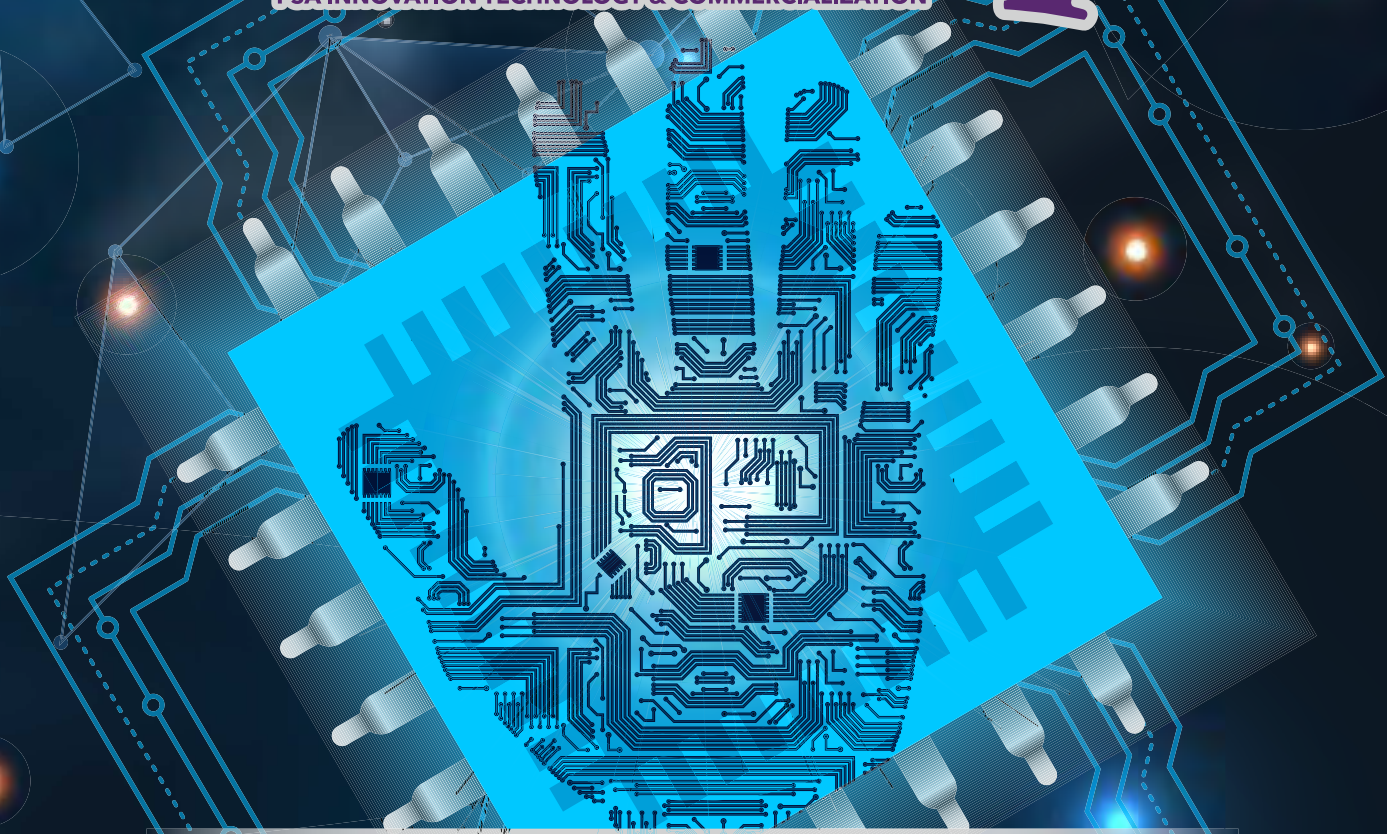
KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

E-BOOK
PERTANDINGAN PROJEK AKHIR PELAJAR
SESI 2 : 2022/2023

POTEC 4
PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION



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E-BOOK

PERTANDINGAN PROJEK AKHIR PELAJAR SESI 2 : 2022/2023

PITEC 4 PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

INNOVATION . ACCELERATES . TRANSFORMATION TVET

Terbitan pertama 2023

E-BOOK

PERTANDINGAN PROJEK AKHIR PELAJAR SESI 2 : 2022/2023

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SEKAPUR SIREH

Assalamualaikum Warahmatullahi Wabarakatuh dan Salam Sejahtera.

Alhamdulillah dan setinggi-tinggi kesyukuran ke hadrat Allah S.W.T kerana dengan limpah kurnia dan izin–Nya maka kita dapat menjayakan Pertandingan Projek Akhir Pelajar dan Pameran Inovasi (PITEC 4) Politeknik Sultan Salahuddin Abdul Aziz Shah (PSA) bagi sesi 2 : 2022/2023 yang bertemakan "Innovation, Accelerates and Transformation TVET".

Tahniah dan syabas diucapkan kepada semua peserta PITEC 4 yang telah memberikan sepenuh komitmen dalam pertandingan projek pada kali ini. Penyertaan pelajar dalam program seumpama ini dapat mengasah bakat, kemahiran serta memupuk minat pelajar untuk menghasilkan produk berinovasi selaras dengan perkembangan sains dan teknologi yang pesat di seluruh dunia.

Di samping itu, penganjuran PITEC 4 juga bertujuan memberi pengiktirafan dan penghargaan kepada pelajar yang telah memerah idea bagi mencetuskan keunikan dalam penciptaan inovasi terkini yang relevan dan bermanfaat buat masyarakat dan negara.

Dalam mendepani cabaran teknologi IR4.0, PSA akan terus mengorak langkah untuk menghasilkan graduan yang dapat memenuhi keperluan ekonomi negara dengan menumpukan aspek kemahiran, teknologi, kreativiti dan inovasi.

Akhir kata, sekali lagi tahniah dan syabas saya ucapkan semua peserta. Ucapan terima kasih juga kepada barisan para juri yang sudi hadir dan terlibat dalam PITEC 4 pada kali ini. Tidak lupa juga kepada jawatankuasa penganjur yang telah bertungkus lumus dan memberikan komitmen yang tinggi sepanjang program berlangsung. Saya yakin langkah kecil kita hari ini menjadi pencetus kepada kemajuan dan perubahan yang lebih besar pada masa akan datang.

DR. NORHAYATI BINTI ZAKARIA
Pengarah
Politeknik Sultan Salahuddin Abdul Aziz Shah
Kementerian Pengajian Tinggi

SEULAS PINANG

Assalamualaikum Warahmatullahi Wabarakatuh dan Salam Sejahtera.

Alhamdulillah, syukur ke hadrat Allah SWT kerana dengan limpah kurnianya Pertandingan Projek Akhir Pelajar dan Pameran Inovasi (PITEC 4) Politeknik Sultan Salahuddin Abdul Aziz Shah (PSA) sesi 2 : 2022/2023 berlangsung dengan jayanya.

Inovasi pada hari ini telah menjadi penanda aras baru global dan sudah pasti menuntut kepada keupayaan penciptaan yang bukan sahaja bersifat baharu, unik dan bermanfaat tetapi juga mampu berfungsi sebagai pemangkin kepada kesejahteraan masyarakat. Pertandingan ini memanifestasikan tahap daya fikir, kreativiti dan inovasi yang tinggi dalam kalangan pelajar.

PITEC 4 berperanan sebagai salah satu platform yang memberi peluang kepada pelajar untuk mengetengahkan idea kreatif dan inovatif selaras dengan Lonjakan Ketujuh dalam Pelan Pembangunan Pendidikan Malaysia 2015-2025 (Pendidikan Tinggi), iaitu Ekosistem Inovasi yang menekankan usaha memperteguhkan aktiviti penyelidikan dan inovasi.

Diharapkan dengan berlangsungnya program seumpama ini akan dapat membantu PSA untuk mencapai KPI bagi teras ke-4 iaitu pembudayaan penyelidikan, inovasi, penerbitan, menyebarkan dan mengaplikasikan hasil projek dan pengkomersialan bagi meningkatkan kompetensi staf dan kebolehpasaran graduan PSA pada masa hadapan.

Saya amat berbangga di atas komitmen yang ditunjukkan oleh semua warga PSA dalam meningkatkan kualiti penyampaian perkhidmatan menerusi inovasi–inovasi yang dilaksanakan. Terima kasih juga diucapkan kepada semua Ahli Jawatankuasa PITEC 4 yang telah berganding bahu memberikan komitmen yang cemerlang sepanjang program berlangsung.

Sekian, terima kasih.

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Sesi 2 : 2022/2023
Politeknik Sultan Salahuddin Abdul Aziz Shah

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TENTATIF PROGRAM
24 MEI 2023

PENJURIAN PROJEK

0800 pagi - 0830 pagi	• Pendaftaran Peserta di Dewan Al-Jazari
0815 pagi - 0830 pagi	• Pendaftaran Juri di Anjung Bestari
0830 pagi - 0845 pagi	• Kudapan Pagi / Sarapan Pagi
0845 pagi - 0900 pagi	• Taklimat kepada Juri di Anjung Bestari
0905 pagi - 1105 pagi	• Proses Penilaian Oleh Juri (40 projek)
1110 pagi - 1150 pagi	• Proses Perbincangan oleh Juri • Pengiraan Markah oleh Urusetia • Keputusan Penganugerahan Pingat /Pemenang

MAJLIS PERASMIAN PENUTUP PITEC 4 SESI 2 : 2022/2023

1200 t/hari - 1210 t/hari	• Ketibaan Ketua Juri, Panel Juri, Ahli Mesyuarat Tertinggi (AMT, PSA), Pensyarah dan Peserta Pertandingan
1210 tengah hari	• Ketibaan Pengarah PSA
1215 petang - 1230 petang	• Bacaan Doa • Ucapan Perasmian Penutup PITEC 4 oleh Pengarah PSA
1235 petang - 0130 petang	• Ucapan Ulasan Ketua Juri • Pengumuman Keputusan Pertandingan • Penyampaian Anugerah • Majlis Bersurai
0130 petang - 0200 petang	• Makan Tengah Hari

PROJECT TITLE

PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION | PITEC 4
SESI 2 : 2022/2023

PROJECT TITLE

MECHANICAL ENGINEERING DEPARTMENT

PROJECT TITLE

MECHANICAL ENGINEERING DEPARTMENT

PROJECT TITLE

ELECTRICAL ENGINEERING DEPARTMENT

PROJECT TITLE

ELECTRICAL ENGINEERING DEPARTMENT

PROJECT TITLE

CIVIL ENGINEERING DEPARTMENT

PROJECT TITLE

CIVIL ENGINEERING DEPARTMENT

PROJECT TITLE

COMMERCE DEPARTMENT

ABSTRACT MECHANICAL ENGINEERING DEPARTMENT

PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION | PITEC 4
SESI 2 : 2022/2023

SOIL PH MONITORING SYSTEM

Alfred Paul A/L Arokiam, Muhammad Danish Irfan Bin Marhadi, Sasi Taran A/L Ramesh, Mohd Sharizan Bin Mohd Sharif,

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Soil pH is a measure of the acidity or alkalinity of a soil. Soil pH is a key characteristic that can be used to make informative analysis both qualitative and quantitatively regarding soil characteristics. Nowadays, the manual process of soil pH monitoring system is often proved inaccurate and not efficient most of the time. This makes finding out the pH value of the soil is late and the maintenance could not be done sooner which often leads to accidents in some fields such as the pipeline is ruptured. After monitoring and researching about this issue, a new and advanced soil pH monitoring system that provides fast and accurate readings of soil pH is designed to solve some of the existing problems. The objective that is targeted for this project is to monitor soil pH remotely and to prevent pipe ruptures due to acidity in soil. A test run will be conducted to make sure the project functions properly as planned. The project will operate when the pH sensor is inserted into the pipe and the pipe will be placed in the soil. Then, the pH sensor will detect the pH value of soil and sends the data to computer or laptop. The laptop and phone will be connected to the same Wi-Fi network to get the pH value. The pH value can also be monitored in the phone through Blynk app and get warning notification if the monitoring system detects acidity in soil. Based on the research conducted, acidic soil can corrode metal pipes over time, causing them to weaken and eventually rupture. The length of time that a pipe takes to rupture due to acidity in soil in oil and gas operations depends on several factors, including the type and thickness of the pipe, the level of acidity in the soil, and the specific conditions of the operation. With this new soil pH monitoring system pipelines' lifespans can be increased and ruptures can be avoided through routine maintenance, inspections, and corrosion prevention methods conducted earlier when the soil pH level is identified remotely earlier.

Keyword : Soil pH, Monitoring system, Sensors

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JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
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SOIL PH MONITORING SYSTEM

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ABSTRACT

In Engineering field, corrosion has been considered as one of primary reasons leading to failures of various industry facilities such as pipelines. Underground pipe ruptures from corrosion due to acidic in soil. Hence,The soil pH sensor used in an industrial-grade soil pH sensor comes with suitable communication protocol and Real Time Monitoring capability. The real time pH monitoring system sends the data to cloud/server and can be visualised in Mobile phones or back end system. The system also provides instantaneous notification in the case of abnormalities in measured pH which helps us to detect the acidic of the soil and prevent the occurring of pipe rupture.

IMPACT OF INNOVATION

ADVANTAGE

- Can monitor the pH sensor through mobile phone.
- Record pH value every second in the system and also get notified of acidic warning if the pH is too low.
- Mainteriance can be done sooner.

MARKET POTENTIAL

- This project targets for any industry that uses underground pipes especially for Oil & Gas Engineering.

DURABILITY

- Does not expire.
- Low data usage.
- Easily can connect the prototype.

PROBLEM STATEMENT

- Pipe ruptured due to the acidity of soil.
- Maintenance could not be done sooner.
- PH value could not be identified earlier.

OBJECTIVE

- To monitor soil pH level remotely.
- To prevent pipe ruptures due to acidity in soil.
- Test run the project to make sure the project functions properly as planned

OPERATIONAL FLOW CHART

PROTOTYPE


ESP 32


PH SENSOR


JUMPER WIRE


PVC PIPE


LAPTOP


SMARTPHONE

Blynk
PROGRAMMING ON BLYNK IOT

MECHANICAL ENGINEERING

TURN OFF SIGNAL ALERT SYSTEM

Muhammad Akmal Bin Roszahan, Muhammad Irham Bin Abdul Rahim,
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Road crashes are serious concerns globally as they claim and cause more than 1.35 million fatalities and up to 50 million resulting injuries each year. Previous studies showed that the causes of road crashes are multifactorial, with human error contributing to approximately more than two-thirds of all road crashes, particularly in developing countries. One of the causes of vehicle crashes is the failure to turn off turn signals after a turn by motorists. Not only that, motorist forgetting to turn off their turn signal can make other road users also think that a motorist will be turning or might pull out in front of them, which can increase the risk of accidents. Nowadays, when motorcyclists turn on their turn signal, they often forget to turn it off after a turn, which can confuse other people on the road and cause accidents. After monitoring and researching this issue, a turn signal alert system with the function to notify all motorists to turn off their turn signal is designed to solve this issue. This project aims to create a turn-off signal alert system that uses vibration to notify motorists to turn off their turn signal and to reduce accidents involving motorcyclists forgetting to turn off their signal. The concept design for the turn-off-signal alert system was chosen based on the suitability, cost and research that has been done. The invention was made with an appropriate method, using the coin vibrator as the main component for this project. The activation of the vibrator has been conducted at the handle of the motorcycle to help the riders notice that the turn-off signal did not turn off yet. The vibrator will activate when the motorist turns on their turn signal and will continue to vibrate until the turn signal is turned off.

Keyword : Alert system, Motorcycle, Signals

TURN OFF SIGNAL ALERT SYSTEM

SUPERVISOR :
EN. MOHD ZULKARNAEN BIN MOHD IBRAHIM


MUKEISH KUMAR
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BIN ROSZAHAN


MUHAMMAD IRHAM
BIN ABDUL RAHIM

ABSTRACT

Road crashes are serious concerns globally as they claim and cause more than 1.35 million fatalities and up to 50 million resulted injuries each year. Previous studies showed that one of the causes of vehicle crashes is failure to turn off turn signals after a turn by motorists. Not only that, motorist forgetting to turn off their turn signal can make other road users also think that a motorist will be turning or might pull out in front of them, and this can increase the risk of accidents to happen. After monitoring and researching about this issue, a turn signal alert system with the function to notify all motorist to turn off their turn signal is designed to help reduce this issue.

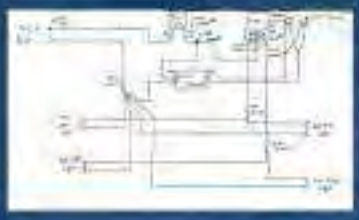
OBJECTIVE

- To create a turn off signal alert system that uses vibration to notify motorist to turn off their turn signal
- To reduce accidents that involves motorcyclist forgetting to turn off their signal occur

METHODOLOGY

PRODUCT DESCRIPTION

The way this project function is when the turn signal is turned on, the coin vibrator will start to vibrate notifying the rider that their turn signal is on. The vibrator will continue to vibrate until the turn signal is turned off.



The circuit design involves attaching a 5V coin vibrator inside the turn signal switch box. The coin vibrator is connected to a voltage regulator. The positive wire of the voltage regulator is then connected to the load wire of a flasher relay, while the negative wire is connected to any negative wire of the circuit.

CONCLUSION

All the objectives were made from all the problem statements. The objective for this project along with the importance that will be cheap and light causing it to be more convenient for and even the scope of this project only. Thus, this new product could be used for daily routine with a really good care for a longer lifetime.

RESULT

The pie chart shows that majority of respondent agreed that Turn Off Signal Alert System can help notify the riders to turn off their turn signal.

ORIGINALITY

MYIPO number : LY2023W01179

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MECHANICAL ENGINEERING

PIXEL MICROPLASTIC CLEANER

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Marine pollution has been a growing societal problem and concern in the last century. Trash and litter left on the beaches can endanger the life of marine life and coastal animals such as turtles and birds. This action could limit our ability to use the beach for recreation and economic purposes. On top of that, aggravating the problem, the progressive breakdown of large plastic debris due to weathering produces smaller, on-visible pieces of plastic known as microplastic,defined as plastic particles smaller than 5mm.Extensive evidence has been recorded demonstrating the effect of ingestion of plastic and microplastic by a wide variety of organisms with various types of consequences for wildlife and humans. Many actions such as employing manual labour, volunteering, and deploying large machines, have been made to overcome this predicament. However, this operation required many expenses and was time-consuming. Therefore, pixel, a mechanized, autonomous sand filler robot, is developed to efficiently reduce pollution. Pixel can traverse on sandy terrain, and pick up and filter out the trash inside the sand. The inventor used a conveyor to scoop the sand and dispose it to the filtering part as it traversed around the coastal area using a controller device. Medium and small sized trash such as bottle caps, microplastic and broken glass are properly collected without the need of manual labour. We believe that our project is the perfect solution to overcome the microplastic pollution at the beach / Our project is the perfect solution to overcome the microplastic pollution at the beach. To summarize, we have successfully designed and produced a beach cleaner that fits our project's objective.

Keyword : Marine Pollution, Plastic debris


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PIXEL
MICROPLASTIC CLEANER
Pixel is a battery powered microplastic cleaner that focused on separating microplastic from the sand on the beach and coastal area. The progressive breakdown of large plastic debris, due to weathering produce a rather smaller,non-visible pieces of plastic known as microplastic has huge negative impact on marine animal.
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MUHAMMAD SHA HAQIMI BIN MOHD SHARIF
08DKM20F2003
Excessive amount of microplastic dirt because of the lack of microplastic cleaning machine which lead death to many marine animal.
Cleaning machine that used manual control needed high manpower.
Remove microplastic dirt from the sea shore where it can save marine animals by solving this issue they will not consume microplastic and pollute the food chain
Decrease the amount of manpower needed to do the cleaning as the machine can be moved using our mobile phone through bluetooth connection
PRODUCT DESCRIPTION
METHODOLOGY
CUTTING PROCESS
WELDING PROCESS
ASSEMBLY PROCESS
PAINTING PROCESS
ARDUINO PROGRAMMING
TESTING
RESULTS
We have designed a machine to oppose the microplastic pollution . Our machine is able to traverse on the beach , collect trash found in the vicinity and transport it to a dumpster .The microplastic machine is an efficient modern day machine.
CONCLUSION
This project is a successful project as it cleans microplastic as we planned and executed . Pixel design is a design that we have creatively designed by our team using the inventor software

GENERATOR SOLAR WITH IOT SYSTEM

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Ts. Dr. Mohd Elias Bin Daud

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The solar generator with IOT system is a project made to make it easier for users to use solar generators anywhere because they are easy to carry and can view information via phone only by using the Blynk application. The main objective of the idea to make this project is to produce a generator that uses solar energy to save electricity for consumers, consumers can use it when the electricity supply is cut off when sellers want to sell at the night market, and those who like camping can also use this generator. Even users can also view through the phone only using the Blynk application. To ensure that this project is successful or not, we have made research findings that generators on the market are heavy and have a lot of space to store. In addition, most generators on the market have problems such as oil leaksand producing a loud noise. In addition, to create an IOT system, we use esp32, which is a microcontroller chip (soc) because it is low-equipped with WIFI and Bluetooth. If the IOT system is placed on this generator, it will make it easier for the user because they only need to connect the hotspot and the user can see the voltage, temperature, and battery via the Blynk app only. No need to go to the generator to see the information. The network service system is expanding as various users' demands are increasing. Although many products have been created, there is still needs to be a generator that can be viewed only through the phone. This IOT system is designed to facilitate users. The proposed system is designed to know voltage, battery, and temperature information.

Keyword : Generator Solar, IOT System

POLITEKNIK MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

DEPARTMENT OF MECHANICAL ENGINEERING
SESI II:2022/2023

SOLAR GENERATOR WITH AN IOT SYSTEM

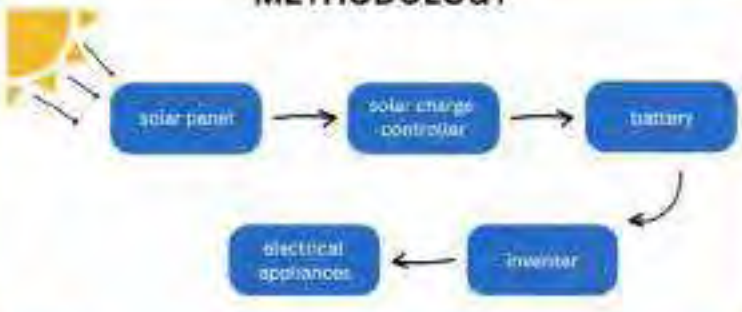
PROBLEM STATEMENT
(in normal generator)
- Produce noise pollution
- Oil leak always happen
- Too big and hard to carry

OBJECTIVE
- To produce generator that powered by solar energy
- Quiet
- Come with IOT system to read the battery and voltage

PRODUCT FEATURES
- **Generator**
  In plastic toolbox - size 40×25×15 cm
- **Solar Panel** - size 67×42×2.5 cm
- **IOT system** (can connect to **Blynk app**)
  Use esp32, voltage sensor, LCD screen

HOW IT WORKS
- Charge the generator with solar panel under the sun.
- After charge, turn on the switch.
- Connect the plug/usb on generator with electrical appliances you want to use.
- Connect IOT to solar charger controller when necessary.

METHODOLOGY



SUPERVISOR
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08DMF20F2031

MECHANICAL ENGINEERING

ALTERNATOR TEST BENCH

Adam Harith Bin Furhan Akmal, Syazani Bin Ruzaimy, Muhammad Shahiruel Maula Syed Tajudin, Ahmad Fakaruddin Bin Mohd Fauzi

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An alternator is an electrical generator that converts mechanical energy to electrical energy in the form of alternating current. In a car engine, an alternator is an integral part of every combustion engine vehicle, its main responsibility is to convert mechanical energy to electrical energy so that can charge and maintain the battery performance so the battery can supply the electric current to all components in the car. The problem faced by every mechanic when maintaining the alternator is when they want to test the alternator after completing the maintenance. The duration of the maintenance process will be long when the alternator is not working properly because the mechanic will have to take the alternator out of the engine again. In addition, the alternator test bench device now offered is overpriced. Our objective in developing this project is to design and produce a test bench to test alternators. In addition, it can facilitate maintenance work and alternator installation by mechanics. Therefore, it can save the cost of buying a test bench alternator that costs thousands of ringgit. Our alternator is used to test the amperage and voltage on the tested alternator. It is suitable for testing alternators used by cars. Hopefully, this alternator test bench is successfully produced and can help mechanics who need this tool in testing and maintaining alternators.

Keyword : Alternator, Test bench, Electrical generator

KEMENTERIAN PENDIDIKAN TINGGI

POLITEKNIK MALAYSIA

ALTERNATOR TEST BENCH

ABSTRACT

An alternator is an electrical generator that converts mechanical energy to electrical energy in the form of alternating current. In car engine, an alternator as an integral part of every combustion engine vehicle, its main responsibility is to convert mechanical energy to electrical energy so that can charge and maintain the battery performance so the battery can supply the electric current to all components in the car. The problem faced by every mechanic when maintaining the alternator is when they want to test the alternator after completing the maintenance. The duration of the maintenance process will be long when the alternator is not working properly because the mechanic has to remove the alternator from the car engine again. In addition, the alternator test bench machine that is on the market now is too expensive. Our objective in developing this project is to design and produce a test bench to test alternators. In addition, it can facilitate maintenance work and alternator installation by mechanics. Therefore, it can save the cost of buying a test bench alternator that costs thousands of ringgit. Our alternator is used to test the amperage and voltage on the tested alternator. It is suitable for testing alternators used by cars. Hopefully, this alternator test bench is successfully produced and can help mechanics who need this tool in testing and maintaining alternators.

PROBLEM STATEMENT

- The alternator test bench machine that is on the market now is too expensive.
- Duration of the maintenance process will be long.
- Problem faced by every mechanics when maintaining the alternator is when they want to test.

OBJECTIVE

To design and produce a test bench to test alternators.
To facilitate maintenance work and alternator installation by mechanics.
To save cost.

BLOCK DIAGRAM/OPERATION FLOW CHART

IMPACT OF PRODUCT

ADVANTAGES

- Simplicity and ease of use.
- Automatic test mode.
- The suitable size for an alternator test bench

MARKET POTENTIAL

- This project is intended for small workshops.

SUPERVISOR : ENCIK AHMAD FAKARUDDIN BIN MOHD FAUZI


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(DBDKM20F2019)


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(DBDKM20F2050)


ADAM HARITH BIN FURHAN
(DBDKM20F2029)

MECHANICAL ENGINEERING

ARC WELDING MACHINE SIMULATOR

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An arc welding simulator is offered to teach aspiring welders how to generate high-quality arc welds that save time and material. For example, the welding process lacks both the ability to practice intensively and the ability to provide timely, discriminative feedback for learning. an arc welding simulator consists of a work surface component with a moveable simulated welding puddle; a mechanism for moving said puddle with a predetermined movement simulating a weld path; and a welding rod holder component that the operator must manually manipulate in relation to the work surface component a simulated welding rod component that is movably supported by the holder and follows the movable puddle; a mechanism for moving the welding rod with respect to the holder at a rate that simulates the welding rod's consumption. A mechanism on the welding rod for sensing the distance between its end and the puddle, which distance includes a simulated arc length; said components serving as practice for the welding process's behavioral skills; and sensor a simulated welding rod component that is movably supported by the holder and follows the movable puddle; a mechanism for moving the welding rod with respect to the holder at a rate that simulates the welding rod's consumption; a mechanism on the welding rod for sensing the distance between its end and the puddle, which distance includes a simulated arc length; said components serving as practice for the welding process's behavioral skills; and sensor circuits on the welding rod.

Keyword : Arc Welding, Machine Simulator, Teaching and Learning

POLITEKNIK MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

ARC WELDING SIMULATOR

ISHAK BIN HASAN
PENYELIA

SATISH KUMAR A/L AGILAN
08DKM20F2035

MUHAMMAD ZAFRI HAIQAL BIN FAUZI
08DKM20F2031

MUHAMMAD FAKHRI SHAH BIN ZAKARIA
08DKM20F2018

ABSTRACT

Welding simulators in virtual reality have been and continue to be popular in welding training programmes. The purpose of this research was to look into the usage of virtual reality simulations as a technique for evaluating existing welders. An arc welding simulator is offered to teach aspiring welders how to generate high-quality arc welds that save time and material. For example, the welding process lacks both the ability to practise intensively and the ability to provide timely, discriminative feedback for learning

OBJECTIVE

·Provide basic knowledge on how to use and how the machine works
·Improve the quality of project results
·Provide exposure and new learning experiences from design / studies that have been conducted

METHODOLOGY

There will be a lot of information on the processes we made to develop our final project in this chapter. A flowchart outlining our entire project-making process will be accessible. The steps we conducted are detailed in this flowchart

PRODUCT DESIGN

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MECHANICAL ENGINEERING

DEVELOPMENT OF AUTOMATIC SAND SIEVING MACHINE

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During the sand-casting process in the foundry workshop at polytechnic colleges, students must refine the sand casting using a conventional method before performing aluminium casting. However, using a conventional method also has some disadvantages. One of them is that students have to spend energy to manually sieve casting sand. When the fine sand falls on the ground, it mixes with other additional mixtures. Therefore, a product that can help students in the workshop was developed. Our main goal in developing the sand sieving machine is to reduce the effort of students who want to sieve casting sand. The machine uses a dc motor that shakes the sieve during operation. The sand is sieved by the subsequent shaking as soon as it is placed on the sieve. A funnel is a feature of a sand-sieving machine that allows fine sand to fall through. With a regular sand sieve, the sieved sand falls out and must be placed in a collecting tray that is already placed under the funnel. This requires less student effort and energy. The four convenient wheels on the sieving machine make it portable to move around the workshop, which is very important. Students will find it easier to sieve the sand from one place to another based on where the sand is located.

Keyword : Sand, Sieving Machine

KEMENTERIAN PENDIDIKAN TINGGI

DEVELOPMENT OF AUTOMATIC SAND SIEVING MACHINE

SUPERVISOR: ENCIK SHARIZAN BIN MOHD SHARIF

MUHAMMAD NUR AIMAN YUSRI BIN MOHD YUNOS
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MUHAMMAD SAIFUL AZIM BIN SAIFUL BAHARI
(08DK208F2002)
MUHAMMAD SHARY SHAZMIR BIN RASAP
(08DKM20F2025)



DESCRIPTION OF INNOVATION

The project that we intend to implement for the final year project is Development of Automatic Sand Sieving Machine. This idea came about when we saw the difficulties of students who needed to filter the sand on their own. It has wasted energy consumption as well as time as it is necessary to filter the sand before it can be used. Additionally, the sand filters use a lot of energy as students need to take the sand and dump the sand on the filter nets. With that we think of an innovation to reduce the energy and time of students by creating a sand filter and separator machine that uses engine power to get the good qualities of sand. By using an existing sand filter, students do not get the good qualities of sand because the filter has only one layer of filter net. Furthermore, filtered sand with existing sand filters will mix with foreign objects because the sand falls on the ground there is nothing to lining the sand. With the machine that we created, the sand will drop on the tray that have been provided under the machine. With that, sand will not mix foreign objects and it can also save energy

PROBLEM STATEMENT

1. Students are wasting their energy to get fine sand.
2. Students are wasting their time while sieving the sand manually.

OBJECTIVE

1. Get the good quality of sands.
2. Reduce student workload.
3. Easy to move at foundry workshop area.

IMPACT OF INNOVATION

Advantage
1. Get the quality of sand after using this machine.
2. Save more energy compare with manual sieving.
3. Save your time

Market potential
This project target to all foundry workshop

Range of innovations
This idea came about when we saw the difficulties of students who needed to filter the sand on their own.

FLOW CHART PROJECT & PROJECT


AIR PORTABLE DRYER

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Air portable dryer is implemented to address the issue of imperfect clothes in daily life. This machine is equipped with a fan and heating element which is suitable to be used in the process of drying clothes in a short time. This idea was obtained after seeing the problems that often occur in society. One of the common problems is the clothes cannot dry properly due to unpredictable weather factors. Next is the limited space to dry clothes in homes such as apartments as most clothes hangers are prone to many problems. The main purpose of this project is to facilitate the process of drying clothes during rainy and unpredictable weather. High humidity slows down the process of drying clothes while taking a long time to dry. The project uses several components such as heating elements as a source of heat and nylon fabric as a heat trap so that it does not spread out. A survey was conducted to obtain reviews about this project and the feedback received was positive.

Keyword : Air, Portable Dryer

POLITEKNIK MALAYSIA

AIR PORTABLE DRYER

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THAVASHILAN A/L JEEVANANTHAM
08DKM20F2004

PUTERA AHMAD RAZIS B ZULKIFLY
08DKM20F2012

MUHD AZFAR B MUHD BASIR
08DKM20F2033

ABSTRACT

Air portable dryer is implemented to solve the problem in the drying of imperfect clothesin daily life. This machine is equipped with a fan and heating element suitable for use in the process of drying clothes in a short time. This idea was obtained after seeing the problems that often occur to society. One of the common problems is the clothes cannot dry properly due to unpredictable weather factors. Next is the limited space to dry clothes in homes such as apartments as most clothes hangers are prone to many problems. The main purpose of this project is to facilitate the process of drying clothes during rainy and unpredictable weather. High humidity slows down the process of drying clothes while taking a long time to dry. The project uses several components such as heating elements as a source of heat and nylon fabric as a heat trap so that it does not spread out. A survey was conducted to obtain reviews about this project and the feedback received was positive.

OBJECTIVE

I. Can save costs from existing ones.
II. Does not take up a lot of space while using it.
III. Easily to bring everywhere.

METHODOLOGY

PRODUCT DESCRIPTION

I. Compactable design
II. Easy to fold
III. Light weight

An air heat blower works by passing air across a heated element to elevate the temperature of the air. Hot air can be used for various applications ranging from heating a space, to drying coatings and parts, to de-flashing plastic components, to heating parts in a manufacturing process

RESULT

Final result assembly of Air Portable Dryer

CONCLUSION

There are several improvements that can be made to this project for the future. One of them is to improve such as design, size, and can be folded. With the availability of portable Air, it can give many benefits to all for use anywhere by users, especially travelers.

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MECHANICAL ENGINEERING

CLOTH HANGING WARMERS

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A cloth hanging warmer is a flexible indoor hanger, designed to dry clothes efficiently and effectively. It is mainly targeted at people who live in flats, apartments, and family homes and need their clothes to dry immediately due to sun exposure restrictions. This warmer offers features such as adjustable temperature, even heating and less drying time. These were achieved by using coils in blowers that serve as heating elements. This will facilitate the rate of evaporation and clothes would dry faster. As for the heating element, the heat energy increased the evaporation rate and reduced the time taken for clothes to dry. The design is also flexible and space-saving which fits the home perfectly. Catering for a wide variety of users' needs, has a special feature which is temperature cut off when the maximum temperature is reached. In short, cloth hanging warmer is user-friendly, space-saving and environmentally friendly for the user. This product was designed to help busy working people with their daily tasks. A survey was done to get comments on this project, and the responses were mostly favorable. There are some ways that this project could be improved in the future. One of them is to effectively strengthen the structure so that the dryer can hold more clothing.

Keyword : Cloth Hanging Warmer

POLITEKNIK MALAYSIA

CLOTH HANGING WARMERS

ENCIK ISHAK BIN HASSAN

MUHAMMAD HAZIQ AMSYAR BIN ABDUL RAHIM

MUHAMMAD DANIE BIN AMIR SAIFUDDIN

MUHAMMAD AZIM BIN OSMAN

ABSTRACT

Cloth Hanging Warmers is a flexible indoor hanger, designed to dry clothes efficiently and effectively. It is targeted mainly at flat apartment residents and family home who crave for immediate drying of their clothes due to limitation to sun exposure. This warmers offers features such as adjustable temperature, even heating and less drying time. These were achieved through the use of coil in blower act as a heating element. The design is also flexible and space saving that will fits home perfectly. In short, Cloth Hanging Warmers is user-friendly, space saving and environmentally friendly for the user.

OBJECTIVE

- To help peoples save time and energy.
- To improve drying results and cleanliness of clothes.
- To makes the project works well and work as desired.

PROBLEM STATEMENT

- Clothing don't dry properly and odor because of uncontrollable weather elements
- Lack of room for drying clothes in residences like flats, apartments, and family houses
- Air pollution from vehicle smoke, dust, sand, and too many ultraviolet rays.

PRODUCT DESCRIPTION

RESULTS

Level temperature	Temperature (°C)	Material	Time taken Dry (minutes)
Low Temperature	35 - 45	Jersey, Silk , Nylon, Polycotton	20
Medium Temperature	45 - 65	Jersey, Cotton, Acrylic	30
High Temperature	55 - 80	Jeans, Jersey, Cotton, Acrylic, Towel	40

OPERATION FLOW CHART

1. Turn on the temperature switch .
2. Set the desired temperature according to the manual book.
3. Set the timer to run the blower.
4. Turn on the green switch to run the exhaust fan.

IMPACT

INNOVATIONS DEVELOPMENT

- This innovation was developed to solve drying issue faced by the community.

MARKET POTENTIAL

- It is targeted for flat, apartment resident and family home.

PROJECT FLOW CHART

CONCLUSION

- The cloth hanging warmers are yet another effort to address the difficulty of drying clothing during unpredictable and unexpected changes in weather. By using this cloth hanging warmers the time and energy that should be spent on laundry would be decreased.

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MECHANICAL ENGINEERING

AGROBOT

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Agrobot is an electric grass-cutting robotic powered by a motor and a battery. This machine has blocks and wheels, in which there are blades that will serve as lawnmowers when it is being used. After weeks of working on the project, we finally managed to find the most convenient way to control the Agrobot from a phone. We used IOT technology which is called Arduino (esp8266) and also an application called Blynk IOT. By using this method Agrobot finally can be controlled with a device such as a phone with an internet connection at anywhere and anytime. So now any lawn owners can cut their grass with Agrobot by just using their phone. Although the mechanical lawn mower was the first version when the lawn mower was created, what is interesting here is that we created a smart robot grass cutter and also can be controlled using your phone which is suitable for use by housewives or smallholders. This shows that IOT can also be used in a lot of agricultural products out there.

Keyword : Agro robot

PERTANDINGAN PROJEK AKHIR PELAJAR
SESI 2:2022/2023
INNOVATION • ACCELERATES • TRANSFORMATION TVET

GROUP LEADER: MUHAMAD AKMAL BIN MD RADZI
GROUP MEMBER 1:MUHAMMAD HANIVL HADI BIN AHMAD AZHARI
GROUP MEMBER 2:FARIZ BIN ABDUL AZIZ
SUPERVISOR:PUAN AMALINA KAMILAH BINTI IBRAHIM


SUPERVISOR

GROUP LEADER

GROUP MEMBER 1

GROUP MEMBER 2

AGROBOT

ABSTRACT

The AGROBOT is an electric grass cutting robot powered by a motor and battery. It has blades that function as lawn mowers. The project team successfully developed a way to control the AGROBOT using a phone through IoT technology, specifically an Arduino (esp8266) and an application called Blynk IoT. This enables users to control the AGROBOT remotely from anywhere with an internet connection. The innovation of a smart robot grass cutter controlled by a phone makes it convenient for lawn owners, including housewives and smallholders. This showcases the potential of IoT in various agricultural products.

OBJECTIVE

- To make cutting grass easier by just using a phone
- To avoid sound pollution by just using electric and not powered by an engine.
- To make use of IOT technology in our project which is Arduino.
- To create a convenient product for agriculture.
- To help people save energy and time

METHODOLOGY

- To make the AGROBOT moves efficiently ,we used a power window as wheels which 12v.The two wheels at the back are the ones that is moving the AGROBOT.
- We used a 12VDC motor to rotate the blade located beneath the machine. Additionally, the agrobot contains interior space where we can conveniently store our garden tools
- To use the phone as a remote for the Agrobot, we performed coding and programming using Arduino. We utilized a component called esp8266, which operates on 7VDC. To regulate the voltage, we employed a voltage regulator. The Agrobot requires the Blynk application to function as a remote, making use of IoT technology.


HOW TO USE ?

1.DOWNLOAD BLYNK APPLICATION VIA APPSTORE OR PLAYSTORE

2.LOG IN WITH THE EMAIL AND PASSWORD GIVEN FROM OUR TEAM .

3.PRESS THE AGROBOT LOGO

4.AFTER PRESSING THE AGROBOT LOGO , YOU CAN NOW CONTROL THE AGROBOT

CONCLUSION

Our agrobot can traverse any grassy area and perform cutting tasks simply by using your phone.The use of this machine provides the opportunity for the user having the potential to help reduce environmental impacts related to air pollution such as human health, acid rain, greenhouse effect and global warming and so on.The Agrobot is an efficient, modern-day agricultural product.this also proves that iot technology is applicable on agricultural products

FOLDABLE MOTORIZED MULTI GRILL

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It is a portable griller that can assemble and disassemble and is also powered by a gear system and gas stove. This machine has stainless steels work as a skewer, automatic gear to move the ingredient, and barbed wire to cook small food. In order to guarantee the machine's safe operation, get rid of the issues with using local skewers, save personnel, and make it simpler to handle on our own, we designed a portable gas griller machine that can assemble, fold, and be transported anywhere. This grill uses automatic gear to ensure every move is the same so the food can be cooked in perfectly and healthier. Suitably used by someone who wanted to start a small business like a student and a family with children. With all the features and specification that have in this machine, the price still will be reasonable.

Keyword : Multi Grill, Motorized

PERTANDINGAN PROJEK AKHIR PELAJAR
SESI 2:2022/2023
INNOVATION • ACCELERATES • TRANSFORMATION TVET

PITEC 4

GROUP MEMBER

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Projek Supervisor

Muhammad Zikri Bin Hasni
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Siti Nur Ain Bt Fauzi
06DKM20F2004

Muhammad Syakir Aiman Bin Jumat
06DKM20F2006

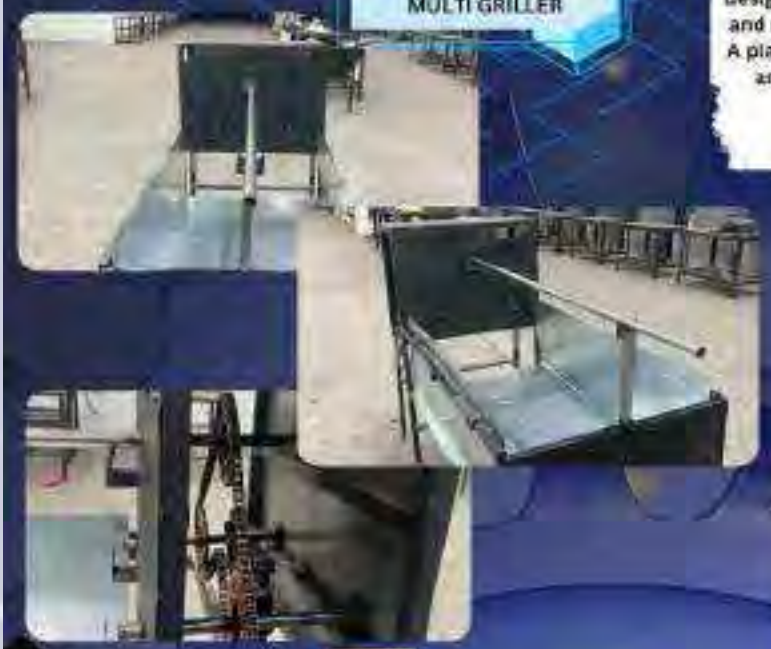
Abstract

objective is to provide a griller which is portable that is, can be moved from place to place with ease. Also, this project proposed a griller myachine which includes four main design features which are safety, ergonomics, material

Objectif

The goal of this project is to reduce manpower and make it easier to handle by ourselves and also easier to move. The autonomous design eliminates the need to use a lot of manpower and needs a vehicle like a lorry to take it anywhere. A platform system capable of moving the chicken or anything else without using our energy is very pleasant

FORTUBLE MOTORIZED MULTI GRILLER



Problem Statement

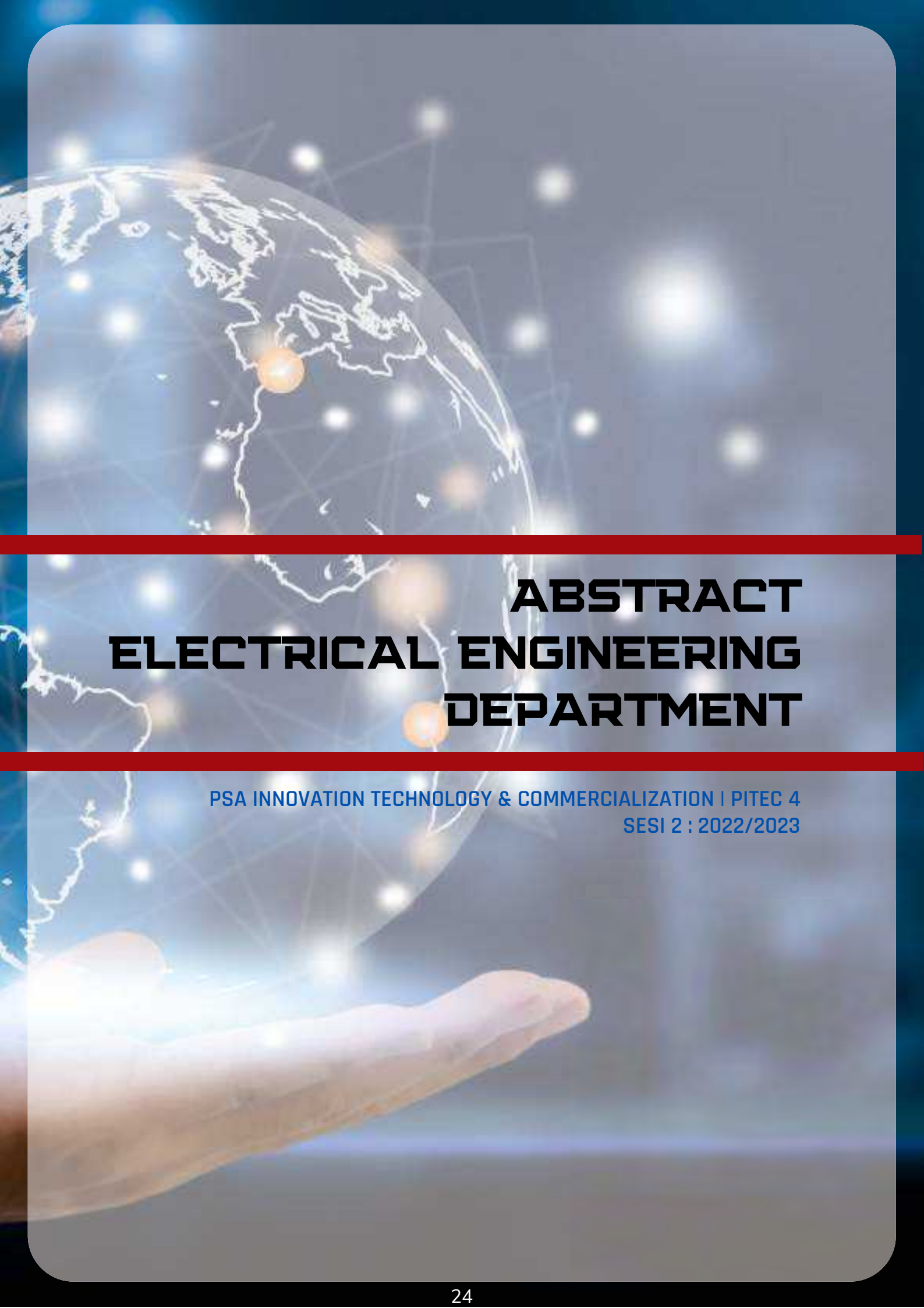
- Difficult to carry
-High cost
- Not flexsible

Result and Discussion

We have done research about our products to be produced with various searches and information that we collect to produce our products. in Various sources and references that we found were from survey form with civilian in Shah Alam and looking for some organizations to get clearer and more detailed information about the use of braille and the effectiveness of our products for the future.

Impact innovation

The portable gas barbecue machine has been designed, which might be more efficient, serviceable, low cost, and better heat radiation controllability when manufactured. The safe operation of the gas barbecue machine more stable



ABSTRACT
ELECTRICAL ENGINEERING DEPARTMENT

PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION | PITEC 4
SESI 2 : 2022/2023

FOREST FIRE DETECTOR USING IOT SYSTEM

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On 28 October 2020, during Australian bushfire season, due to extreme drought in 2019 gave rise to bush fires of unprecedented intensity the fires burnt an estimated 14.3 million hectares, destroyed over 3,000 buildings (including 2,779 homes) and killed at least 34 people.

Due to extreme drought in 2019, Australia faced an unprecedented, intense bushfire season in October 2020 with the fire burning an estimated 14.3 million hectares, destroyed over 3,000 buildings (including 2,779 homes) and killed at least 34 people. A wildfire, forest fire, bushfire, wildland fire, or rural fire is an unplanned, uncontrolled, and unexpected fire that starts in rural and urban regions. Millions of hectares of forest are destroyed by fire every year. The area destroyed by these fires are huge and produces more carbon monoxide than the entire car traffic. Forest is the protector of the earth's ecological balance. Unfortunately, forest fires are usually noticed only when they have spread over a large area, making it difficult to control and even impossible at times. The ecology is harmed, the climate is affected, the biological features of the soil are ruined, and the forest fires also ruin the habitat for species. The forest fire detection is therefore a significant problem in this current decade. Forest fire must be located as quickly as possible. The forest fire detector using IoT system shows the data by using an application called Blynk. The ESP32 microcontroller serves as the system's central processing unit and has wireless connection capabilities. The sensors gather information, which is then analyzed and sent in real-time to a platform that is hosted in the cloud or a centralized monitoring station. The goal of this project is to develop a product that will assist the wildfire teams in their operation. Most forest fires occur due to atmospheric temperature and occasional humidity which provide just the right environment for a fire to begin.

This product uses 4 sensors to for detection which are carbon dioxide (CO2) sensor, flame sensor, temperature and humidity sensor. The flame sensor operates by monitoring infrared light emissions to find the presence of flames. It can detect a fire properly and activate the alarm system. The CO2 sensor calculates the amount of carbon dioxide gas present in the immediate surroundings. The existence of a fire is indicated by a quick rise in CO2 levels, which serves as an additional confirmation for fire detection. Contextual information about the environment is provided by the temperature and humidity sensors. High temperatures and low humidity levels may indicate an increased danger of fire. The system can analyze trends and patterns to increase the accuracy of fire detection by continually monitoring these factors. The four sensors are combined with a central processing unit and a wireless connection module as part of the IoT system. A cloud-based platform or a central monitoring station receives, processes, and transmits sensor data in real-time. Based on specified patterns and criteria, may be used to analyze the sensor data and identify fire occurrences. When a fire is detected, the system may immediately start several processes, including turning on sprinkler systems, alerting authorities or pertinent staff, and starting the evacuation process. Quick reaction and prompt interventions are made possible by real-time monitoring and remote access, lowering the danger of fire escalation and raising overall safety. A reliable and proactive strategy for battling forest fires are provided by the suggested IoT-based forest fire warning system with the four sensors. The potential of IoT and sensor technologies may be utilized to accomplish early detection and prompt reaction, thus minimizing the environmental and socioeconomic effects of forest fires.

Keyword : Forest fire, ESP 32, CO2 sensor, flame sensor, temperature and humidity sensor, Blynk


PERTANDINGAN PROJEK
AKHIR PELAJAR
SESI 2:2022/2023
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FOREST FIRE DETECTOR USING IOT SYSTEM
PROJECT BACKGROUND
Millions of hectares of forest are destroyed by fire every year. The area destroyed by these fires is huge and produces more carbon monoxide than the entire car traffic. Forest Fire Detector Using IoT System can identify, report the fire and alert the forest fire team to take an action.
OBJECTIVE
• To investigate more deeply about wildfires and their causes.
• To construct a project that will prevent massive destruction.
• To develop an IoT system that will assist wildfire teams in their operation.
IMPACT
• Prevent forest fires and protect people, animals, and the environment
• Increasing demand for forest wildfire detection systems from the forestry and agricultural sectors to prevent damages caused by wildfires.
• The data that we get will use in future or the next study case to create more innovative product
PROJECT DATA
What features would you expect from an ideal forest fire detection system?
PRODUCT
SOLAR PANEL

IOT SMART HELMET FOR CONTRUCTION WORKERS

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Before Covid-19 pandemic in Malaysia, the total of accident is the highest which is 326 construction accidents recorded in Malaysia and the number reduced from previous year due to the COVID-19 pandemic. Before the Covid-19 pandemic, the total number of construction accidents in Malaysia was at the highest at 326. The number then reduced during the pandemic. There are many reasons that contribute to these accidents such as communication, failure to wear safety gears and time taken to bring the injured worker to hospital for treatment. The goal of this project known as the IoT smart construction helmet, is to reduce construction site accidents, which can be minor or major that can affect work at the construction site. In Malaysia, the use of helmet is mandatory at construction sites as per the government rules. The helmet protects a labourer's head against the impact of the falling object from any height. This project is designed with a safety system that can be monitored by a supervisor. A modification is done in the ordinary helmet turning it into a smart helmet by adding gas sensor, temperature sensor and light sensor by using ESP32. In this project, the helmets will automatically update to the work mode ON, if workers wear it because a clamp turns the system ON and immediately the information goes to the supervisor. The use of the temperature sensor while on the construction side is essential. For example, when the temperature rises above 38 degrees Celsius, the helmet will detect the high temperature and the data will be sent to the supervisor. Therefore, the supervisor can know the state of the worker's environment. The same applies to the use of light sensors and gas sensors in IoT smart helmets. There is one push button which indicates the task completion and the emergency, is any. This button helps the workers in many ways and manage the tasks as well as the time.

The IoT System is being used for the functioning of a helmet, Real-time signals will be constantly sent with the help of various sensors which are installed for monitoring purposes. The main objective of this study is to activate the installed components so that the various emergencies can be detected from the supervisor's room and be able to reduce time taken to detect the actual location of the injured worker and at the same time to ensure that the signal is sent to the command office of the construction site. It is an Internet of Things (IoT) solution that helps make worksites safer for construction workers. By installing all the components in one construction helmet, the internet of things (IoT), can help to reduce the number of injuries and prevent the injuries from progressing to critical stage. Besides this, it also enhances the awareness level of safety of construction workers.

Keyword : IoT Smart Helmet Construction, ESP32, Gas sensor, temperature sensor and light sensor, smart monitoring apps

Scan me

IOT SMART HELMET

FOR CONSTRUCTION WORKERS

1 DESCRIPTION OF INNOVATION

IoT smart construction helmet reduce construction sites accidence which can be minor or major causes effect on the whole site as well as work of construction. This helmet is for the communication between the supervisor and the labor in case of any emergency. gas sensor, temperature sensor and light sensor were install in the helmet. With the help of ESP32, a developed product which is smart working helmet that can save their lives. Smart helmet is a combination of the ordinary helmet with the latest technology and realtime monitoring as per the requirement of the construction site. The ordinary site helmet is connected with a system so that all the activities are to be supervised in a single computer and further reduce the percentage of accident in construction area.

2 OBJECTIVE

- To design a smart helmet for construction workers.
- To develop an IoT smart helmet that can be remotely monitored by a supervisor.
- To develop a system that uses temperature sensor, gas sensor and light sensor to ensure workers safety.

3 IMPACT OF PROJECT

- The ability of system is to alert workers that in dangerous.
- To reduce the percentage of accidents at construction site.
- The use of a helmet protects the employee comfort and make sure the Occupational Safety and Health Administration (OSHA) is use in work area.
- There was a modification in the ordinary helmet into a IoT smart helmet by adding gas sensor, temperature sensor and light sensor. The good thing is Supervisors can monitor employees remotely.

4 BLOCK DIAGRAM

5 SMART MONITORING SYSTEM

6 DATA

7 FINAL PRODUCT

8 TEAM GROUP PROJECT

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WATER QUALITY MONITORING SYSTEM DEVICE USING IOT

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Water pollution has been an increasing problem over the last few years. Water personal satisfaction may be a standout amongst those primary variables with control well-being and the state of sicknesses. Lakes and waterways would be those fundamental wellsprings about drinking water, which impressively rely on upon water personal satisfaction (refers to the physical, chemical, and living aspects of water). The purpose of this project is due to water pollution has been an growing hassle over the previous few years. Water non-public delight may be a standout amongst those number one variable with manipulate nicely-being and state for illnesses. Lakes and waterways would be those fundamental wellsprings about ingesting water, which impressively rely on water private satisfaction to the physical, chemical, and living components records approximately water). Water is a completely important need for everybody, this makes the community very worried about the best of the water they use. Due to the fact they didn't know the quality of water that using in daily life. In this project we build a water quality monitoring device using pH sensor with the concept of IOT. The "Water Quality Monitoring System" is intended to identify the kind of water quickly and accurately being examined. The water will be tested by a pH sensor pod and the pH level will be shown on apps sent through the message by Wi-Fi on a smartphone. We implement this project at river, and drinking water reservoir. We are using an Arduino board for finding pH value and ESP 8266 module for microcontroller access to Wi-Fi network. We use a apps to have continuous observation on water parameters. Finally, the user gets message to the phone of pH value of water.

Keyword : pH sensor pod, amplifier module, ESP 8266 Wi-Fi module and Arduino UNO Wi-Fi module

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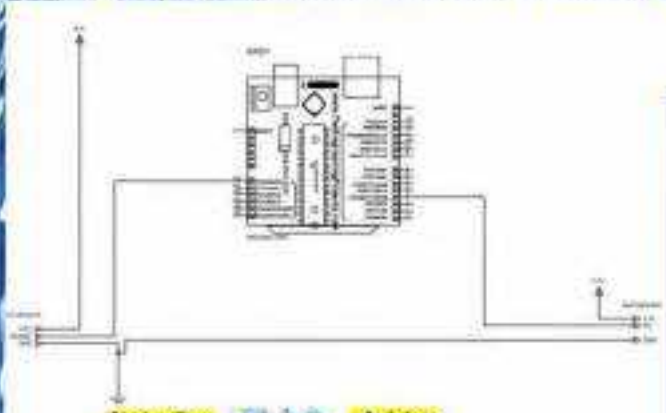
WATER QUALITY MONITORING SYSTEM DEVICE USING IOT



OBJECTIVE

- ✓ water quality monitoring system using Wi-fi is to find the water quality i.e. how the pH content varies and sending message to the apps and get the notification on phone smartphone
- ✓ implement this project at rivers, houses to check the ph level of water that safe to drink. We are using an Arduino board for finding pH value and ESP 8266 module for microcontroller access to Wi-Fi network

PROBLEM STATEMENT

- ✓ Considering that water is important resource in our daily life.
- ✓ we must ensure the quality and type of water we receive to use in our daily lives.
- ✓ The problem that I face in my housing area that is in Rawang, Selangor the water supply that I received at my housing area is sometimes not good quality. The water supply looks clean but the quality of the water is somewhat doubtful because we cannot see the fine molecules in the water.

Casing Box
Arduino Uno Wi-Fi

ESP 8266 Wipi
USB Cable
PH Level Pod
Amplifier Module

ADVANTAGE

- ✓ Know about quality water
- ✓ Identify the type of water
- ✓ Can be accessed through the application

ADVANTAGE USERS

- ✓ Drink quality water
- ✓ knowing about type of water
- ✓ low cost
- ✓ easy to use

INNOVATION (Apps using iot)

ELECTRICAL ENGINEERING

IOT-BASED SMART KITCHEN

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People regularly go into the kitchen to cook food. But it will become dangerous if there is leakage in the gas cylinder. We aim to reduce the risks in kitchen using the Internet of Things. These accidents can be avoided using IoT technologies like monitoring the entire kitchen from remote areas. In this project, we Implemented IoT based smart kitchen with Automation & Monitoring system using NodeMCU ESP32. The different technologies such as RFID, WSN, Cloud Computing, Networking Technology and Nanotechnology support the IoT and their applications in various fields, i.e., Smart Home, Smart City, Smart Grid, Smart Health, and Smart Farming, have been covered. In addition to this, special coverage has been made concerning Smart Kitchen. The description of various appliances and their application in the bright kitchen has been enumerated. Recently, kitchen-based accidents have increased in both commercial and domestic kitchens. To implement this research, both hardware and software will be utilized. The hardware side gas sensor, temperature sensor, humidity sensor, alarm, Arduino IDE, and load cell NodeMCU ESP32 have been used. The integrated NodeMCU ESP32 and mobile application have been used from the software side. This system provides results in the form of SMS. The system enables monitoring of kitchen gas leakages, leading to a faster response time in the event of a leakage condition. During night conditions, if a gas leakage happens suddenly, the person may switch on the light, which may lead to a blast. To avoid that, the main power supply will be automatically off, monitoring the kitchen appliances and notifying the user.

Keyword : NodeMCU, Arduino IDE, Sensor, Load Cell and Web App

PERTANDINGAN PROJEK AKHIR PELAJAR
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Supervisor: Zabidah Binti Haron



IoT-BASED SMART KITCHEN

INTRODUCTION

People gradually need a kitchen environment closely connected with modern technology. With this demand, new concepts such as kitchen environment monitoring and smart kitchen control have come into our life.

Therefore, this project proposes a modern intelligent kitchen system based on Internet of Things Technology. The smart kitchen system and current industrial monitoring are based on digitalised information and network, combined with smartphones and various sensors to realise intelligent management of industrial and kitchens.


FINAL PRODUCT

IMPACTS OF INNOVATION

- **Enhanced Security**

We might save many lives if we can detect these gas leakages before it causes any severe issue.

- **Mobility**

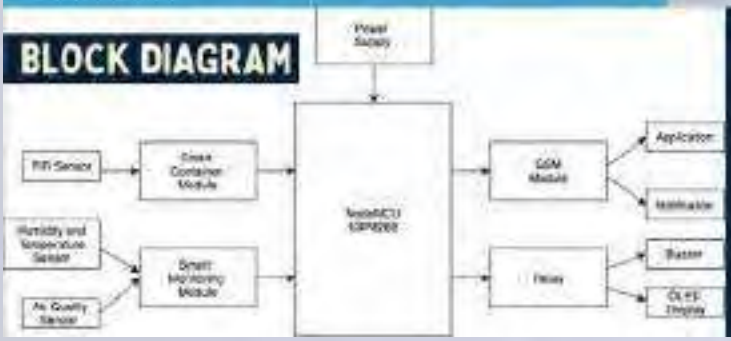
It benefits people to move freely and not worry much about their house safety and conditions.

OBJECTIVE

The objectives of this project are as follows:

- IoT-based kitchen safety.
- Interfacing of sensors and Blynk App.
- Display of readings from sensors.
- Alarm system for detection of any anomaly.

BLOCK DIAGRAM



DATA

Benchmark/ Sensors	Fan	Alarm	Light Bulb
HC-SR501	✓		✓
MQ135	✓	✓	
DHT11	✓		

ELECTRICAL ENGINEERING

IOT BASED MEDICATION PILL ALARM AND PULSE RATE MONITORING SYSTEM FOR ALZHEIMER & DEMENTIA SUFFERERS

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The number of older adults suffering from Alzheimer and dementia, an incurable chronic degenerative condition, in Malaysia is expected to nearly triple over the next 30 years. According to the Alzheimer's Disease Foundation, Malaysia (ADFM) in 2020, the population of persons living with is estimated to be at 204,000 to 264,000 .This number is projected to treble to 637,500 to 825,000 by the year 2050, a prediction largely based on data which shows that Malaysia is fast becoming an aging nation. Thus, this project is designed an intelligent pill alarm reminder system that gives alerts to patients for their medication at the right time and to monitor remotely pulse rate for adults suffering from Alzheimer and dementia by using the Blynk platform and NodeMCU ESP8266. The system makes use of a mobile app created on the Blynk platform, which communicates with a microcontroller called the NodeMCU ESP8266 that is linked to a pulse rate sensor and a pill dispenser. The pulse rate sensor enables continuous pulse rate monitoring, and the pill dispenser is configured to distribute medication at predetermined periods. When medication is due or the patient's pulse rate abnormal from the typical range, the system alerts caretaker in real-time. The results of the system's performance show that it is an effective tool for managing medication adherence and monitoring pulse rate remotely, providing caregivers with peace of mind while ensuring patients receive the necessary care. Future research could examine additional uses for the technology in the healthcare sector. This system has the potential to dramatically improve the quality of life for people with Alzheimer's and dementia as well as their caretaker.

Keyword : Pill alarm, Blynk, Pulse rate, Alzheimer & dementia

IOT BASED MEDICATION ALARM AND PULSE RATE MONITORING SYSTEM FOR ALZHEIMER & DEMENTIA SUFFERERS



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NAMA PENYELIA:ENCIK ABU BAKAR HAFIS BIN KAHAR

Project Description

This project is focused on people with Alzheimer's & Dementia. Nowadays, there are too many people who are too busy working to neglect their health. So with this project, it will help to remind them to take their medication and it's easy to refer to what medication they're taking as well as being able to find out what their pulse rate is.

Product

Objective

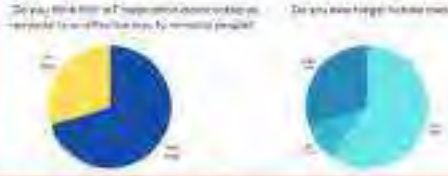
The research presented in this thesis has the following three objective:

- Introducing an Android application whose objective is to remind the patients of their dosage timings through Alarm Ringing system so that they can stay fit and healthy
- Make it easier for users to remember the medicine that they need to take
- Takes pulse rate readings and saves a record on the phone

Project impact

- able to demostrated a mobile application that generates alarm signals to remind to take medicine
- helps patients and improving the monitoring system
- Takes pulse rate readings and saves a record on the phone

Data



ELECTRICAL ENGINEERING

DETECTOR OF MICROSLEEP FOR CAR DRIVER USING EYE DETECTOR

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The percentage of road accidents in Malaysia that are caused by microsleep is around 20%, and the number of incidents caused by microsleep rises year-round. Microsleep can have a variety of causes. One of them is the body's attempt to combat drowsiness, exhaustion, and inadequate sleep. For instance, a microsleep-related occurrence occurred in July 2020. Amin Faizz, a university student, perished in a motorbike accident in Linggi, Negeri Sembilan. The deceased was returning from his university in Serdang, Selangor to Kluang, Johor at the time of the event. This is due to the fact that Amin Faizz, who was striving to resist tiredness, had twice experienced microsleep before his motorbike crashed. By monitoring the driver's eye blinks, this initiative aims to identify microsleep before it occurs. The driver will wear spectacles with an LDR sensor placed in them so that the application Blynk can measure the blink rate of the driver's eyes. The driver must then modify the offset rate in accordance with the value of eye blink rate. For the LDR sensor to be able to detect the light reflected off the cornea of the eye, there is an LED on the glasses. The LDR sensor can detect the onset of microsleep if it notices that the driver's eye blinks are becoming weaker and fewer in number relative to the rate value. The buzzer and vibration system will turn on as a result, giving the motorist a heads-up to concentrate again while driving or to pause and take a breather. For repeated usage, this device can be recharged. The red LED will turn on as it charges. The LED will be blue if the charge is complete. On the Blynk app, drivers can also examine their driving information. A graph of their blinks will be shown by the Blynk app. In conclusion, because this programmed contains a security component, it is particularly advantageous to people from all backgrounds and genders. The result may contribute to a decrease in traffic accidents. At the same time, it is feasible to prevent significant losses on assets that are priceless to everyone.

Keyword : microsleep, blynk, sensor, LED

DETECTOR OF MICROSLEEP FOR CAR DRIVER

USING EYE DETECTOR

SUPERVISOR

PN SITI HAJAR BINTI ABDUL HAMID

TEAM MEMBERS

SITI SARAH BINTI KAMARUL BAHAROM
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DESCRIPTION OF INNOVATION

The driver will wear spectacles with an LDR sensor placed in them so that the application Blynk can measure the blink rate of the driver's eyes. The driver must then modify the offset rate in accordance with the value of eye blink rate. For the LDR sensor to be able to detect the light reflected on the cornea of the eye, there is an LED on the glasses. The LDR sensor can detect the onset of microsleep if it notices that the driver's eye blinks are becoming weaker and fewer in number relative to the rate value. The buzzer and vibration system will turn on as a result, giving the motorist a heads-up to concentrate again while driving or to pause and take a breather. For repeated usage, this device can be recharged. The red LED will turn on as it charges. The LED will be blue if the charge is complete. On the Blynk app, drivers can also examine their driving information. A graph of their blinks will be shown by the Blynk app.

OBJECTIVE

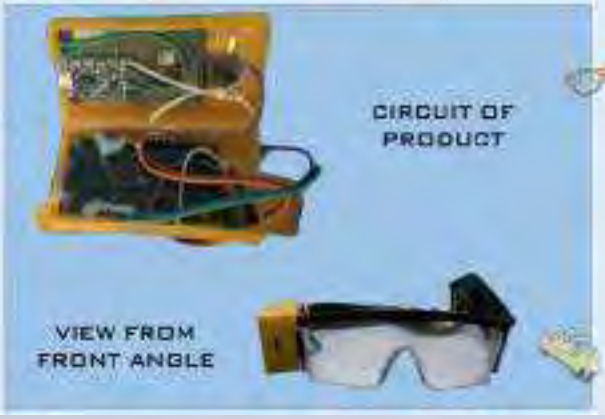
1. To develop a device that can aid drivers in maintaining concentration while driving.
2. To signal the driver to resume concentration on his driving after a microsleep.
3. To lessen the chance of microsleep-related auto accidents

IMPACT OF INNOVATION

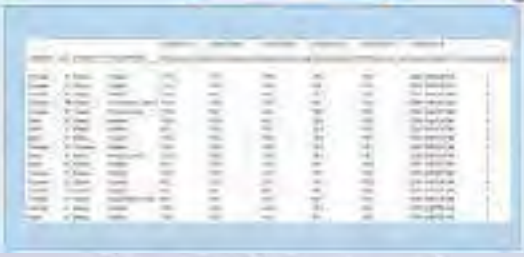
- Every driver should have a tool that can identify and alert them before microsleep happens.
- A weary driver cannot pay attention when operating a vehicle. Drivers' and innocent people's lives will be in danger as a result.
- More traffic collisions.
- There is no technology to help drivers identify the early signs of microsleep; they are unable to receive an early warning when they begin to experience it.

BLOCK DIAGRAM

FINAL PRODUCT



DATA



ELECTRICAL ENGINEERING

SMART ENCLOSED SHOES RACK

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Playing sports is generally done by most people to maintain health. Not only it is in trend, but by playing sports, one can stay healthy. For instance, one could sweat just by walking for 30 minutes. However, if the care when feet are excessively sweaty after exercises are not emphasized, the shoes will start to be moist and smell. This will create an uncomfortable atmosphere for the user and maybe also for people around. Shoes actually need appropriate care methods and are very important to ensure that the user is in good condition. The way to ensure shoes are in good condition is to use shoes deodorant and shoes sanitizer. As we know, shoes deodorant has the role of a pleasant fresh smell, while shoes sanitizer provides protection and maintenance of hygiene before someone uses the shoes. The idea of producing this product is to help shoes stay fragrant and have a layer of protection. Smart Enclosed Shoes Rack consists of ESP32 as a microcontroller. The ESP32 is a low-power chip (SoC) that has built-in WiFi and Bluetooth modules. It is a continuation of the popular ESP8266 chip. This product does not use the ESP8266 module because the ESP32 has better features and is also more stable. Battery 18650 is also used with volt 2200mAh because they weigh lighter, possess very small battery memory effect, and can be shaped as desired. LiPo batteries have a higher energy density than other types of batteries. In other words, this battery can accommodate more energy with a lighter weight. And this battery can be recharged by using b3 compact charger. Push button (yellow) in this product works to start in the program cycle. The buzzer plays a role with a beep sound when the liquid either shoes sanitizer or shoes deodorant wants to spray and a beep sound 2 times when the liquid stops. A switch acts as a device that can disconnect an electrical circuit, stop the flow of electrical current or change the direction of flow from one conductor to another. The function of the 2 channel relay module is as a connecting switch for two networks at once. Ultrasonic Sensor to measure the percentage of liquid in the Smart Enclosed Shoes Rack. A step-down transformer converts high voltage with low current into low voltage with high current. The main function of the step-down transformer is to lower the voltage and adjust it to the electrical capacity. Inside this Smart Enclosed Shoes Rack is a place to hang shoes and under the shoe hanger a special space to place the product.

Keyword : ultrasonic , ESP32 , buzzer

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SESI 2:2022/2023
INNOVATION • ACCELERATES • TRANSFORMATION TVET

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NAMA PENYELIA : IRMA BAIZURI BINTI MOHD AKHIR

SMART ENCLOSED SHOES RACK

DESCRIPTION

THIS SMART ENCLOSED SHOES RACK IS AN INNOVATION THAT INVOLVES TWO TYPES OF LIQUID, WHICH IS SHOES SANITIZER AND SHOES DEODORANT. THE ORIGIN OF THIS IDEA IS BECAUSE WE HAVE INVESTIGATE MANY PEOPLE DON'T HAVE TIME TO TAKE CARE OF SHOES. THEREFORE, THE SHOES ARE NOT KEPT WELL AND CAUSE THE SMELL AND QUALITY OF THE SHOES TO NOT BE KEPT. SO WITH THIS NEW PRODUCT, THERE ARE NO MORE PROBLEMS. THE ADVANTAGE OF THIS PRODUCT IS THAT WHEN WE ARE FAR AWAY FROM IT, WE CAN STILL CONTROL IT FROM A DISTANCE AND KNOW HOW MUCH WATER THERE IS

OBJECTIVE INNOVATION

-TO DEVELOP A NEW AUTOMATIC PRODUCT
-TO REDUCE THE MOVEMENT OF USERS
-TO INNOVATE THE LIQUID IN SHOES RACK TO KEEP SHOES IN GOOD CONDITION

INNOVATION IMPACT

-THE DESIGN SIMPLIFIES AND STREAMLINES SHOE CARE
-EASIER TO HANDLE TWO LIQUIDS AT THE SAME TIME
-SLOWS DOWN SHOE DAMAGE

FEEDBACK,PLISSHH !

IOT VEHICLE GPS TRACKING SYSTEM USING ESP32

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Motorcycle theft made up the majority of motor vehicle theft at 464,446 cases. For example, at Bukit Mertajam, Penang, police have busted a motorcycle theft gang following the arrest of two men, believed to be involved in 87 cases in Penang and Kedah, in two raids recently. So why not us install a GPS tracking system in our motorcycle? GPS stands for Global Positioning System, which is a worldwide radio-navigation system. Vehicle tracking system is a well-established technology in this era which is used by fleet system and owner of vehicle all over the world. The design is an embedded application, which will continuously monitor a moving vehicle and report the status of vehicle on demand. To track the location of the device, the GPS tracking system uses the Global Navigation Satellite System (GNSS) Network. This network consists of a range of satellites that uses microwave signals to transmit the data which will be received by the GPS receiver module. This project requires few components which is ESP32, GPS Module, OLED display module, jumper wires and a breadboard. Previously we used GPS with Node MCU ESP8266 to build a Vehicle Tracking System and Accident alert system. In this project, we are going to build an IoT based GPS Vehicle Tracking System using ESP32 where we will display the latitude and longitude values on OLED Display as well as on Blynk App so that it can be monitored from anywhere in the world. When the request by user is sent to the number at the modem in the form of SMS, the system automatically sends a return reply to the mobile indicating the position of the vehicle in terms of latitude and longitude via SMS. We will also view the position of vehicle on a digital mapping on Google map with the help of software via Internet.

Keyword : GPS, radio-navigation system, EPS32, Iot, Blynk, SMS, Google map

IOT GPS TRACKING SYSTEM USING ESP32

DESCRIPTION OF PROJECT INNOVATION

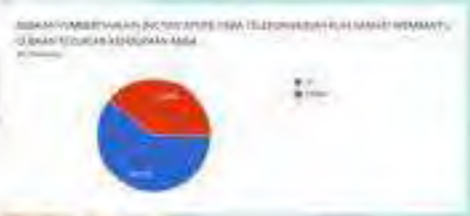
Motorcycle theft made up the majority of motor vehicle theft at 464,446 cases. So why not us install a GPS tracking system in our motorcycle? GPS stands for Global Positioning System, which is a worldwide radio-navigation system. The design is an embedded application, which will continuously monitor a moving vehicle and report the status of vehicle on demand. To track the location of the device, the GPS tracking system uses the Global Navigation Satellite System (GNSS) Network. This project requires few components which is ESP32,GPS Module, OLED display module, jumper wires and a breadboard.

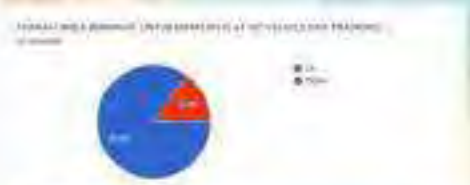
OBJECTIVE

1. TO SEE WHERE VEHICLES LAST LOCATED
2. TO FIND LOST VEHICLE EASILY
3. TO INCREASE SECURITY

FLOWCHART

DATA





PROJECT'S PICTURE

INNOVATION'S IMPACT

- GPS TRACKING SYSTEM CAN BE USED TO LOCATE LOST ITEMS.
- CASES OF MOTORBIKE STEALING WILL DECREASE.
- TRACE THE LOCATION OF THE VECHICLE EASILY

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NAMA PENYELIA

PUAN MASLIZAH BINTI MUNAHDAR

AHLI KUMPULAN 2

SHANKARI NAIR A/P MURALI
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ELECTRICAL ENGINEERING

IOT-BASED AQUACULTURE WATER MONITORING SYSTEM

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The practice of carefully raising aquatic organisms, particularly for human consumption, is known as aquaculture. Aquaculture is a growing industry in many parts of the world. Additionally, it aids in food production and the restoration of endangered species and has gained popularity as a protein-rich food source. Similarly, numerous other researches and development projects are taking advantage of the expansion of aquaculture, and there are many promising prospects for the future. Aquaculture is practiced in tanks, on land, in freshwater ponds, rivers, and ocean water. The Internet of Things (IoT) is advancing in the era of Agriculture 4.0, yet many countries and local fish farmers are still lagging in adopting this technology. IoT is a technology that has made significant strides in recent years and can be applied to the development of more efficient, secure, and affordable systems with real-time capabilities. Briefly, this investigation explores design suggestions for a productive system. A number of sensors are used to measure a variety of factors, including temperature, pH level, and turbidity. The ESP32 is used to design and program the system on the Arduino IDE. This IoT-based aquaculture water monitoring system alerts the user on current and ongoing issues, as well as emerging problems, making it useful for any aquaculture industry and aquascape enthusiasts.

Keyword : Aquaculture, IoT, Water Quality Monitoring System

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SUPERVISOR
MADAM NUR SURIYA BINTI MOHAMAD

IOT BASED AQUACULTURE WATER MONITORING SYSTEM

Aquaculture is a growing industry in several parts of the world. It aids in food production and the restoration of endangered species. Additionally, it has gained popularity as a protein-rich food sources. Other uses for aquaculture production exist as well. For instance, algae has been grown as an alternative fuel source that is cleaner and easier to cultivate than fossil fuel.

01 BACKGROUND

The Internet-of-things (IoT) is a technology that has made significant strides in recent years and can be applied to the development of more efficient, secure, and affordable systems with real-time capabilities. Briefly, this project explores design for a productive system.

02 PROBLEM STATEMENT

So the disadvantages of this existing system are that there is no continuous and remote monitoring, human intervention is required. It is less reliable, no monitoring at the source of waters. i.e. no on field monitoring and the frequency of testing is very low.

03 OBJECTIVES

i) To develop a system that uses remote sensors to detect water parameters such as pH, temperature and turbidity.

ii) To compile and transmitting data over the wireless channel once it has been collected from various sensor nodes.

iii) Routinely sending notifications to the users when the detected water quality does not meet the predetermined standards so that the appropriate action can be taken.

04 BLOCK DIAGRAM

ESP32 is a low-cost, low-power Microcontroller with an integrated Wi-Fi and Bluetooth.

05 RESULTS/ FINDINGS

06 PROJECT SIGNIFICANCE

Water-quality monitoring is used to alert user on current, ongoing, and notify user on the emerging problems.
This project is very useful for any aquaculture industries.

- Better improvement in livestock harvesting
- Suitable for aquascape enthusiast
- Easy to monitor
- User friendly
- Maintain the aqua life comfort

SMART KITCHEN SAFETY SYSTEM

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We used Node MCU to implement an IoT-based smart kitchen with monitoring. In addition, a separate section has been dedicated to Smart Kitchen. Various appliances and their applications in the smart kitchen have been described. Kitchen-related accidents have recently grown in both commercial and residential kitchens. People frequently visit the kitchen to prepare food. However, if there is a leak in the gas cylinder, the situation becomes perilous. Our goal is to use the Internet of Things to eliminate dangers in the kitchen. These mishaps may be prevented by utilising IoT technology such as monitoring the entire kitchen from a device using a phone. From the side of integrated software Node MCU and mobile applications have been used. This system allows the monitoring of gas leaks, the presence of smoke and fire in the kitchen and thus leads to faster response time in the event of a dangerous situation and during the night if there is a gas leak which we can see in the application.

Keyword : Gas, fire, IoT, system


PERTANDINGAN PROJEK
AKHIR PELAJAR
SESI 2:2022/2023
INNOVATION • ACCELERATES • TRANSFORMATION TVET
PITEC 4
SMART KITCHEN
SAFETY SYSTEM
DESCRIPTION OF INNOVATION
We used Node MCU to implement an IoT-based smart kitchen with monitoring.
Our goal is to use the Internet of Things to eliminate dangers in the kitchen.
IoT technology such as monitoring the entire kitchen from a device such as a phone.
This system allows the monitoring of gas leaks, the presence of smoke and fire in the kitchen and thus leads to faster response time in the event of a dangerous situation.
OBJECTIVE
Develop a hardware prototype for users in the kitchen when cooking.
Reduce adverts event.
ADVANTAGES
Detect gas, smoke and fire early.
More effective.
Lighter and simple.
BLOCK DIAGRAM
INPUT
PROCESS
OUTPUT
SENSOR MQ2
SENSOR DHT11
SENSOR FLAME
NODEMCU MODULE
RELAY
DISPLAY ON BLYNK APPLICATION (LED / WARNING)
FINAL PROJECT
IDRIS BIN KAMARUDDIN
(PENYELIA PROJEK)
MUHAMMAD SHHAHROL NAIM BIN FAHRURRAZI
08DJK20F2008
AQIM AHMADIN BIN MUNIR
08DJK20F2050

HOME AUTOMATION SYSTEM BASED ON IOT

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The home automation system is implemented for decades but due to the cost and budgeting of the project, it remains a niche product for high-end consumers. The Intelligent Home Automation System for security is one of the major factors that does not implement the home automation system. The hectic daily life routine sometimes makes users forget to switch off their devices at home. The clumsy attitude plus their packed daily routine life sometimes results them in a hurry situation which ended up in forgetting to switch off the lights. It will cause the electricity bill to rise sharply. Besides, it is one of the electricity wastages that will lead the earth became an unhealthy one. The strength of this project is to control devices such as lamps, fans, and doors at home using a smartphone. The system is related to home appliances using ESP32. Home appliances can help the user to control the devices at home and develop a good condition of the house area that will prevent any loss and damage to the property of any organization. The hardware that is being used in this project is a relay, fan, door lock, bulb holder, and bulb. Meanwhile, the software part is Telegram. Telegram is the main software that used in this project. Telegram application is being used as a platform to give the command. Most of the projects that are related to home automation or known as home appliances use the Blynk apps and rarely use telegram. This project uses a smartphone to give commands as compare to another project that uses tablets, laptops, and others which are much more convenient to users.

Keyword : control home appliances, telegram

PERTANDINGAN PROJEK AKHIR PELAJAR
SESI 2:2022/2023
INNOVATION • ACCELERATES • TRANSFORMATION TVET

HOME AUTOMATION SYSTEM BASED ON IOT


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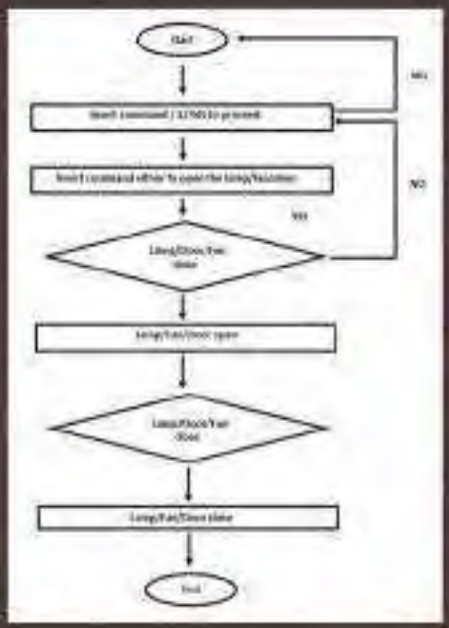
No. Pendaftaran : DBDEU20F2010
Nama Ahli Kumpulan : PREMKUMAR A/L SIVAKUMAR
No. Pendaftaran : DBDIK20F2023
Nama Penyelia : PUAN NORHAYATI CHE HUSIN

ABOUT MY PROJECT

- The hectic daily life routine sometimes makes them forget to switch off their devices at home. The clumsy attitude plus our packed daily routine life sometimes makes us in hurry a situation that sometimes makes us forget to switch off the lamps. It will cause the electricity bill to rise sharply.
- Additionally, it is one of the energy wastes that will cause the earth to become unhealthy.
- The project has the ability to control devices such as lamps, fans, and doors at home using a smartphone. The system is related to home appliances using NODEMCU. Home appliances can help the user to control the devices at home and develop a good condition of the house area that will prevent any loss and damage to the property of any organization.
- Meanwhile, the software part is Telegram. Telegram is the main software that is being used in this project. Telegram application is being used as a platform to give the command. Most of the projects that are related to home automation or known as home appliances most of it using the Blynk apps and rarely use telegram. This project uses smartphone to give commands compare to other projects.



OBJECTIVES

- To design one system that is related to home appliances using NODEMCU
- To implement home appliances that can help user to control the devices at home.
- To develop a good condition of the housing area that will prevent any loss and damage to the property of any organization.

INNOVATION

- Increase the radius of the project can be controlled
- Add on a new feature which can control pet feeding system

IMPACT

- Saving electrical energy effectively
- Able to access electrical appliance from certain distance
- Easily can keep track with the electrical appliances in home

SMART AUTOMATIC HAND WASH

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Nowadays, there are almost of the entire place for example at hospital, restaurants, public area, houses, offices/industry, school, colleges and universities have the hand washing tool. The functions of this tool are to wash and dry the hands. But normally these tools operate by semi automatic or manual. To give this tool can be more systematic and particular "automatic hand wash" for automatically washing and drying the hands is proposed. This project will design to combine four functions in one device which is the soap, water, dryer and sanitizer. The project consists of the microcontroller chip, an infra-red (IR) sensor and any other device. The main component that must be used to make sure an automatic hand washing and drying machine operating for automatically is a microcontroller chip, Arduino program. this microcontroller used to control the whole machine which is water, soap, dryer and hand sanitizer. The IR sensor consists of an IR transmitter sensor and an IR detector sensor. The IR transmitter sensor will continuously emit an IR wave, forming a straight light from the IR transmitter to the IR detector. When the IR wave between IR transmitter sensor and IR detector sensor is interrupted by user hands, a signal will be sent to the microcontroller. Then the microcontroller will analyze the signal and the Machine will operate whether it produces water, soap and continue the drying process will happen. Smart automatic hand wash is specially designed to make it easy for someone to wash hands and maintaining cleanliness within a period of time with the combination of several products that are integrated. It uses soap, then rinses with water again automatically, followed by hand drying using tissues and hand drying machine and end the program with sanitizer rinse to remain hygiene. Use of hand sanitizer is placed after washing and drying hands. Sequence of all automatically intermittently performed in the sequence that will be produced through a program special. In addition, there is a flow place to re-add the soap and sanitizer liquid without opening an important part of the product.

It is placed on the right side of the product with a suitable door to place the funnel for filling the such liquid. The quantity of liquid addition is determined to ensure that the soap and sanitizer container is full and does not exceed the required quantity. To find out the quantity of liquid consumed, the program can be executed without any liquid issuing at the such time interval, as an example when the period of soap is out only the LCD displays the interval of the thing without issuing the soap liquid. When the liquid is determined to be running out, so the user can refill the liquid with the specific quantity set for the user to use the product completely again.

Keyword : Microcontroller chip ,Arduino, Ir sensor, refill


PERTANDINGAN PROJEK
AKHIR PELAJAR
SESI 2:2022/2023
INNOVATION • ACCELERATES • TRANSFORMATION TVET
PITEC 4
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PUTERI KHAIRUL BARIYAH BINTI MOHD SULAIMAN (08DEU20F2015)
Nama ahli kumpulan 1:
MUHAMMAD AIMAN NURUDDIN BIN ABDUL JALIL(08DEU20F2012)
Nama Penyelia :
NORHAYATI BINTI CHE HUSIN
SMART AUTOMATIC HAND WASH
DESCRIPTION
This Smart Automatic Hand Wash consists of a product that combines 4 functions, namely water, soap, dryer and sanitizer. The size of this product is large and makes it easy for users to find the whereabouts of this product. It also uses stainless steel in places that are potentially exposed to air which will prevent the product from rusting when exposed to air. It is also easy to use (user friendly).
OBJECTIVE
• To ensure that users use liquid Sanitizer to help prevent germs after washing their hands cleanly.
• To reduce user movements when refilling liquid soap and sanitizer without having to open a large part of the product.
• To design a complete model of automatic hand washing that can be operated automatically and does not complicate the user.
DATA
IMPACT INOVATION
• It is easier for users to clean their hands with an automatic product that is combined from several types of products into one product only.
• Easy to operate smart automatic handwash for current maintenance.
• Saves time without having to move to another place to use other products and uses.
TASK TO US!

ABSTRACT
CIVIL ENGINEERING DEPARTMENT

PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION | PITEC 4
SESI 2 : 2022/2023

SISTEM E – PEMINJAMAN ALATAN DI MAKMAL JKA

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Penggunaan teknologi pada masa kini kian berkembang pesat. Sistem adalah komponen-komponen yang saling berinteraksi, berhubungan dan ketergantungan bagi membuat sesuatu kerja. Jadi, sistem ini merupakan medium sumber maklumat yang mudah dan cepat. Sistem untuk merekod dan melihat segala maklumat dengan menggunakan QR CODE diimbas oleh telefon pintar.Oleh itu, hasil gabungan sistem dan QR CODE ini akan membentuk sistem E-PEMINJAMAN ALATAN DI MAKMAL JKA. Projek ini menghasilkan sistem peminjaman barang secara dalam talian projek tahun akhir bagi menggantikan cara manual semasa. Projek ini akan dijalankan di bengkel ukur sebagai uji lari (Test Run) dan sekiranya ia berjaya, projek sistem QR Code ini mungkin akan lebih meluas dan dikembangkan pada makmal dan bengkel yang ada di JKA. Sebelum ini, di mana-mana bengkel atau makmal pelajar perlu mengisi borang terlebih dahulu sebelum ingin meminjam alatan tetapi sistem E- PEMINJAMAN yang dicipta ini lebih mudah dimana pelajar hanya perlu mengimbas QR CODE dan mengisi Nombor perdaftaran pelajar dan mereka boleh memilih alatan yang mereka ingin meminjam. Objektif projek ini adalah menghasilkan sistem yang sedia ada oleh pihak ICT JKA tetapi akan diubah dan disunting dalaman sistem tersebut mengikut kesesuaian sistem yang ingin dihasilkan. Sistem ini akan dibangunkan dalam persekitaran sumber terbuka dengan Menggunakan MYSQL sebagai sistem pangkalan data, PHP untuk programming language dan kegunaan server adalah Centos 8. Proses flow dimulakan dengan pelajar perlu mengimbas QR CODE dan mengisi Nombor pendaftaran dan butiran maklumat akan terus keluar selepas itu peminjam boleh memilih alatan dan kuantiti yang mereka ingin meminjam kemudian pelajar hanya perlu mendapat pengesahan daripada pensyarah yang mengajar. Oleh itu, apabila sistem ini sudah membuat ujian (Testing) kami boleh mendatpan respon daripada pelajar dan boleh membuat data serta perbezaan antara cara peminjaman secara manual dan menggunakan E-PEMINJAMAN.Kesimpulannya, berdasarkan projek penciptaan sistem ini adalah kita hendaklah berikut dengan zaman yang semakin moden.Pemodenan dari aspek pinjaman barangan dapat membantu kita mengurangkan penggunaan kertas dan pencemaran alam sekitar.

Keyword : Sistem, QR Code, E-peminjaman, uji lari, mengurangkan penggunaan kertas

PERTANDINGAN PROJEK AKHIR PELAJAR

SESI 2:2022/2023

INNOVATION • ACCELERATES • TRANSFORMATION TVET

NAMA KETUA KUMPULAN : MUHAMAD FAIZ DANIAL BIN MOHD FADZIL
NAMA AHLI KUMPULAN 1 : MUHAMAD SYAFIQ IKHMAL
NAMA PENYELIA : TUAN MD SHAHRIL BIN RABU
NAMA PENYELIA BERSAMA : EN AZRAN BIN ZAINAL ABIDIN

SISTEM E-PEMINJAMAN ALATAN

INTRODUCTION

NOWADAYS, SYSTEM ARE THINGS THAT CAN MAKE HUMAN LIFE EASIER.BASED ON OUR INTERVIEWS AND RESEARCH, THE IDEA TO PRODUCE A TOOLS E-BORROWING SYSTEM HAS BEEN SPARKED.THIS SYSTEM IS AN IMPROVEMENT FROM EXSITING SYSTEM AND THIS IMPROVEMENT IS DONE ACCORDING TO THE STANDARDS THAT HAVE BEEN SET BY OURSELVES.THE PURPOSE OF THIS SYSTEM IS TO REPLACE THE OLD FORM FILLING METHOD.

OBJECTIVE

1.PRODUCE A SYSTEM FOR THE BORROWING PROCESS EQUIPMENT AND TOOLS BY USING THE EXISTING SYSTEM
2.UPDATE LENDING STATUS
3.OBTAINING DATA/REPORT REGARDING BORROWING EQUIPMENT AND TOOLS

PROBLEM STATEMENT

1.THERE IS WASTE OF PAPER
2.TAKES A LONG TIME TO FILL OUT THE FORM
3.THE RECORDED DATA IS NOT STORED SYSTEMATICALLY
4.TAKES A LONG TIME TO CHECK RETURNED TOOLS AND EQUIPMENTS

METHODOLOGY

IMPACT OF INNOVATION

THIS SYSTEM CAN PROVIDE BENEFITS TO STUDENTS, LECTURERS OR POLYTECHNIC INSTITUTIONS. THIS IS BECAUSE THIS SYSTEM CAN SIMPLIFY THE PROCESS OF FILLING IN THE TOOL BORROWING FORM AND NOT ONLY THAT, THE USE OF PAPER CAN ALSO BE SAVED. AT THE SAME TIME DATA CAN BE RECORDED SYSTEMATICALLY

SMART MAGNETIC SWEEPER

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Sarina binti Talib

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Smart Magnetic Sweeper ini dihasilkan dari pemantauan dan soal selidik kepada pengguna bengkel paip. Kerja-kerja pemotongan paip besi telah menghasilkan sisa besi yang jatuh di atas lantai bengkel. Kerja-kerja pembersihan sisa besi mengambil masa yang lama dan masih ada sisa besi di lantai jika menggunakan penyapu. Penghasilan produk Smart Magnetic Sweeper ini berkeupayaan mengumpulkan serpihan besi dan meningkatkan keselamatan pengguna bengkel paip. Soal selidik juga diedarkan kepada pengguna bengkel paip untuk mengenalpasti keperluan peralatan ini. Setelah produk siap, pengguna diminta untuk menguji lari dan memberikan maklumbalas keberkesanan produk ini. Smart Magnetic Sweeper dilengkapi dengan sembilan keping magnet untuk memerangkap sisa besi. Produk dilengkapi dengan pemegang bagi memudahkan pengguna dan mengelakkan dari sakit belakang akibat menunduk. Pengujian produk menunjukkan , sisa besi berjaya dikumpulkan sebanyak 90 gram apabila produk diuji di atas lantai bengkel paip selama 20 saat. Ujian di atas mozek pula menunjukkan Smart Magnetic Sweeper berjaya mengumpul 110 gram selama 20 saat. Manakala jika diuji di tas karpet dalam tempoh 20 saat, Smart Magnetic Sweeper boleh mengumpulkan sebanyak 75 gram. Berdasarkan hasil pengujian dan analisa data, disimpulkan bahawa Smart Magnetic Sweeper dapat membantu kerja-kerja pembesihan sisa besi dan dapat meningkatkan keselamatan pengguna bengkel paip .

Keyword : Magnetic sweeper, sisa besi, bengkel paip

POLITEKNIK

SMART MAGNETIC SWEEPER

NUR AIN YASMIN BT MD ROZI
08DKA20F2013

NUR HAZIQAH BT NORISAM
08DKA20F2009

PUAN SARINA BT TALIB
SUPERVISOR'S

BACKGROUND SMART MAGNETIC SWEEPER

Smart magnetic sweeper is made of ceramic magnetic iron and it acts to lift iron waste, screws, nails, nuts and other iron waste. Its function is to clean iron waste and lift small iron waste that is difficult to see in plumbing workshops or carpeted areas.

PROBLEM STATEMENT

Among the other problem statements we experienced were iron scraps from iron cutting works wandering around the pipe workshop. Metal residue sticks to brooms and brushes and lastly, small metal residue is difficult to see

OBJECTIVE

I. Designing a smart magnetic sweeper
II. Produce smart magnetic sweeper
III. Testing the effectiveness of the smart magnetic sweeper

Analysis Data

kawasan	masa (s)	magnet	kuantiti sisa besi, paku,skru yang dapat dikumpul (gram)
karpet	10	3 6 9	10 30 40
tandas	10	3 6 9	5 30 40
bengkel paip	20	3 6 9	10 30 40

CIVIL ENGINEERING

RECYCLED PLASTIC INTERLOCKING BRICK

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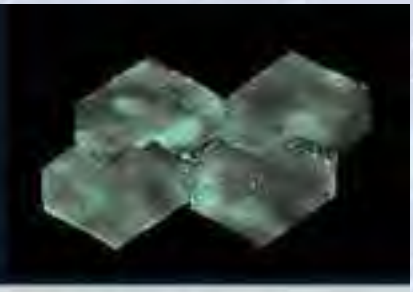
Nowadays, plastics are widely used in various aspects of daily life, including garbage disposal, furniture, food packaging, and other accessories. The packaging industry, in particular, relies heavily on plastics, accounting for approximately 42% of primary plastics usage (Geyer, R., Jambeck, J. R., & Law, K. L., 2017). A study commissioned by the World Wide Fund for Nature (WWF) in 2019 revealed that Malaysia ranks second in Asia for per capita plastic use. In light of this issue, this study aims to contribute to environmental sustainability by recycling Polypropylene (PP) plastic in the production of interlocking bricks. The objective of this study is to produce interlocking bricks using PP plastic and determine the optimal strength of these bricks. The method employed involves crushing PP plastic into small particles and heating it in a furnace at a temperature of 1600°C for 30 minutes until it reaches a liquid state. Fine and coarse aggregates are then added to the molten plastic and thoroughly mixed. The resulting mixture is poured into our fabricated molds and left to dry. Two types of mix ratios were used in this study. The first mix only used fine aggregate and PP plastic in ratios of 1:1, 2:1, and 3:1. The other mix incorporated coarse aggregate, with ratios of plastic:coarse aggregate:fine aggregate set at 2:1:1, 2:2:1, and 2:3:1.
The findings indicate that the 2:1:1 ratio produced the strongest PP interlocking brick with a strength of 18.7 N/mm², compared to 17.43 N/mm² for conventional interlocking bricks. The density of the product is 1583 kg/m³, significantly lighter than the market value of 2223.08 kg/m³, representing nearly a 40% reduction in weight. From a cost perspective, the production cost for one piece of interlocking brick can be reduced by 40%, resulting in potential savings with increased production. Thus, we conclude that PP interlocking bricks have the potential for further study and future commercialization. It is our hope that PP interlocking bricks will be widely adopted as building materials to contribute to a cleaner and healthier environment.

Keyword : Interlocking brick, Plastic, Polypropylene, Coarse aggregate, Fine aggregate, Environmentally, Commercialized

PERTANDINGAN PROJEK AKHIR PELAJAR
SESI 2:2022/2023

RECYCLED PLASTIC INTERLOCKING BRICK



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INTRODUCTION

The use of environmentally friendly, lightweight building materials in the civil industry is currently the subject of research. This sparks research into recycling waste plastic to create lightweight, environmentally beneficial building materials.

METHODOLOGY

PROBLEM STATEMENT

The World Wide Fund for Nature (WWF) commissioned a study in 2019 that revealed Malaysia ranks second in Asia for yearly per capita plastic use.

OBJECTIVE OF STUDY

The objective of this study is to produce (PP) interlocking brick and to determine the optimum strength of (PP) interlocking brick.

DATA

IMPACT OF INNOVATION

Raw material cost	Rm
Sand	0.10
Coarse aggregate	0.10
Water	0.40
Overhead cost	0.10
Total	Rm 1.10

Standard interlocking brick cost is rm 1.60

RM 1.60 – Rm 1.10 = rm 0.50

0.50 / 1.60 x 100 = 31.25 %

Cost may reduce if we produce interlocking bricks in bulk.

CIVIL ENGINEERING

BITUMEN-PLASTIC COMPOSITE ROAD

Zuraidah binti AB Moin, Marliza Ashiqin binti Kkhazali, Ilyana Balqis binti Abdul Rahim, Nurul Izzati binti M Razali, Ellese Shazween binti Hamizam

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Bitumen - Plastic Composite Road merupakan inovasi terhadap turapan jalan yang sedia ada bagi mengurangkan kos pembinaan jalan. Penggunaan plastik di dalam turapan jalan telah diamalkan sejak dahulu lagi, tetapi tidak kerap digunakan. Penggunaan plastik juga dapat menyelamatkan alam sekitar dengan mengitar semula sisa plastik. 2%, 4%, dan 6% plastik telah digunakan di dalam projek ini untuk mengenalpasti peratus yang sesuai bagi mengurangkan penggunaan bitumen. Ujian penembusan atau penetration test telah dilakukan bagi menentukan kekerasan atau kelembutan bitumen dengan mengukur kedalaman dalam milimeter yang mana jarum yang dimuatkan standard akan menembus secara menegak dalam masa lima saat sementara suhu sampel bitumen dikekalkan pada suhu 25'C. Keputusan eksperimen menunjukkan bahawa ketiga-tiga peratusan plastik ini boleh digunapakai dalam bahan turapan jalan. Kekuatan dan prestasi campuran bitumen dan plastik telah diuji melalui ujian kestabilan marshall, ujian pengakstrakan, ketumpatan kekal dan penyerapan air. Hamilton kajian menunjukkan bahawa adunan ini mempunyai kestabilan marshall yang lebih tinggi iaitu julat 14.03 hingga 14.80kN berbanding campuran konvensional. Projek ini membuktikan bahawa sisa plastik boleh digunakan dengan cekap untuk pembaikan dan pembinaan jalan dengan prestasi dan ketahanan yang tinggi.

Keyword : penetration test, ujian kestabilan marshall, plastik, bitumen

PERTANDINGAN PROJEK
AKHIR PELAJAR
SESI 2:2022/2023
INNOVATION · ACCELERATES · TRANSFORMATION TVET

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Ahli 1: Nurul Izzati Binti M Razali (F2030)
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Nama Penyelia:
Puan Mariza Ashiqin Binti Khazali
Puan Zuraidah Binti Ab Moin

BITUMEN-PLASTIC COMPOSITE ROAD

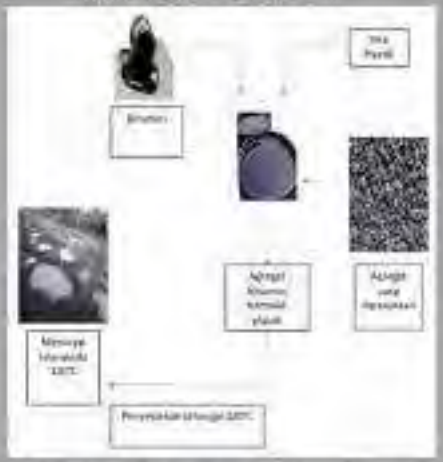
PENGENALAN

Bitumen-Plastic Composite Road merupakan inovasi terhadap rintapan jalan yang sedia ada bagi meningkatkan kos penambaikan jalan. Penggunaan plastik dapat menyelamatkan alam sekitar dengan mengitar semula sisa plastik.

PERNYATAAN MASALAH

- Plastik seperti beg plastik, bekas penyimpanan makanan dan botol yang banyak digunakan di sekitar PSA menyebabkan sampah sarap sering melimpah keluar dari tong sampah yang sedia ada.
- Plastik boleh mencemarkan alam sekitar dan mengambil masa selama 400 hingga 1000 tahun untuk terurai.

METODOLOGI



OBJEKTIF

- Untuk menghasilkan bitumen dengan mencampurkan plastik sebanyak 2%, 4%, 6% dan 8 %
- Untuk membuat penetration dan marshall stability test
- Untuk menganalisa perbandingan yang sesuai dalam menghasilkan bitumen yang baik

CIVIL ENGINEERING

EDUCATION MOBILE LEARNING APPS IN MECHANICS OF CIVIL STRUCTURE (MYMOSS)

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The use of mobile education apps to enhance student performance has been growing significantly in recent years. With the widespread availability of mobile devices, these apps provide students with access to educational resources and learning materials anytime, anywhere. The purpose of this study is to investigate the effectiveness of mobile education apps, specifically MYMOSS, in improving student learning outcomes and enhancing their academic performance. The MYMOSS apps are developed using Android Studio software. The study sample consisted of 27 respondents. The findings of the study revealed that the MYMOSS application significantly improved students' performance in learning. A remarkable 89% of the respondents agreed that the MYMOSS apps increased students' effectiveness in achieving learning outcomes. Overall, the respondents expressed high satisfaction with the use of MYMOSS apps in mastering the studied topics. It can be concluded that MYMOSS apps contribute to the understanding of subjects and provide tools for improving student performance and achievement in learning outcomes.

Keyword : Education, mechanics of civil Structure, learning apps, technology, BTT theory

PERTANDINGAN PROJEK AKHIR PELAJAR
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PITEC 4

INNOVATION • ACCELERATES • TRANSFORMATION TVET

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EDUCATION MOBILE LEARNING APP IN MECHANICS OF CIVIL ENGINEERING STRUCTURE (MYMOSS)

MYMOSS

INTRODUCTION

The learning process has evolved over centuries and cannot be disputed. Based on our research and information from google form, the idea arose to create a system that can facilitate civil engineering structural mechanics students.Modern pedagogic methods (Blended Learning) and andrology (E-Learning) have shaped our understanding that the more we use technology in class, the more we understand and improve student performance in learning subjects.

OBJECTIVE

1. To produce **MYMOSS** application for student effectiveness in learning.
2. To evaluate student learning performance using **MYMOSS** application.
3. To determine the satisfaction among the students effective learning using **MYMOSS** apps.

PROBLEM STATEMENT

1. Students find it difficult to capture the content of learning subject especially in calculation and formula.
2. Students also have difficulty remembering and understanding formulas
3. Students suffer and struggle to complete a calculation and sometimes took longer period

METHODOLOGY

IMPACT OF INNOVATION

•This application can make it easier for students to get answers more quickly and accurately. This can be used as a reference source to find out the correct answer. At the same time, this application can help students understand better and can increase marks in the topic of equilibrium force. can also lighten the task of lecturers in teaching students when learning is carried out.

CIVIL ENGINEERING

WATER SAVING'S SPIGOT HANDLE LOCK

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Water is one of the most important elements that needs to be used responsibly and prudently. However, Malaysians, especially those who live in Klang Valley, have been identified as using water excessively, and much of it has been turned into waste. The water consumption by the Klang Valley residents was recorded at 288 litres per day, which exceeded the recommended rate by the WHO of 220 litres per day. Household activities were identified as the main contributing factors to the problem. Therefore, a decision was made to change and find ways to reduce the amount of water wasted. Because of that, a specialised spigot handle lock, which is a type of tool to lock the faucet head, was invented. The spigot handle lock can be applied to three different types of tap heads, such as Saint Moritz, Star, and Plano. By using this invention, the tap head will have a turning limit, resulting in a controlled release of water. Therefore, the direct impact of the invention was that it was capable of reducing water consumption and also saving expenses such as water bills. This invention can be used by all types of households and in various places, for example, mosques and others. In February 2023, the cubic metre for water use in a month was 145 m3. At the beginning of March, the cubic metre for water use in a month was 118 m3. After using the product, the cubic metres of water were successfully decreased by 27%.

Keyword : Importance of water, Waste of water, spigot handle lock, save expenses, faucet head

WATER SAVING'S SPIGOT HANDLE LOCK

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KHAIRUL AZIQ BIN KHAIRUDIN

ABSTRACT

Water is one of the most important elements that needs to be used responsibly and prudently. However, Malaysians especially those who lived at Klang Valley have been identified to use water excessively and much of it has been turn into waste. The water consumption by the Klang Valley residents were recorded at 230 liters per day which exceeded the rate recommended rate by the WHO of 220 liters a day. Households activities were identified as the main contributing factors to the problem. Therefore, decision was made to change and find ways to reduce the amount of water wastage. Because of that, a specialised spigot handle lock which is a type of tool to lock the faucet head was invented. The spigot handle lock can be applied on three different types of tap heads such as Saint Moritz, Star water tap and Plano. By using this invention, the tap head will have a turning limit which resulted is releases controlled amount of water. Therefore, the direct impact of the invention was it capable on reducing the water consumption and also can save expenses such as water bills. This invention can be used by all types of household and various places for example in mosques and others. In February of 2023, the cubic meter for water use in a month was 145 m^3, at the beginning of March, the cubic meter for water use in a month was 118 m^3. After using the product, the cubic meter of water were successfully decreased by 27%.

INNOVATION OBJECTIVE

- To create a specially design Spigot handle lock that act as an efficient water consuming equipment and will be attached to certain design of existing water tap head such as Plano, Star and St. Moritz.
- To test the efficiency of Spigot handle lock as a new water consuming equipment that will promote water savings among household and public water consuming activities

PROJECT DESCRIPTION

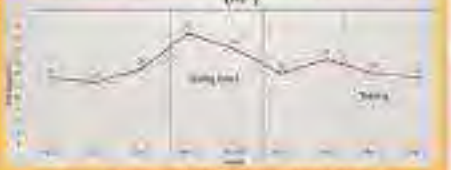
SCOPE OF PROJECT

FINDINGS

Terrace house,Lot 345 jalan 15/141 kg malaysia tambahan,Sg besi Kuala lumpur
BILL WATER FROM NOVEMBER 2022 TO APR 2023

Terrace house,No 1 jalan seri taming 6 taman seri taming cheras selangor
BILL WATER FROM OCTOBER 2022 TO APR 2023 (m^3)

shophouse, jalan mewah 4,taman pandan mewah,68300,ampang selangor
BILL WATER FROM AUGUST 2022 TO MARCH, 2023 (m^3)



OVERALL BILL WATER FROM OCTOBER 2022 TO APR, 2023, 2023 (m^3)

OVERALL BILL WATER FROM AUGUST 2022 TO APR, 2023 (m^3 AND RINGGIT MALAYSIA)

IMPACT INNOVATION

CONSUMER
- reducing the amount of water used and at same time can lower the utility bills.

BUILDING SERVICES ENGINEERING BODY OF KNOWLEDGE
- capable in reducing water consumptions can significantly reduce the overall water usages of the household

INSTITUTION
- has proven the capability of the students to produce a good and impactful engineering product towards sustainability purposes

CONCLUSION

In the nutshell, spigot's idea product is successfully proven to help reducing water bill but awareness of not using water carefully causes the water bill data to increase.In February, the cubic meter for water use in a month was 192m^3, at the beginning of March, the cubic meter for water use in a month was 171 m^3.After using the product, the cubic meter of water decreased by 27%. This project was successfully implemented

CIVIL ENGINEERING

SOLAR BAG MAT

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Solar Bag Mat is an equipment for a solution that fits the needs of places for leisure activities such as gardening, picnicking, and camping. The purpose of producing this tool is because of the factors that often occur in the following places: the problem of getting electricity. This solar bag mat is specially designed to make it easier to get electricity in those places. The components to produce this solar bag mat are solar panels, USB ports, bags, and mats. The objective of this study is to design a product that saves and preserves electricity in places where it is difficult to get electricity and to determine the effectiveness of the product in places where it is difficult to get electricity. Quantitative and qualitative methods have been collected in the form of questionnaires that have been distributed to respondents, who make observations according to the scope of the study to analyse the data. The study respondents consisted of a few PSA citizens, gardeners, and users using gadgets while doing leisure activities, and a total of 22 people gave feedback through a Google Form. The result of the study is the time taken to collect solar energy for a temperature of several hours for charging use. In conclusion, a time of 5 hours is allocated for the solar panel to collect energy so that the solar controller can supply electricity for more than 2 hours. Next, the suggested improvements include producing thicker bag material and using a lighter battery.

Keyword : Solar Panel, Solar Bag Mat, Electricity, Gadget, Respondent, Data analysis, Observation, Voltage, Material

SOLAR BAG MAT

ABSTRACT

Solar Bag Mat is an equipment for a solution that fits the needs in places of leisure activities such as gardening, picnic and camping. The purpose of producing this tool is because of the factors that often occur in the following places, which is the problem of getting electricity. This solar bag mat is specially designed to make it easier to get electricity in those places. The components to produce this solar bag mat are solar panels, usb ports, bags and mats. The objective of this study is to design a product that saves and preserves electricity in places that hard to get electricity and to determine the effectiveness of the product in places where it is difficult to get electricity. Quantitative and qualitative methods have been collected in the form of questionnaires that have been distributed to respondents and make observations according to the scope of the study to analyze the data. The study respondents consisted of few PSA citizens, gardeners and users using gadgets while doing the leisure activities and a total of 22 people gave feedback through google form. The result of the study is the time taken to collect solar energy for a temp of several hours for charging use. In conclusion, a time of 5 hours is allocated for the solar panel to collect energy so that the solar controller can supply electricity for more than 2 hours. Next, the suggested improvements include producing a thicker bag material and using a lighter battery.

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METHODOLOGY

This product has an ergonomic design and has many uses from many aspects. Apart from supplying electricity to users when they are in areas without electricity, this product can also be an instrument in the form of a bag. Where this bag can fill goods, in addition, this product can be an instrument that allows the user to cover the seat which is a mat. The design of this product must be able to guarantee comfort and provide many benefits to the user.

OBJECTIVES

i) To design products that save and preserve electricity in places that don't provides electricity.

ii) To determine the effectiveness of the product in places where it is difficult to get electricity such as when carrying out gardening activities, picnics and camping.

PROBLEM STATEMENT

i) The use of solar energy today has not yet received high acceptance by consumers and many have not used it comprehensively.

ii) The problem of getting electricity when doing outdoor activities, for example it's hard to get help if the phone doesn't have a battery.

PROJECT DESCRIPTION

CONCLUSIONS

This Solar Bag Mat is able to provide convenience to users who want to use it when doing outdoor activities such as picnics, gardening and camping. This product also saves on the use of electricity because it only depends on solar energy supplied from sunlight. Users also no longer have to worry about the absence of electricity when doing outdoor activities.

CIVIL ENGINEERING

PORTABLE NOISE PANEL

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Pencemaran bunyi adalah pencemaran yang paling kurang diberi perhatian oleh semua pihak berbanding dengan pencemaran air dan udara dari segi masa dahulu. Pencemaran ini boleh dibahagikan kepada empat bahagian, iaitu kebisingan selang-seli, kebisingan selenjar, kebisingan fluktuasi dan bunyi lantunan. Pencemaran bunyi ialah bunyi bising yang keterlaluan sehingga menyakitkan telinga. Pencemaran bunyi biasanya melebihi 80 desibel dan pencemaran ini mengikut situasi dan keinginan masing-masing. Pencemaran bunyi sering berlaku di kawasan perumahan dan kawasan komersial seperti premis bengkel kenderaan, kedai makan, farmasi dan klinik swasta. Ini secara tidak langsung menganggu ketenteraman penduduk setempat dengan bunyi bising tersebut. Objektif 'PORTABLE NOISE PANEL' (P.N.P) direka bentuk adalah untuk menyerap bunyi daripada kawasan kajian dengan menggunakan sumber bahan kitar semula. Bahan utama kitar semula yang digunakan untuk menghasilkan 'PORTABLE NOISE PANEL' (P.N.P) adalah seperti kotak telur, hampas tebu, habuk kayu dan fabrik. Terdapat TIGA (3) ketebalan saiz ketebalan panel yang berbeza iaitu 2.0cm, 4.0cm dan 6.0cm. Manakala setiap ketebalan itu terdiri daripada 3 saiz panel berbeza iaitu 41cm x 77cm, 54cm x 77cm dan 82cm x 77cm. Saiz panel yang berbeza ini digunakan untuk mengukur kadar serapan bunyi. Kesemua panel ini diisi dengan bahan kitar semula mengikut nisbah yang telah ditetapkan. Panel-panel ini dipasang pada satu kotak kayu yang bersaiz 77cm X 54cm X 82cm. Tahap kebisingan bunyi yang terhasil daripada telefon bimbit yang diletakkan di dalam kotak kayu diukur dengan menggunakan 'Sound Level Meter' (SLM). Daripada bacaan didapati tanpa menggunakan 'PORTABLE NOISE PANEL' (P.N.P), bunyi yang di rekodkan menggunakan sound level meter adalah sebanyak 63.3 dBA dan 65.2 dBC. Setelah pemasangan alat 'PORTABLE NOISE PANEL' (P.N.P), bacaan bagi panel bersaiz 2.0cm memberikan nilai 55.1dBA dan 62.6dBC, bacaan bagi panel bersaiz 4.0cm pula memberikan nilai 51.4dBA dan 61.3dBC manakala bacaan bagi panel bersaiz 6.0cm memberikan nilai 48.3dBA dan 59.1dBC. Data ini jelas menunjukkan penggunaan 'PORTABLE NOISE PANEL' (P.N.P) berketebalan 6.0 cm dapat memberikan nilai kadar serapan bunyi yang sangat berbanding dengan dua panel lain. Kajian ini perlu ditambah baik dengan memperluaskan skop kajian kepada lokasi yang sebenar di kawasan komersial untuk mendapatkan nilai bacaan yang lebih tepat dan jitu.

Keyword : kebisingan selenjar, kebisingan fluktuasi, portable noise panel, panel, 'Sound Level Meter' (SLM)


PERTANDINGAN PROJEK
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INNOVATION • ACCELERATES • TRANSFORMATION
PENYELIA :
PN SARAH AFZAN BINTI AB KARIM
PORTABLE
NOISE
PANEL
STUDIO/KOTAK
UJI
HASIL AKHIR
PRODUK
IMPAK INOVASI
PRODUK
• penggunaan bahan kitar semula yang dapat mengurangkan pembuangan sisa ke dalam muara alam
• dapat menyedarkan masyarakat tentang kesan bahaya pencemaran bunyi
OBJEKTIF
• Mereka bentuk satu bahan yang mampu menyerap bunyi
• Mengenal pasti kadar penyerapan bunyi bising menggunakan bahan kitar semula
PENYATAAN MASALAH
PENERANGAN PRODUK
ANALISA
DATA:
DATA BACAAN DESIBEL MELAWAN KETEBALAN PANEL

MAGNETIC SWEEPER

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Magnetic Sweeper terhasil daripada pemerhatian terhadap cara pengumpulan serpihan besi di beberapa buah bengkel besi. Beberapa masalah telah dikenalpasti semasa kerja mengumpul serpihan besi yang dikutip menggunakan tangan seperti kecederaan kepada pekerja dan persekitaran kerja yang terdedah kepada serpihan besi yang tajam di permukaan lantai. Magnetic Sweeper merupakan alatan yang dihasilkan dengan berkupayaan untuk mengumpul serpihan besi dan dapat meningkatkan persekitaraan yang lebih selamat. Kajian telah dilaksanakan di tiga buah bengkel logam yang berbeza iaitu di Padang Jawa, Seksyen 16 dan Seksyen U8 Shah Alam. Soal selidik diedarkan kepada 100 responden untuk mengenalpasti keperluan peralatan mengumpul serpihan besi di bengkel. Magnetic Sweeper dibina daripada 6 unit magnet yang dilekatkan pada plat besi untuk memerangkap serpihan sisa besi. Ianya dilengkapi dengan tiang rod besi dan pemegang yang mempunyai ciri keselamatan untuk mengelakkan kecederaan kepada pengguna. Pengujian kekuatan magnet menunjukkan pada ketinggian 3cm dari aras lantai, serbuk besi berjaya dikumpulkan sebanyak 150 gram. Berdasarkan hasil pengujian dan analisis yang dijalankan dapat dirumuskan bahawa Magnetic Sweeper dapat meningkatkan keselamatan pekerja dan persekitaran.

Keyword : keselamatan, serpihan besi, bengkel, kimpalan, logam

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MAGNETIC SWEEPER

ABSTRAK

Magnetic Sweeper ini diaplikasikan daripada pemerhatian di bengkel besi berkenaan cara mengumpul serpihan besi. Beberapa masalah telah dikenalpasti semasa kerja mengumpul serpihan besi yang dikutip menggunakan tangan seperti kecederaan kepada pekerja dan persekitaran kerja yang terdedah kepada serpihan besi yang tajam di permukaan lantai. Magnetic Sweeper merupakan alatan yang dihasilkan dengan berkupayaan untuk mengumpul serpihan besi dan dapat meningkatkan persekitaran yang lebih selamat. Kajian telah dilaksanakan di tiga buah bengkel logam yang berbeza iaitu di Padang Jawa, Seksyen 16 dan Seksyen U8 Shah Alam. Soal selidik untuk produk ini juga diedarkan kepada 100 responden untuk mengenalpasti keperluan peralatan mengumpul serpihan logam di bengkel besi. Magnetic Sweeper terdiri daripada 6 unit magnet yang diletakkan di plat besi untuk memerangkap serpihan sisa logam. Rod besi dan pemegang mempunyai ciri keselamatan untuk mengelakkan kecederaan kepada pengguna. Pengujian kekuatan magnet menunjukkan pada ketinggian 3cm dari aras lantai, serbuk logam berjaya dikumpulkan sebanyak 150 gram. Berdasarkan hasil pengujian dan analisis yang dijalankan dapat drumuskan bahawa Magnetic Sweeper dapat membantu keselamatan pekerja dan persekitaran.

PENYATAAN MASALAH

- Mengelakkan pekerja mengutip serpihan logam daripada menggunakan tangan.

- Kecederaan yang biasa ditemui di bengkel logam

SKOP KAJIAN

- Bengkel kimpalan di Padang Jawa Shah Alam.
- Bengkel kereta di Seksyen 16 Shah Alam.
- Pusat Pengumpulan Sampah Kitar Semula Space U8.

- Serpihan besi yang dapat dikumpulkan daripada Magnetic Sweeper.

OBJEKTIF INOVASI

- Menghasilkan peralatan untuk mengumpulkan serpihan besi untuk kegunaan bengkel.
- Meningkatkan persekitaran yang selamat.

DAPATAN KAJIAN

- Pengujian di bengkel kimpalan Seksyen U8, menunjukkan pengguna dapat mengawal pergerakan Magnetic Sweeper tanpa kecederaan.

VEGETABLES BOARD

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In the kitchen, a slicing board is an indispensable tool for preparing and slicing ingredients such as vegetables. Slicing boards are available in various sizes, densities, and materials, such as wood, plastic, iron, and marble. However, slicing boards made of wood have several advantages over other materials due to their ability to repair wounds in solid wood and their high resistance and antiseptic properties. From the results of the research conducted on 58 respondents, consisting of working women, small business owners, and students, it was found that 96% needed a container to place sliced ingredients and a place to store knives while cooking. Therefore, a slicing board, which is a vegetable board that has a space to place the slicing material and a knife, has been produced to solve the respondent's problem of the respondent.

Keyword : slicing board, vegetable board, cutting materials, cutting space

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VEGETABLES BOARD

INTRODUCTION

A slicing board is a durable board used to place cooking ingredients such as vegetables that will be cut or sliced during the cooking process. Slicing boards in the kitchen are usually made of wood, plastic, iron, or marble and come in various sizes, thicknesses, and widths. Slicing boards made of wood have several advantages over other materials because the wood has its own ability to close or heal wounds in high-density wood, has strong resistance, and is very flexible to use. Wood also has natural antiseptic properties.

OBJECTIVE

To produce a slicing board that is a Vegetables Board

PROBLEM STATEMENT

- The slicing board does not have a space to put the slice ingredients

ADVANTAGES

- Provide space to place the sliced material and knife.
- The groove around the cutting board can prevent the liquid from the sliced material from spilling out
- Users can save time to prepare containers at one time.
- Used as a kitchen decoration.

IMPACT

- Avoid the risk of injury to users and households, especially children
- Minimize food preparation space in the kitchen
- Kitchen more tidy and organizadi
- Potential to market

TRIPLEX TABLE

Wahida Binti Mohamad Noor, Nur Khairina Binti Azmi, NurFatihah Binti Zina Abu @ Zainal Abu

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A study table is one of the needs of users nowadays. This is because users need to simplify and smooth the work process. An idea was created to minimize the limited space of the rental house and focus on student use. This multi-functional table is equipped with chairs and includes storage drawers for user convenience and comfort. The size of this product is 780mm x 500mm x 500mm and it is made using chipboard material. Nowadays, engineered wood is also a choice in the furniture manufacturing industry. Furniture made from engineered wood is affordable, easy to manufacture and durable. Research is underway to solve the problem of students in rented houses. We found that apartment house space especially in the room has limited space and is not suitable for placing large furniture. In addition, some items such as laptops, books, stationery and others because students do not have a place to store their items. For future recommendations, improvements can be made to improve the features of this product. One of the improvements is the option to use materials other than chipboard can also be considered. Also, to make this table more interesting by making improvements to the table. Also, the size of the wheels on the table and chairs can be considered for further innovation.

Keyword : Triplex, save space, chipboard, multifunction

PERTANDINGAN PROJEK AKHIR PELAJAR
SESI 2:2022/2023
INNOVATION · ACCELERATES · TRANSFORMATION TVET

TRIPLEX

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- NUR KHAIRINA BINTI AZMI (08DBK20F2005)
- NURFATIHAH BINTI ZAINAL ABU (08DBK20F2013)

NAMA PENYELIA :
- PUAN WAHIDA BINTI MOHAMAD NOOR

DESCRIPTION OF INNOVATION

EXISTING ISSUE
- There are many residents in one rental house
- Many beds are arranged in one room
- Space is very limited.

PROPOSE IDEA
- Easy to move from one place to another.
- Minimize the use of space.
- Have enough storage space to store things.
- Flexible table size

OBJECTIVES
- The objective of this study is to produce a Triplex Table.

IMPACT OF INNOVATION

ADVANTAGES & MARKET POTENTIAL
- Have the various function on this triplox table.
- It save space for user to do work..
- Triplex table has more potential to be marketed.

TROLLEY

Muhammad Faris Bin Mohd Akmal, Nur Nusaibah Binti Busrah, Nisrina Athira Binti Abdul Latif, Norani Binti Abd Karim

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A trolley is a piece of equipment used for lifting and transporting objects, either it's heavy or light, from one location to another. The woodworking workshop facility at Polytechnic Shah Alam (PSA) needs a new trolley because the existing one which is currently has been damaged. The main objective of this project is to produce a trolley that will work adequately for carrying heavy items in the woodworking shop at PSA. The trolley was created to facilitate staff and student transportation of objects throughout the workshop. The project created a trolley with a centre separation, left and right barriers, and the capacity for substantial 4' x 8' wooden and wood composite boards. The trolley also doesn't have a barrier at the back that would move to the woodworking workspace easier and enable the placement of large-sized lumber. Initial data on the demand for the trolley was gathered through preliminary research, which included a pre-survey and fieldwork study. The time study technique was used to determine the actual duration of time spent using the new trolley. To gather feedback on the utilization and efficacy of the trolley, post-survey questionnaires using "Google Forms" were also done. 90% of respondents agreed that the trolley successfully addresses the primary challenges associated with moving big, heavy objects in the PSA Woodworking Workshop. The trolley's size and design, from the perspectives of the respondents, should be upgraded further if it is to be used for the PSA woodworking workshop in the future.

Keyword : trolley, PSA woodworking workshop, heavy woods, time study, material handling

TROLLEY

ABSTRACT

A trolley is a useful equipment for moving objects from one place to another. The woodworking workshop at Polytechnic Shah Alam (PSA) needs a new trolley because the old one is damaged. The new trolley was designed with a center separation, left and right barriers, and the ability to carry large wooden boards. The actual time spent using the new trolley was determined using a time study technique. Respondents suggested that the trolley's size and design should be further improved for future use in the PSA woodworking workshop.

PRODUCT MAKING

OBJECTIVE

I. To produce a trolley that can facilitate to carry the heavy woods in the PSA woodworking workshop.
II. To determine the actual time taken needed when used a new trolley in the woodworking workshop by using the time study method.

STATEMENT OF PROBLEM

I. Difficulty for student and staff to carry wood and heavy panel.
II. An existing trolley has a side and central barrier that caused a difficulty to wood handling process

ADVANTAGE OF PRODUCT

I. Can DIY (open and reassemble)
II. Able to transport 4' x 8' board panels and lumber at the same time
III. Does not require many assistants during operation

SUMMARY OF TIME STUDY METHOD

TROLLEY (2 PEOPLES)	WITHOUT TROLLEY (2 PEOPLES)	WITHOUT TROLLEY (3 PEOPLES)

IMPACT

I. Ease of transporting wood materials from the store to the machine
II. Assisting material handling by student and staff

PRODUCT FINISHED

CIVIL ENGINEERING

ABSTRACT
COMMERCE DEPARTMENT

PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION | PITEC 4
SESI 2 : 2022/2023

MOG LAUNDRY BAG

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Almost every industry uses plastics in some capacity, including the manufacturing of packaging, building and construction, textiles, consumer goods, transportation, electrical and electronic equipment, and industrial machines. Plastic does not decompose well because it is not an organic material. Malaysia is one of the world's highest plastic waste disposal rates. Thus, MOG laundry bag was designed and developed to helps lessen the environmental impacts of single-use plastic bags. MOG laundry bags are made from sustainable rice plastic which can lead to reduced waste and promotes a circular economy. Other than that, the purpose of this project is to provide an eco-friendly alternative to traditional laundry bags for people who looking to reduce their environmental impact while still enjoying the convenience of a reliable laundry bag. From the implementation and evaluation of MOG Laundry, it was found to have significantly positive feedback. In conclusion, MOG is a functional household product that will help to reduce pollution to the environment.

Keyword : Environment, Reuse, Sustainability

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Nama Ahli Kumpulan 1: Sitinormasiin Bt Abidin (08DPI20F2005)
Nama Ahli Kumpulan 2: Azlina Aysha Bt Sarbutheen Jinnah (08DPI20F2004)
Nama Ahli Kumpulan 3: Razimah Bt Masri (08DPI20F2012)
Nama Penyelia: Dr. Murugadas A/L Ramdas @ Chelamuthu

PENYELIA | KETUA KUMPULAN | AHLI KUMPULAN 1 | AHLI KUMPULAN 2 | AHLI KUMPULAN 3

MOG LAUNDRY BAG:
MY OWN GREEN LAUNDRY BAG USING A RICE PLASTIC BAG

MOG laundry bag is an innovative product that helps lessen the environmental impacts of single-use plastic bags. MOG laundry bags are made from sustainable rice plastic which can lead to reduced waste and promotes a circular economy. Other than that, the purpose of this project is to provide an eco-friendly alternative to traditional laundry bags for people who looking to reduce their environmental impact while still enjoying the convenience of a reliable laundry bag.

PROBLEM STATEMENT

ISSUES: Mismanaged plastic waste lead to marine pollution and air pollution

PROPOSED SOLUTION: Reduce plastic waste by design and development of plastic - based laundry bags to support a greener world

OBJECTIVES

To design and develop MOG laundry bag.

To implement and evaluate the effectiveness of laundry bags in the community.

BENEFITS OF PRODUCT

- Have durability up to 10 KG
- Low-cost to produce
- Less plastic waste
- Innovative product

METHODOLOGY

TARGET MARKET

Those who need a laundry bag such as housewives

Students

IMAGE PRODUCT

COMMERCE DEPARTMENT

SUPER CHAUSSURES DRYER

Muhammad Fikri Bin Md Zain, Muhammad Zahiruddin Bin Khairi, Ataa Nurasilah Binti Azmi, Nurul Syahiera Binti Mohamed Rosli

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The purpose of this project is to study the implementation and effectiveness of shoe drying in the community. Shoes are very important in our daily life for the purpose of safety from danger. The purpose of wearing shoes is to protect our feet from possible harm. In terms of shoe care, it should always be clean and comfortable to protect the foot from harm. However, due to the frequently changing weather especially during the rainy season in Malaysia, most of us find it challenging to manually dry our shoes which leads to the spread of bacterial infections and harms the health of the foot. Consequently, this study is conducted in order to solve a problem encountered in order to help society. The ADDIE Model, a popular instructional design framework, was utilized to guide the development process, which included five phases: Analysis, design, development, implementation, and evaluation. Our product, “Super Chaussures Dryer” offers technological functions for time-saving. This study uses Arduino which combines a temperature sensor, and a timer switch. It is also safe to use and will not damage any type of shoe material. In addition, the research put great emphasis on sustainability in the product so that the user is at low risk exposed to any danger. Besides, the result of the survey concluded that the overall level of user acceptance towards super chaussures dryers is high.

Keyword : Shoe Dryer, Sustainability, ADDIE Model

Puan Norsyila Binti Rashid
Muhammad Fikri Bin Md Zain
Muhammad Zahiruddin Bin Khairi
Nurul Syahiera Binti Mohamed Rosli
Atas Nurasilah Binti Azmi

SUPER CHAUSSURES DRYER

INTRODUCTION

The purpose of this project is to study the implementation and effectiveness of shoe drying in the community. Shoes are very important in our daily life for the purpose of safety from danger. The purpose of wearing shoes is to protect our feet from possible harm. In terms of shoe care, it should always be clean and comfortable to protect the foot from harm. However, due to the frequently changing weather especially during the rainy season in Malaysia, most of us find it challenging to manually dry our shoes which leads to the spread of bacterial infections and harms the health of the foot. Consequently, this study is conducted in order to solve a problem encountered in order to help society. The ADDIE Model, a popular instructional design framework, was utilized to guide the development process, which included five phases: Analysis, Design, Development, Implementation, and Evaluation. Our product, "Super Chaussures Dryer" offers technological functions for time-saving. This study uses Arduino which combines a temperature sensor, and a timer switch. It is also safe to use and will not damage any type of shoe material. In addition, the research put great emphasis on sustainability in the product so that the user is at low risk exposed to any danger. Besides, the result of the survey concluded that the overall level of user acceptance towards Super Chaussures Dryers is high.

OBJECTIVE

- To develop a shoe dryer to make it easier for people to dry their shoes quickly and avoid odors.
- To identify customer's acceptance towards shoe dryers.

SIGNIFICANT OF STUDY

This shoe problem should not be taken lightly as it is related to daily life and health. Users can use our products to help solve the problem of wet shoes, which should be seen from a different perspective than conventional practice. This requirement is also to ensure that the final goal of training implementation can be achieved.

METHODOLOGY

Research and Development (R&D) using the ADDIE Model, which has five stages Analysis, Design, Development, Implementation, and Evaluation (Pribadi, 2016).

FINDINGS

A total of 36 respondents have sent feedback via questionnaire survey (Google Form). Based on their acceptance, the majority responded favourably and at a high level.

Instrument Section	Variable	Means Statistic	Level
DEPENDENT VARIABLE (SECTION B)	1) I like the concept of user friendly shoe dryer application which can help daily routine for busy person who has time limitation in their daily life	4.69	High
	2) I believe that the shoe dryer's timer might make it easier for consumers to leave shoes inside the dryer box	4.72	High
	3) I find that this shoe dryer can dry any types of shoes.	4.47	High
	4) In my experience, drying shoes in a shoe dryer doesn't need much time.	4.31	High
	5) The shoe dryer is an environmentally friendly product as it is made from a recycled hair dryer.	4.61	High
	6) I believe the shoe dryer will be practical in my daily life based on its features.	4.59	High
	7) If a shoe dryer becomes available on the market, I intend to buy one.	4.72	High
	Total Average	4.601	High

KIKEN

Haziq Faizz Firdaus Bin Kamarulnizam, Muhammad Saputra Bin Nurdin, Najmi Harraz Bin Mohd Khalil, Mohd Nor Hafiz Bin Salleh

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Hazard application (safety apps) a technological innovation that provides a peaceful mind during emergencies and helps people to detect road hazards. Currently, the Waze app provides directions but does not notify users about road hazards such as potholes or sandy roads. Therefore, we developed a hazard app called KIKEN to detect road hazards in the polytechnic area to prevent injuries among students. The safety app helps the community to reduce the number of occurrences of road injury among the students in the polytechnic. The app features include users' notifications on road hazards, complaint channels, and pictures of road hazards. Students may utilize the safety apps by reporting any potential road hazard in the polytechnic area. KIKEN has been tested among the Polytechnic Sultan Salahuddin Abdul Aziz Shah students and received good feedback. The users were satisfied with the app because they became extra cautious about the hazard risks around them. In addition, the safety app is a one-stop platform where they can access CIDOS, SPMP, and other student portals. With the KIKEN app, we hope it reduces hazard risks in the polytechnic. People will feel safe and secure to be in this place.

Keyword : Hazard, Safety, Application

"KIKEN" (THE HAZARD APPS)

MOHD NOR HAFIZ BIN SALEH
PENYELIA

HAZIQ FAIZZ FIRDAUS BIN KAMARULNIZAM
(08DIN20F2015)

MUHAMMAD SAPUTRA BIN NURDIN
(08DIN20F2007)

NAJMI HANNAZ BIN MOHD KHALIL
(08DIN20F2013)

ABSTRACT

Hazard application (safety apps) is a type of technological innovation that provides peace of mind and can help us in our life in an emergency. There are no safety apps to detect road hazards. Currently, the Waze app only provides directions but does not notify the users about road hazards such as potholes or slushy roads. Therefore hazard app which name KIKEN was developed to detect hazards in the polytechnic area to prevent injuries among students. This safety app was designed to help the community, especially for polytechnic students to reduce the occurrence of injury when students are in the polytechnic. Our safety app features include notifications to users on road hazards, complaint channels, and pictures of hazards road. Students may utilize these safety apps to report any potential road hazard in the polytechnic area. KIKEN was tested among Polytechnic Sultan Salahuddin Abdul Aziz Shah students and received very good feedback. They were satisfied with the app because they can help them to be extra cautious about risks surrounding them. In addition, this safety apps will be a one-stop platform where they can access CIDOS, SPMP, and also the student portal. With KIKEN app, we hope that we can reduce risks happen in polytechnic and to make the polytechnic as secure and in control.

PRODUCT DESCRIPTION

This KIKEN Application is to help the student feel safe around the polytechnic and can be in the polytechnic even at night, so this application can locate and can give notifications about hazards around the polytechnic especially in the student parking area.
How to use KIKEN apps :

Step 1: For new user, they should register their email and create password for their access into this apps.

Step 2: After that, they will attain into the main page which is report the hazard and other website which is student portal.

Step 3: If you click report hazard you can put the location of hazard and you can take picture of the hazard.

Step 4 : You can see the history about the hazard of your report and other user report.

OBJECTIVE

These are the project's major objectives:
. To design and develop an innovative smart application that can provide all information regarding hazard and other systems /portal related to Polytechnic students.
. To implement and evaluate the apps.

METHODOLOGY

RESULTS

From the data that has been collected, 100% of the respondents are recommend KIKEN App to a friends. It show that all respondent are really happy with KIKEN App and would like to recommend to their friends.

Based on the results from the respondents we have 59.4% or 19 respondent who answered that KIKEN App very useful. Next, we have 37.5% or 12 respondent who answered that KIKEN app useful for them. Lastly, only 3.1% or 1 respondent that answered that KIKEN app was moderate. It means that majority of respondents answered that KIKEN app very useful for them.

ORGINALITY

The first application that provide location of hazard in apps market. People can use this application to prevent the risk from occur.

NAZZ FURNITURE : CHAIRSY

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Housebreaking cases are increasing in Malaysia with a total of 16,452 cases of housebreaking recorded by the Royal Malaysian Police (PDRM) during the implementation of the Movement Control Order (MCO) since 18 March 2021. Consumers don't have secret storage places that are
easily available and affordable. So NAZZ Furniture got the idea to innovate the chair into something that is not easy to predict. NAZZ Furniture was created in February 2020 by a group of four marketing students at the Sultan Salahuddin Abdul Aziz Shah Polytechnic who gave inspiration and intense enthusiasm with a mission to create new innovative chairs. NAZZ Furniture initially started its business in Glenmarie, Shah Alam, Selangor. NAZZ Furniture chose to innovate the step stool because it was too common and without any innovation to attract consumer interest. Thus, it gave rise to the idea to innovate and create a new product that could achieve the objective, called Chairsy. We created the addition of a secret storage box as a different idea from others so that it could attract the interest of users of all groups. NAZZ Furniture has a well-planned target market strategy to execute. The target market consists of families with small children, single people, and people of low height. This target market is the most suitable for our products to offer and has the most opportunity to sell to consumers. As of today, NAZZ Furniture is run by 4 students and does not have any further plans to collaborate with third parties. We welcome sharing our business plan with third party members with the approval of all members. Innovative ideas from feedback are always welcome, and we work hard to produce more developments that our customers love. NAZZ Furniture strives to create and innovate a common step stool that can be easily used anywhere at any time. Our vision is to make the business number one among customers by providing the best quality wooden chairs. As for our mission, we will ensure that the company's performance level continues to progress in line with other large companies in Malaysia. It will be a pride for our country if local businesses are recognised and famous around the world. In the next 15 years, NAZZ Furniture plans to conquer the Malaysian wood industry with the most sales. We also want our products to be readily available in nearby stores and online to meet customer demand. Therefore, NAZZ Furniture will continue to develop our products to meet and fulfil the needs and wants of customers.

Key word : NAZZ, Chairsy, furniture

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PROJECT : CHAIRSY

NAZZ Furniture was created in February 2020 by a group of four marketing students of the Sultan Salahuddin Abdul Aziz Shah Polytechnic. They chose to innovate the step stool because it was too common and without any innovation to attract consumer interest. The target market consists of families with small children, single people and people of low height. NAZZ Furniture is run by 4 students and does not have any further plans to collaborate with third parties. Their vision is to make the business number one among customers by providing the best quality wooden chairs. In the next 15 years, NAZZ Furniture plans to conquer the Malaysian wood industry with the most sales. They will continue to develop their products to meet and fulfill the needs and wants of customers.

PROBLEM STATEMENT

A problem that usually occurs when someone does not know where to put important and valuable items such as keys and accessories when they want to leave the house and for those who want to reduce the use of space in the living room and kitchen. With Chairsy, they can store things safely because there is secret storage under the chair and our chairs are very flexible, easy to carry, and foldable. Can save space, step tools that can be used to reach items that are in high places and have an aesthetic design.

TARGET AUDIENCE

People who prioritize safety , woodworking enthusiasts , people who like aesthetics and people who like to decorate

METHODOLOGY

IMAGE PRODUCT

PROJECT OBJECTIVE

- Beautify the home space with a minimalist style.
- Enable users reach things in high places.
- Increase the security of valuables at home (eg: keys).

MONEY SAVING BOX

Santhiya A/P Sivadass@Ramu, Kirtana A/P Santaran, Trissha A/P Manivannan, Mazihariti Binti Mohamood, Noordini Binti Abdullah

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Based on the current issues, nowadays teenagers and adults are spending more money on unnecessary expenses, shopping, and outings. According to research by (Maison D, Marchlewska M, Sekścińska K, Rudzinska-Wojciechowska J, Łozowski F (2019), saving is an important financial behaviour that provides an individual with psychological security and boosts his or her overall sense of well-being. This is because they don't know the power of money or the importance of saving money for their future. One of the most important benefits of saving money is, it can be very helpful for a person in an emergency situation or for personal use. For example, emergency situations that people might face are injury, illness, disaster, or losing a job due to certain economic situations that could put a major strain on finances. These are the moments when it is crucial to have an emergency fund. By having this fund, we can access our money quickly and easily and don't have to depend on anyone else. In addition, this is the main reason or purpose for which we have decided to produce this money-saving box. Moreover, our money saving box is designed from recycled materials such as boxes, banners, and newspapers. This money saving box contains multifunction, where in this one money saving box, we can place both coins and ringgit money. Not only that, our product helps customers or users sort out coins easily. This money saving box can be used to educate children about the importance of saving money, and this product will also make it easier for them to identify the money. Besides that, by using recycled items in daily life rather than raw materials to make new things, we can prevent nature from getting overpopulated. It can help educate people to take better care of the environment. Recycling is a technical method of helping to restore nature by turning it into another useful product. Furthermore, using recycled material to produce a product doesn't mean it is of poor quality; most recycled material products last a long time and get good feedback from customers. In conclusion, we will make sure to serve our customers with the best quality product, good service, and we will make sure to develop or improve our product features based on their preferences.

Keyword : Money saving box, recycle box, recycle banners, environmentally friendly, sorting money

MONEY SAVING BOX

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ABSTRACT

A money box is a box with an opening at the top into which a child or an adult puts coin and also piggy to save money. Based on the current issues, we get to know that nowadays teenagers and adults are spending more for unnecessary expenses. Saving is an important financial behavior that provides an individual with psychological security and boosts his/her overall sense of well-being. In addition, this is the main purpose of why we have decided to produce this money saving box. Our product is designed from recycled materials such as box, banner, and newspapers. This money saving box contains multifunction, where in this one product, we can place both coins and also nugget monkey. Not only that, but our product also helps customers to sort out coins easily, can be used to educate children about the importance of saving money and parts them to identify the coins easily. Besides that, by using recycling items in daily life rather than using raw materials to make new things, can prevent the natural from getting depletion. In conclusion, we will make to serve our customer with the best quality product, good service and we will make sure to develop or improved our product features based on customers preferences.

OBJECTIVE

- To teach children about the value of money and the importance of saving money in their life.
- To educate children and also to guide adults on how to sorting out coins in order to make their work easier and also easy to differentiate the coins.
- To determine whether we're saving enough money for retirement or emergency, draw up budget based on our current expenses.

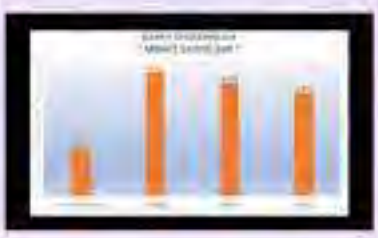
IMPACT

- Create an awareness of saving money is important in daily life.
- Make works to be easier in sorting out moneys accordingly.
- Children's are able to classified which is 5 sen,10 sen, 20 sen, 50 sen.
- Encouraging the customers to practice using recycling products.

PRODUCT

METHODOLOGY

RESULTS



PENGHARGAAN

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BUKU PROGRAM DIGITAL

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SESI 2 : 2022/2023

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SESI 2 : 2022/2023

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