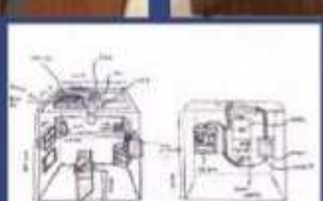
- Meet the tastes and needs of consumers.
- Can be sold and used by consumers.
- Can reduce electricity bill savings.
- Make it easier for users to use applications for products.

CONCLUSION

In conclusion, smart room projects that focus on energy efficiency show great potential to reduce energy consumption through systems, such as smart lighting and climate control. The integration of real-time monitoring and a user-friendly interface improves overall sustainability and promotes conscious energy use.

DIAGRAM/PICTURE





POLITEKNIK MALAYSIA PORT DICKSON

POLYTECHNIC PORT DICKSON
PRODUCT ID:
HEADPHONE AF


TEAM MEMBER: MUHAMMAD NAZIF BIN BUDI (06DEQ22F1032)
MUHAMMAD ALI IMRAN BIN ZUNURAIN (06DEQ22F1003)
SUPERVISOR : Puan ROZAINI BINTI RAHI

BACKGROUND

This project enhances smart headphones with a 6-axis sensor (MPU6050) and Bluetooth module (HC-05) to detect inactivity, falls, or removal. After 2 seconds of inactivity, a buzzer sounds, and after 5 seconds, playback pauses automatically. This system ensures seamless, hands-free audio control, ideal for fitness, commuting, and uninterrupted listening.

PROBLEM STATEMENT

1. Manual playback control
2. No fall detection
3. Inaccurate inactivity detection
4. Frequent interruptions
5. Limited capability

OBJECTIVES

To automate audio control through motion and inactivity detection.
To detect falls or removal automatically.
To provide audio alerts after 2 seconds of inactivity.

METHODOLOGY

INNOVATION HIGHLIGHT

The project features automatic audio control, pausing music when headphones are removed or inactive. It uses real-time inactivity monitoring to ensure a seamless audio experience without interruptions.

COMMERCIAL VALUE

Market demand for innovative headphone features.
Enhanced user experience improves satisfaction and loyalty.
Competitive advantage through unique motion detection.

CONCLUSION

Enhances functionality through motion detection and automatic playback control.
Automates audio management for a seamless, hands-free experience.
Provides inactivity alerts to improve user awareness.
Versatile and suitable for fitness, commuting, and more.

DIAGRAM/PICTURE

POLITEKNIK MALAYSIA PORT DICKSON

POLITEKNIK PORT DICKSON

PRODUCT ID: 1721

PRODUCT NAME: SMART TABLE STUDY

TEAM MEMBER :
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MUHAMMAD DANISH BIN AZLAN SHAH (06DEQ22F1028)

SUPERVISOR :
TS.ZULKURNAIN BIN HASSAN

BackGround

This project upgrades a regular study table with a lamp and fan into a smart table for added convenience. Normally, the user manually switches the lamp on when it's dark and adjusts the fan. With this smart table, an LDR automatically turns on the lamp when the room gets dark. A sound sensor lets the user control the fan—turning it on with one clap and off with two claps. Additionally, a Wi-Fi module allows remote control of the lamp and fan through a smartphone, making the study environment easier to manage.

Objective

Student 1

- To develop a smart table equipped with a light sensor that automatically turns on the lamp when the room is dark, ensuring optimal lighting conditions for study or work.
- To entegrate a sound sensor that activates the fan when it detects two claps, providing a hands-free way to adjust the environment based on user activity.

Student 2

- To establish Wi-Fi connectivity for remote control, allowing users to turn the lamp and fan on or off through a mobile app, enhancing convenience and flexibility in managing their workspace.

Diagram/Picture

Figure 1.0

Figure 2.0

Figure 3.0

Figure 1.0 : Protype Design
Figure 2.0 : Mini House Prototype
Figure 3.0 : Circuit Diagram & Blynk App

Problem Statement

student

- Difficulty maintaining optimal lighting during study sessions.
- Manual light operation disrupts focus and productivity. Adjusting fan settings while studying can be distractng.

family

- comfort and energy efficiency is difficult in shared spaces.
- Manually controlling lighting/fans leads to inconsistent comfort. Children/elderly struggle to adjust settings manuall

Innovation Highlight

- **Automatic Lighting Control:** The LDR (Light Dependent Resistor) automatically turns on Lamp 1 when the room gets dark, ensuring optimal lighting for studying without the need for manual adjustments
- **Sound-Activated Fan Control:** A sound sensor allows the user to control Fan 1 with simple claps—turning the fan on with a single clap and turning it off with a double clap—enabling hands-free operation.
- **Wi-Fi-Enabled Remote Control:** Integration of a Wi-Fi module allows users to control both Lamp 1 and Fan 1 through a smartphone app, offering flexibility and ease of use, even from a distance.
- **Energy Efficiency:** The automated system helps to conserve energy by only turning on the lamp or fan when necessary, ensuring that they are not left running when not needed.

Commercial Value

Market Demand

- The product appeals to students, professionals, and anyone working from home who values a comfortable and efficient workspace. The integration of smart technology into everyday furniture can attract tech-savvy consumers.

Ease of Use and Installation

- The smart table's features, such as LDR and sound sensor controls, provide intuitive and hassle-free operation. Users can easily manage the lamp and fan through simple gestures (claps) and smartphone applications.

METHODOLOGY

This project involves designing a smart study table that uses an LDR to control Lamp 1 and a sound sensor to control Fan 1, integrated with WiFi for remote control. First, an LDR is connected to an Arduino, which monitors ambient light levels and automatically turns on Lamp 1 when the room is dark. The sound sensor is programmed to detect claps: one clap turns on Fan 1 permanently, and two claps turn it off. Additionally, an ESP-01S module allows for WiFi control of both Fan 1 and Lamp 1, enabling remote on/off switching through a smartphone or web interface. The system is coded in Arduino IDE, integrating RemoteXY for the WiFi interface.

Conclusion

- This smart study table setup enhances energy efficiency by automating the control of a lamp and fan based on environmental conditions and user input. The LDR ensures that Lamp1 only turns on when the room is dark, reducing unnecessary electricity use. The sound sensor provides manual control over Fan1, allowing it to be turned on or off with claps—either permanent off or temporary off for flexibility—minimizing energy waste. Additionally, the Wi-Fi control feature allows remote operation of both the fan and lamp, offering convenience and further reducing power consumption by ensuring they are only used when needed.

POLITEKNIK MALAYSIA
Politeknik Port Dickson
Zulhaikal Adam Bin Zulkifli
(06DEQ22F1005)

NEW

SMART Umbrella

Background

Over 4,000 years ago, in ancient Egypt and Assyria, people used umbrellas called parasols to protect themselves from the sun. These parasols weren't waterproof like today's umbrellas, as they were made only for shade. While no one knows exactly who invented the first parasol or when, it's likely that humans have used some form of sun protection for a long time, since people have always needed to shield themselves from the elements.

Objective

To create: A circuit that reacts to darkness and too brightness to turn the servo

To invent: A circuit that enables servo to turn 90 degrees to open the umbrella after the raindrop sensor sensed rain

Problem Statement

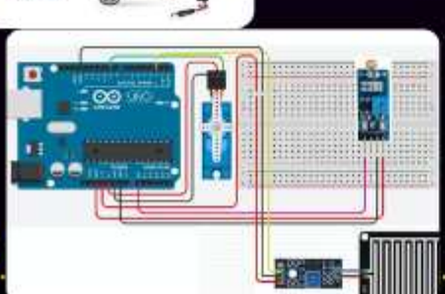
In unpredictable weather conditions, people often struggle with manually handling umbrellas, especially when their hands are occupied or when sudden rain catches them off guard. Traditional umbrellas also require users to manually open and close them, which can be inconvenient in tight spaces or when carrying items. Additionally, strong winds can easily damage umbrellas or make them difficult to use.

Inovation Highlights

The raindrop module sensors worked together with light sensor to figure out a weather conditions to determine an output based on coded limitations that was set on the coding inside the arduino

Design Solution

1.Preparing a reliable module to sense raindrops
2.Implement Light Sensors (LDR) to figure weather conditions
3.Utilize servo as a tool to trigger the umbrella to open automatically



Comercial Values

Convenience:
Automatic umbrellas offer hands-free operation, making it easier for users to open and close the umbrella at the push of a button, especially when carrying items or in a hurry.
Time-Saving:
With its quick deployment mechanism, the automatic umbrella opens and closes instantly, saving users time during unexpected weather changes.
User-Friendly:
The simple design of the automatic system makes it accessible for people of all ages, including the elderly and those with limited mobility.

POLITEKNIK PORT DICKSON

Product ID : 1719

GARBAGE COLLECTOR ROBOT

SUPERVISOR : TS. ZULKURNAIN BIN HASSAN

NABILAH SYAMIMI BINTI MOHD FARID (F1034)
PUTERI NOOR HAZIQAH BINTI MOHAMAD YAHYA (F1001)

1. BACKGROUND

Waste management poses significant challenges, with traditional garbage collection methods requiring extensive labor and exposing workers to hazardous conditions. Inefficient sorting between recyclable materials, such as metals, and general waste also hinders recycling efforts. To address these issues, this project introduces an automated garbage collector robot designed to improve waste collection efficiency and safety. Equipped with metal and ultrasonic sensors, the robot can detect, sort, and collect metal and non-metal waste while navigating autonomously, making it an innovative solution for modern waste management needs.

2. PROBLEM STATEMENTS

- Manual garbage collection is time consuming and hazardous.
- Lack of efficient waste sorting leads to improper recycling.
- Limited workforce to cover large areas for waste collection.

3. OBJECTIVES

- Automate garbage collection and sorting processes.
- Detect metal and non-metal waste using sensors.
- Ensure efficient navigation to collect waste in various environments.

4. INNOVATION HIGHLIGHTS

The garbage collector robot integrates sensors, real-time data processing, and mechanical movement to sort and collect waste.
Features include:

- Metal detection using a metal sensor.
- Obstacle detection using ultrasonic sensors.
- Automated arm control using servo motors.

5. DESIGN SOLUTIONS

- Sensor selection: Metal sensor for detecting waste type, ultrasonic sensor for navigation
- Hardware setup: Microcontroller setup for controlling sensors and motors.
- Waste sorting: Arm mechanism controlled by servomotors for picking and placing waste

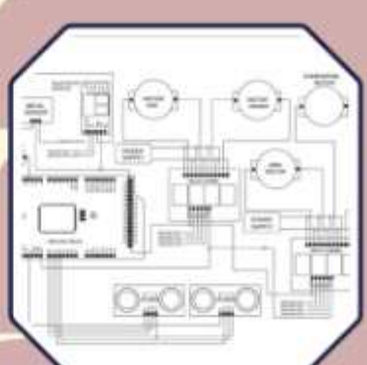
6. COMMERCIAL VALUE

The robot can be marketed to municipalities, large corporations,and residential areas for automated waste collection. It can also be integrated with smart city solutions for more sustainable waste management practices.

7. CONCLUSION

The garbage collector robot project offers an innovative and efficient solution for waste management, incorporating sensors and automation to detect and sort garbage. By utilizing a metal sensor for material identification and an ultrasonic sensor to detect objects and monitor bin capacity, the robot ensures accurate and timely waste collection. The servo motor's role in controlling the arm movements enhances the robot's functionality, making it a practical tool for automating waste disposal tasks. This project showcases the potential of robotics in reducing human effort and improving environmental cleanliness, with significant implications for urban waste management systems.

8. DIAGRAM



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