KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI

SESI 1:2023/2024

POTEC 5

PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

INNOVATION • ACCELERATES • TRANSFORMATION TVET

MALAYSIA MADANI

TVET MALAYSIA

POLYCC POLITEKNIK DAN KOLEJ KOMUNITI

E-BOOK

PERTANDINGAN PROJEK AKHIR PELAJAR SESI 1: 2023/2024

PITEC 5
PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

INNOVATION . ACCELERATES . TRANSFORMATION TVET

E-BOOK PERTANDINGAN PROJEK AKHIR PELAJAR PITEC 5
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SEKAPUR SIREH

Tahniah dan syabas diucapkan kepada semua peserta PITEC 5 yang telah memberikan sepenuh komitmen dalam pertandingan projek pada kali ini. Penyertaan pelajar dalam program ini sesungguhnya akan dapat mengasah bakat di samping meningkatkan kemahiran dan minat pelajar untuk menghasilkan produk yang berinovasi. Seiring dengan perkembangan sains dan teknologi yang pesat di seluruh dunia penganjuran PITEC 5 juga bertujuan untuk memberi pengiktirafan dan penghargaan kepada pelajar yang telah mencurahkan idea dan keringat bagi mencipta keunikan dalam penciptaan inovasi projek mereka dan bermanfaat buat masyarakat dan negara.

Dalam menghadapi teknologi IR4.0, PSA akan terus mengorak langkah untuk menghasilkan graduan-graduan yang dapat memenuhi keperluan ekonomi negara dengan menumpukan aspek kemahiran, teknologi, kreativiti dan inovasi. Sekali lagi tahniah dan syabas saya ucapkan semua peserta. Ucapan terima kasih ini juga diberikan kepada barisan para juri yang sudi hadir dan terlibat dalam PITEC 5 pada kali ini. Kepada jawatankuasa penganjur yang telah bertungkus lumus dan memberikan komitmen yang tinggi sepanjang program berlangsung juga diucapkan ribuan terimakasih. Semoga permulaan dengan langkah kecil kita hari ini ianya akan menjadi pencetus kepada kemajuan dan perubahan yang lebih besar pada masa akan datang.

Ts. DR. AHMAD AFTAS BIN AZMAN
Timbalan Pengarah Akademik
merangkap pemangku Pengarah Politeknik Sultan Salahuddin Abdul Aziz Shah
Kementerian Pendidikan 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 5) Politeknik Sultan Salahuddin Abdul Aziz Shah (PSA) bagi Sesi 1: 2023/2024 berlangsung dengan jayanya.

PITEC 5 berperanan sebagai salah satu platform yang memberi peluang kepada pensyarah dan pelajar untuk mengetengahkan idea kreatif dan inovatif selaras dengan kurikulum TVET. Kursus Projek bagi Semester 5 pelajar Diploma Politeknik merupakan salah satu subjek yang dipelajari melalui pembelajaran berasaskan masalah, projek dan hasil (PPP). Pendekatan ini merupakan proses pengajaran dan pembelajaran inovatif yang berpusatkan kepada pelajar, dan juga membolehkan pensyarah memberikan bimbingan secara fleksibel melalui penyelesaian masalah, tugasan dan projek sebenar hasil daripada inovasi tersebut.

Penggunaan unsur teknologi baharu seperti *Artificial Intelligence (AI)* di dalam pelaksanaan projek pelajar amatlah digalakkan agar seiring dengan era IR 4.0 dan pendigitalan di dalam pendidikan TVET.

Diharapkan dengan berlangsungnya program seumpama ini akan dapat membantu pelajar dan juga staf PSA di dalam aktiviti pembudayaan penyelidikan, inovasi, penerbitan, pengkomersialan serta menggalakkan aktiviti sebarluas hasil projek berkenaan kepada sasaran pengguna tertentu sama ada bagi sektor industri atau komuniti setempat.

Saya amat berbangga di atas segala 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 5 yang telah berganding bahu memberikan komitmen yang sangat cemerlang sepanjang program ini berlangsung.

Sekian, terima kasih.

Ts. DR NORANI BINTI ABD KARIM

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TENTATIF

PITEC 5: PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

MASA	AKTIVITI
Penjurian Projek	
8.00 am – 8.30 am	Pendaftaran peserta di dewan Al-Jazari
8.15 am – 8.30 am	Pendaftaran Juri di DAJ
8.45 am – 9.00 am	Taklimat kepada Juri di Anjung Bestari
9.00 am – 11.00 am	Proses penilaian oleh Juri (40 projek)
11.10 am – 11.30 am	1. Proses perbincangan oleh Juri bagi penentuan kumpulan projek terbaik 2. Pengiraan markah oleh urusetia 3. Keputusan penganugerahan pingat /pemenang setiap projek bertanding.
Majlis Perasmian & Penutup PITEC 5 Sesi 1: 2023/2024	
11.40 pm – 11.50 am	Ketibaan Ketua Juri, Panel Juri, Ahli Mesyuarat Tertinggi (AMP, PSA), Pensyarah dan Peserta pertandingan.
11.55 am	Ketibaan Pengarah PSA / TPA
12.00 pm – 12.20 pm	Doa Pembuka Ucapan Perasmian & Penutup PITEC 5 oleh Pengarah PSA
12.25 pm – 1.00 pm	Ucapan ulasan Ketua Juri Pengumuman keputusan pertandingan dan Penyampaian anugerah yang dipertandingkan Majlis bersurai

PROJECT TITLE

PITEC 5: PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

CIVIL ENGINEERING DEPARTMENT

PROJECT TITLE

PITEC 5: PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

CIVIL ENGINEERING DEPARTMENT

PROJECT TITLE

PITEC 5: PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

ELECTRICAL ENGINEERING DEPARTMENT

PROJECT TITLE

PITEC 5: PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

ELECTRICAL ENGINEERING DEPARTMENT

PROJECT TITLE

PITEC 5: PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

MECHANICAL ENGINEERING DEPARTMENT

PROJECT TITLE

PITEC 5: PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

MECHANICAL ENGINEERING DEPARTMENT

PROJECT TITLE

PITEC 5: PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

COMMERCE DEPARTMENT

PROJECT TITLE

PITEC 5: PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

COMMERCE DEPARTMENT

ABSTRACT

CIVIL ENGINEERING DEPARTMENT

MAGNETIC BLOCK

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Abstract

Recognizing the alphabet during the learning process is one of the issues that slow learners face. In order to recognize alphabet letters and pictures, this project attempts to provide a game-based method. They were intended to have an enjoyable and productive learning experience with the magnetic block game. The teachers at Sekolah Kebangsaan Meru 1, Klang, Selangor were interviewed as part of the previous process of creating the magnetic block game in order to pinpoint the actual issue that needed to be fixed. Following that, a focus group of fifteen students had tested the product, and a video of the test was captured during the class. By using the standardized interview questions, the three teachers' feedback was gathered in this project. From the observation had revealed that the students were effectively motivated to play with the magnetic block when it was in use. If the product is to continue being utilized as an educational tool in the future, additional study will be necessary to address issues with the block size, product density, more appealing colour, and the magnet itself

Keywords : Magnetic block, education aid, slow learner.

PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI

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MAGNETIC BLOCK

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ABSTRACT

MAGNETIC BLOCK IS A GAME DESIGNED TO MAKE IT EASIER FOR SPECIAL EDUCATION STUDENTS TO IDENTIFY THE ALPHABET AND PUT PICTURES TOGETHER. LEARNING METHODS IN CLASS 3RD YEAR, SK MERU (1) NEED NEW LEARNING TOOLS THAT ARE MORE EFFECTIVE THAN THE OLD ONES. MAGNETIC BLOCKS ARE DESIGNED WITH A COMBINATION OF ALPHABETIC ELEMENTS AND IMAGES ON THE SURFACE OF THE BLOCK TO HELP STUDENTS IN LEARNING. MAGNET IS ALSO PLACED ON THE BACK OF THE BLOCK.

PROBLEM STATEMENT

'SLOW LEARNER' CHILDREN WHO ARE 9 - 11 YEARS OLD HAVE PROBLEMS WHEN LEARNING. IT IS RELATED TO PROBLEMS IN RECOGNIZING LETTERS / WORDS AND IDENTIFYING PICTURES.

OBJECTIVE

- PRODUCING MAGNETIC BLOCK PRODUCTS.
- TESTING THE EFFECTIVENESS OF MAGNETIC BLOCK PRODUCTSON 'SLOW LEARNER' STUDENTS.

METHODOLOGY

PRODUCT DESCRIPTION

MAGNETIC BLOCK IS A MAGNETIC BLOCK GAME CONSISTING OF COMBINATIONS OF LETTERS. THE PIECES ARE SQUARE SHAPED WOODEN TILES HELD TOGETHER MAGNETICALLY, ALLOWING THE USER TO READ AND EVEN SPELL LETTERS.

TARGET USER

'SLOW LEARNER' CHILDREN AGE 9 - 11 YEARS OLD.

ORIGINALITY

TAKE THE INITIATIVE TO PRODUCE INNOVATIONS TO OVERCOME THE PROBLEM OF OLD AND WORN LEARNING TOOLS FOR USE IN THE CLASSROOM. THIS PRODUCT IS CALLED MAGNETIC BLOCKS.

FIELDWORK

MARKET POTENTIAL

- TARGET AUDIENCE -
SLOW LEARNER CHILDREN

- USAGE -
GAME BASED LEARNING

SELF-PHYSIO: ARM (SEPHYA)

Abdul Razli bin Abdul Rahim, Muhammad Nabil Akmal bin Mohd Faizal,
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Abstract

The Self-Physio Arm (SEPHYA) sounds like a remarkable assistive device designed to aid stroke patients in their recovery process. It's impressive how it allows patients to conduct selftherapy at home, reducing the level of disability post-stroke. The environmentally friendly and user-friendly design is indeed inspiring. The SEPHYA is controlled using the pneumatic system as an actuator to hold the load of the patient's hand. This is done by applying air using a transparent tube to the balloon part. The balloon can be made variable into a tool to suit the patient, which is a thoughtful feature. The main part of the device is in the waist area and is supported by a strap and hung on the shoulder. The connector, made using 3D printer filament, can be changed according to the situation of patient. The device can perform four modes of recovery movement: Mode one: left and right elbow movement; Mode two: open and close palm movement; Mode three: arms up and down; Mode four: a combination of palm movement modes with a comfortable speed for post-stroke patients. There is also a level of speed adjustment on the device, allowing the user to adjust the speed of the device according to its capacity. This tool seems to provide convenience and reduce the risk of deformity, which is crucial for hemiplegia patients. It's great to see such innovative solutions being developed to help stroke patients in their recovery journey.

Keywords : Assistive devices, Self-Therapy, Pneumatic system,3D printer, Hemiplegia.

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SEPHYA

SELF-PHYSIO: ARM

ABSTARCT

THE SELF-PHYSIO ARM (SEPHYA) IS A REHABILITATION AID INTENDED FOR STROKE SUFFERERS. IT PERMITS AT-HOME SELF-TREATMENT, THEREBY MINIMISING POST-STROKE IMPAIRMENT. IT IS PNEUMATICALLY CONTROLLED AND USES AIR TO SUPPORT THE PATIENT'S HAND LOAD; A CHANGEABLE BALLOON ALLOWS FOR CUSTOMIZATION. WHETHER SLUNG OVER THE SHOULDER OR WORN AROUND THE WAIST, THE 3D-PRINTED CONNECTION IS VERSATILE. FOUR RECOVERY MODES ARE AVAILABLE ON THE DEVICE: ELBOW MOVEMENT, PALM OPEN/CLOSE, ARM UP/DOWN, AND A PALM MOVEMENT COMBINED MODE. SPEED ADJUSTMENT PROVIDES POST-STROKE PATIENTS WITH INCREASED MOBILITY AND COMFORT. THIS NOVEL DEVICE REDUCES THE LIKELIHOOD OF DEFORMATION IN PATIENTS WITH HEMIPLEGIA.

DESCRIPTION

SEPHYA IS A TOOL DESIGNED TO PROVIDE EASE TO PATIENTS SUFFERING FROM STROKE REGARDLESS OF AGE IN DOING SELF-THERAPY, SO THAT IT CAN LESSEN THE LEVEL OF POST-STROKE DISABILITY

OBJECTIVE

TO CREATE ASSISTIVE DEVICES OF ARM SUPPORT FOR PEOPLE THAT ARE FACING HEMIPLEGIA

PROBLEM STATEMENT

PROBLEM

- DIFFICULT TO GET PHYSIOTHERAPHY
- HAVING DIFFICULTY STIFFENING AND LIFTING HANDS FOR DAILY ROUTINES

SOLUTION

- SELF-PHYSIO :ARM(SEPHYA) WHICH CAN USED AT HOME - SELF OPERATED
- USE INFLATOR BULB AIR PUMP AND BALLON TO MOVE THE FINGERS

MARKET POTENTIAL

Home-Based Care Trend:
Self-physiotherapy devices assist patients in managing their rehabilitation from the convenience of their residences, in accordance with the growing trend toward home-based treatment.

NOVELTY/ORIGINALITY

This project drew inspiration from an existing arm support product. To enhance it, we incorporated a pneumatic system. The system uses an inflator bulb pump to inflate the balloon, extending the fingers. The pump's valve opens automatically, allowing air to enter for balloon contraction. This process, as suggested by a physiological expert, typically takes one hour daily, returning the stroke victim's finger to its original position

MENGHASILKAN PAPAN AKUSTIK PANEL DARIPADA BIOKOMPOSIT(SISA JAGUNG)

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Abstract

Acoustic panels are wall construction products that have various materials used for wall installation needs in a building. This acoustic panel also has various sizes according to the size of the building itself. Noise interference from various sources is a major problem for this study. In addition, the use of these non-biodegradable materials in the market causes pollution to the environment. The purpose of this study is to produce a sound absorption panel from biocomposite (corn waste). The measuring laboratory room of the Sultan Salahuddin Abdul Aziz Shah Polytechnic (PSA) was used as a study for the test location for the panel to test the level of sound absorption. The sound absorption values for each material are taken into account. Four samples were made according to the difference in the mixture percentage of husk and corn cob. A decibel sound test (DB Test) is performed to obtain the sound absorption value for each sample. Comparisons will be made based on the data obtained. Panel 2 shows, good absorption value at 200hz is 74.9, at 400hz is 68.7 while at 800hz is 76.9, 1200hz is 61.0 and 1600hz at 63.7 and 2000hz at 65.6. The production of acoustic panels measuring 300mm x 300mm x 40mm has been made according to percentages such as panel 1 which is 20% corn husks and 80% corn cobs, Panel 2 40% corn husks, 60% corn cobs, Panel 3 60% corn husks, 40% corn cobs , and panel 4 80% corn husk, 20% corn cob. Based on these results, the results of analysis and discussions have been carried out, it can be concluded that the production of acoustic panels from a mixture of corn husks and corn cobs can reduce noise for a certain place.

Keywords : Biocomposite (corn waste), Decibel sound test (DB Test), Corn cob, corn husk

PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI

POTEC 5

SESI 1:2023/2024

Nama ketua kumpulan : ADDY MIRZA BIN MAHADI
Nama ahli kumpulan 1:AKMAL HAZIQ BIN MOHD PUA'AT
Nama ahli kumpulan 2:MUHAMMAD WILDAN BIN KAMAL
Nama ahli kumpulan 3:LESTER WONG ING XIANG
Nama Penyelia :PUAN MARLIZA ASHIQIN BINTI KHAZALI





PENGHASILAN PANEL AKUSTIK MENGGUNAKAN BIOKOMPOSIT SISA JAGUNG

ABSTRAK

Panel Akustik adalah produk pembinaan dinding yang mempunyai pelbagai bahan yang digunakan untuk keperluan pemasangan dinding di sesebuah bangunan. Panel Akustik ini juga mempunyai pelbagai ukuran mengikut kesesuaian saiz bangunan itu sendiri. Gangguan bunyi bising dari pelbagai sumber menjadi masalah utama untuk kajian ini. Selain itu, penggunaan bahan bukan biodegradable ini di pasaran menyebabkan pencemaran kepada alam sekitar. Tujuan kajian ini dilakukan adalah untuk menghasilkan panel serapan bunyi daripada biokomposit (sisa jagung). Bilik makmal ukur Politeknik Sultan Salahuddin Abdul Aziz Shah (PSA) dijadikan kajian untuk lokasi ujian bagi panel untuk menguji tahap penyerapan bunyi. Nilai-nilai penyerapan bunyi bagi setiap bahan di ambil kira. Empat sampel telah dibuat mengikut perbezaan peratusan campuran bagi kulit dan tongkol jagung. Ujian bunyi desibel (DB Test) dilakukan untuk mendapatkan nilai serapan bunyi bagi setiap sampel. Perbandingan akan dibuat berdasarkan data yang diperoleh. Panel 2 menunjukkan, nilai serapan yang baik pada 200hz ialah 74.9, pada 400hz ialah 68.7 manakala pada 800hz ialah 76.9, 1200hz ialah 61.0 dan 1600hz pada 63.7 serta 2000hz pada 65.6. Penghasilan panel akustik berukuran 300mm x 300mm x 40mm telah dibuat mengikut peratusan seperti panel 1 iaitu 20% kulit jagung dan 80% tongkol jagung, Panel 2 40% kulit jagung, 60% tongkol jagung, Panel 3 60% kulit jagung, 40% tongkol jagung, dan panel 4 80% kulit jagung, 20% tongkol jagung. Berdasarkan keputusan ini, hasil analisa dan perbincangan telah dijalankan, dapat dirumuskan bahawa penghasilan panel akustik daripada bahan campuran kulit jagung dan tongkol jagung ini dapat mengurangkan bunyi bising bagi sesuatu tempat.

Kata kunci:Biokomposit (sisa jagung) , Ujian bunyi desibel (DB Test), Tongkol jagung ,kulit jagung.

OBJEKTIF

1. Merekabentuk panel akustik daripada biokomposit sisa jagung
2. Menguji kadar penyerapan bunyi papan panel akustik
3. Memastikan panel kami mengikuti standard pengelasan NRC

PERNYATAAN MASALAH

1. Menurut (Azma, Putra Yasseer, Abdullah Hady, Efendy Wan Mohd Faridh (2012) menyatakan bahawa bahan bukan biodegradable ini bukan sahaja menyebabkan pencemaran kepada alam sekitar, tetapi pengeluaran mereka juga menyumbang dengan signifikan dalam memancarkan gas rumah hijau di atmosfera.
2. Selain itu, papan akustik panel daripada bahan gentian sintetik adalah mahal dan tidak berkesan walaupun menunjukkan hasil yang baik dalam menyerap bunyi.
3. Seterusnya, papan akustik panel yang sedia ada di pasaran dihasilkn daripada bahan berasaskan bahan gentian kaca. Ia akan menyebabkan kesan buruk terhadap kesihatan manusia, terutamanya dalam paru-paru dan mata.

DEKRIPSI PRODUK

penyelesaian yang mampan dan inovatif untuk penyerapan bunyi dalam pelbagai ruang. Panel ini direka menggunakan gabungan unik sisa jagung kitar semula dan pengikat mesra alam, menjadikannya pilihan yang mementingkan alam sekitar untuk rawatan akustik.

ORIGINALITI

1. Pengunaan campuran batang jagung gan kulit jagung serta serat jagung
2. Pengunaan jaring bagi mengelakkan sisa jagung daripada berkulat dan basah

POTENSI PASARAN

1. Terdapat kesedaran global yang semakin meningkat tentang isu alam sekitar dan keperluan untuk amalan mampan.
2. Pengguna dan perniagaan sedang giat mencari alternatif mesra alam dalam pembinaan dan reka bentuk dalaman, mewujudkan permintaan untuk bahan seperti biokomposit sisa jagung.

APLIKASI PRODUK

Terdapat beberapa cara untuk mengaplikasikan produk kami dalam kehidupan seharian:

1.Bilik Tidur: Cipta persekitaran yang aman dan tenang dengan memasang panel akustik pada dinding bilik tidur.
2 Studio Rakaman: Menyediakan akustik optimum untuk merakam dan menghasilkan kandungan audio berkualiti tinggi.
3.Studio Rumah: Sediakan panel akustik dalam studio rakaman rumah untuk kualiti bunyi yang lebih baik.
4. Ruang Kerja Peribadi: Tingkatkan persekitaran akustik di pejabat individu atau pejabat rumah.

A STUDY OF RICE HUSK ASH AND USED TIRE DUST AS ADDITIVES IN ASPHALTIC CONCRETE MIXTURES

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Abstract

The study focuses on addressing the pervasive issue of potholes in the student parking area at Politeknik Sultan Salahuddin Abdul Aziz Shah, tackling both road damage concerns and environmental issues related to the disposal of rice husk and used tires. Potholes, resulting from weathering, traffic, and inadequate road maintenance, lead to safety hazards and vehicle damage, necessitating effective repair solutions. The research aims to create new asphaltic concrete mixtures by incorporating rice husk and used tire dust, comparing their strength with conventional mixtures based on bitumen softness, hardness, and skid resistance.The investigation seeks to determine the optimal percentage of additives in asphaltic concrete mixtures through penetration and skid resistance tests, evaluating various ratio samples to identify the most effective combination. The primary objectives include assessing the potential benefits of incorporating additives into bitumen mixtures, focusing on three mixtures with varying ratios of rice husk and used tire dust.The study's results indicate compliance with skid resistance standards in certain mixtures, particularly the one with 1% rice husk ash and 10% used tire dust, while penetration tests reveal acceptable differences. However, deviations from standards in other ratios underscore the need for careful evaluation when introducing additives to bitumen mixtures for asphaltic concrete. Further investigation is recommended to address these deviations and enhance understanding of the properties and performance of the developed mixtures based on established standards. In summary, the research contributes valuable insights into addressing road infrastructure issues and environmental concerns through innovative asphaltic concrete mixtures, emphasizing the importance of thorough testing and evaluation in the development process.

Keywords : Rice husk ash, Used tire dust, Penetration test, Skid resistance test

PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI

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SESI 1:2023/2024

A STUDY OF RICE HUSK ASH AND USED TIRE DUST AS ADDITIVES IN ASPHALTIC CONCRETE MIXTURES

GROUP LEADER: LISABETH HENDERY
MEMBER 1: NUR DIYANA BINTI ALITAMAR
MEMBER 2: NURIN NATASYAH NADHRAH BINTI OSMAN
MEMBER 3: SITI NORHIDAYAH BINTI MAT GADOR
SUPERVISOR : TS MOHD FIRDAUZ BIN MHD RADZI

ABSTRACT

The study at Politeknik Sultan Salahuddin Abdul Aziz Shah aims to tackle potholes issues in the student parking area, addressing road damage and environmental concerns related to rice husk and used tires. It proposes new asphaltic concrete mixtures, assessing their strength through tests and emphasizing the importance of careful evaluation and further investigation for optimal results.

DESCRIPTION PRODUCT

Revolutionizing Road Sustainability: The innovative of asphaltic concrete mixtures tackle potholes in Politeknik Sultan Salahuddin Abdul Aziz Shah's parking area. By incorporating eco-friendly additives—rice husk ash and used tire dust—This product not only enhance road durability but also maintain environmental sustainability. Our project aims to optimize the asphaltic concrete's strength, bitumen properties, and skid resistance, ensuring a greener future for road repairs. *Join us in paving the way to a resilient and eco-conscious infrastructure!*

NOVELITY

It offers:

01 Has a ability to patch potholes.

02 Dimish the enviromental waste of rice husk and used tires.

PROBLEM STATEMENT

01 The road damage (potholes) at students' parking area in Politeknik Sultan Salahuddin Abdul Aziz Shah.

02 The dumping of rice husk and used tires.

APPLICATION

This product can be used to patch potholed roads, especially patching potholed roads at the students' parking lot in Politeknik Sultan Salahuddin Abdul Aziz Shah.
In addition, this project can preserve nature by using used materials such as rice husk ash and used tires.

OBJECTIVE

01 To produce a new mixtures by adding rice husk ash and used tire dust into asphaltic concrete mixtures.

02 To compare the strength of the conventional and new asphaltic concrete mixtures, based on the bitumen softness, hardness and the samples' skid resistance

03 To determine the best percentage of additives to be mixed into the asphaltic concrete mixtures, by comparing all the ratio sample through penetration test and skid resistance test.

MARKET POTENTIAL

01 Municipalities

02 Road Construction Companies

03 Environmental Agencies

PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI

POTEC 5

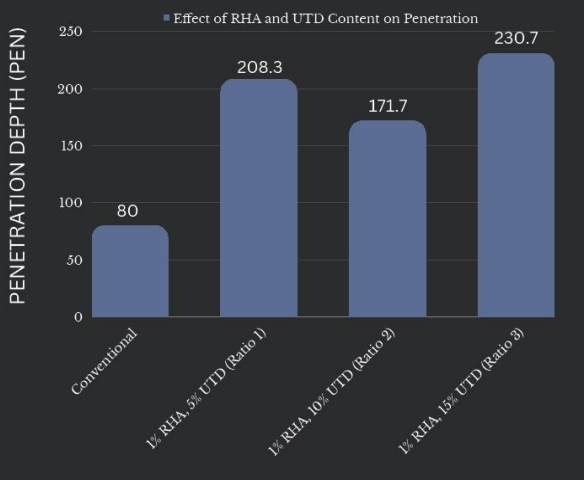
SESI 1:2023/2024

A STUDY OF RICE HUSK ASH AND USED TIRE DUST AS ADDITIVES IN ASPHALTIC CONCRETE MIXTURES

METHODOLOGY

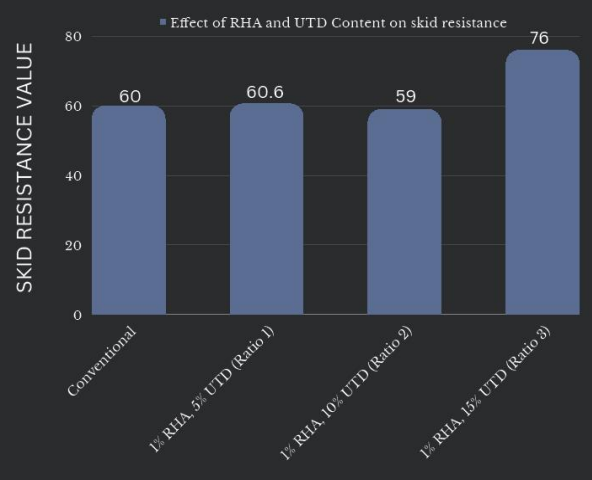
RESULT

PENETRATION TEST



RESULT

SKID RESISTANCE TEST



INOVASI CAMPURAN SISA PLASTIK HDPE UNTUK JALAN RAYA

Mai Azuna binti Meor Yusuf, Nur Hani Nazurah binti Mohd Zamri, Intan Nurliyana binti Bakti, Siti Aryatifah binti Mod Arsad, Siti Hajjar binti Mohd Nasir

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Abstract

The use of aggregates in construction has been widespread lately. This is because aggregate is a basic material in the construction of road pavements where it can provide interlocking structures with each other, and bear the load of traffic. Various studies have been conducted to reduce the use of this aggregate and at the same time want to overcome the problem of environmental pollution. So a study has been done where there is a plastic that is suitable to be used as a replacement material in the aggregate mixture and at the same time can overcome the problem of damaged roads. The problem of damaged roads, potholes and puddles can result in road accidents that can take lives. Plastic that is suitable to be replaced as aggregate is a type of HDPE plastic (2) which has a high melting point and is difficult to destroy because this plastic has a very thick thickness and is sticky and resistant to chemicals. In this study, the percentage of plastic used to be replaced in this aggregate is 0%, 1%, 3% and 5%. In order to study the success of mixing HDPE plastic with the existing road pavement, one method to study this study is to use the "Marshall Test" method. The study was conducted by producing 4 samples with different HDPE percentages. The percentage of this pavement mix is Aggegate (14.0) as much as 30%, Aggregate (10.0) as much as 13%, Aggregate (Quarry Dust) as much as 55% and Cement as much as 2%. The stability results from this study are for samples A, B, C, and D are, 13.525KN, 15.834KN, 14.775KN, 13.314KN and according to JKR standard which is 8.000KN. For the flow results for samples A, B, C and D are 3.647mm, 3.643mm, 3.745mm, 3.745mm. In conclusion, the best sample is sample C which is a sample that has 3% HDPE plastic.

Keywords :aggregate, HDPE plastic, Marshall Test, flexible pavement, road

PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI

POTEC 5

SESI 1:2023/2024

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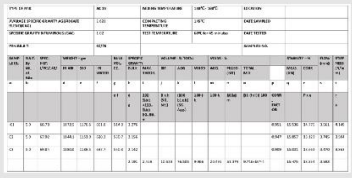
INOVASI CAMPURAN SISA PLASTIK HDPE UNTUK JALAN RAYA

ABSTRAK

Kajian ini bertujuan untuk menggantikan sebahagian daripada agregat dalam campuran turapan jalan raya dengan plastik HDPE sebagai alternatif, yang juga membantu menangani masalah pencemaran alam sekitar. Bahan ini dipilih kerana ketahanannya yang tinggi terhadap keadaan bahan kimia serta ketebalan yang membolehkan penggunaannya dalam campuran turapan. Dalam kajian ini, empat komposisi berbeza plastik HDPE digunakan (0%, 1%, 3%, dan 5%) untuk mengkaji keberkesanan campuran tersebut menggunakan ujian Marshall.Kesimpulannya, berdasarkan keputusan tersebut sampel C (plastik HDPE 3%) menunjukkan prestasi terbaik iaitu nilai kekuatan stabiliti 14.775KN mencapai standard JKR iaitu >8.000KN dan nilai kekuatan aliran 3.745mm yang mencapai piawaian JKR iaitu 3-4mm.Penggunaan plastik HDPE pada kadar 3% adalah yang paling sesuai untuk meningkatkan prestasi campuran turapan jalan raya.

HDPE Content (%)	Bulk SG	Stability (N)	Flow (mm)	VIM (%)	VFB (%)
0	2.279	11903	3.558	6.197	64.934
1	2.206	12229	3.511	9.390	53.471
3	2.491	13854	3.562	9.716	51.374
5	2.063	11429	3.562	1.503	40.228



OBJEKTIF

Mengkaji penggunaan sisa plastik HDPE dalam campuran turapan dengan mengurangkan kerosakan alam sekitar.Untuk mengkaji kekuatan campuran turapan bersama sisa plastik HDPE dengan menggunakan ujian marshall. Mendapatkan peratusan tepat dalam campuran plastik HDPE bersama-sama dengan campuran turapan.

PERNYATAAN MASALAH

Kemalangan jalan raya semakin meningkat dimana terdapat kerosakan jalan seperti berlubang, lopak, tidak rata dan bertampal. Disamping itu, juga sisa plastik adalah penyebab pencemaran alam sekitar.

DESKRIPSI PROJEK

Projek ini dibuat bagi mengatasi kerosakan jalan raya dimana masalah jalan rosak semakin membimbangkan disebabkan itu, 12 sampel telah diuji dengan ujian marsell untuk mendapatkan satu campuran turapan yang terbaik.Produk ini menggunakan 3% plastik HDPE yang dikitar semula untuk menghasilkan satu inovasi campuran turapan jalan raya yang mesra alam.

METHODOLOGI

MENGENALPASTI MASALAH

KAJIAN LITERATUR

MENGUMPUL DATA

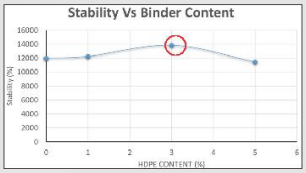
PELAKSANAAN → UJIAN MARSHALL

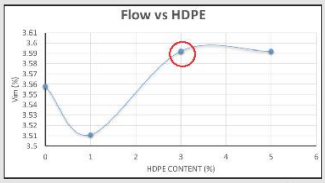
KEPUTUSAN DAN ANALISIS

KESIMPULAN

ORIGINALITY

Penggunaan semula plastik HDPE dalam asfalt adalah inovasi mesra alam. Ini melibatkan penambahan 3% plastik HDPE ke dalam campuran turapan untuk meningkatkan ketahanan dan kekuatannya secara keseluruhan.





APLIKASI

Produk ini diaplikasikan di atas permukaan jalan raya sebagai turapan yang mesra alam.

ISLAMIC SINK

Normasita binti Sulaiman, Luqman Al-haqim bin Pakana, Muhammad Ali bin Mahayuddin, Muhammad Khairil Danial bin Mohd Khirulnizam, Nazatul Hadirah binti Mohammad Noor

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Abstract

This research discusses the automatic ablution place as the latest innovation in meeting the needs of the Muslim community. The goal of this product is to help communities in need such as pregnant women, the elderly and the disabled (OKU) and this product is also suitable for use by all communities, especially for ablution. This product aims to explain how the use of sensors can increase efficiency and effectiveness and also provide a more sustainable ablution place for the Community. Literature research on the use of automatic ablution places highlights efficiency, cleanliness, sensor technology, user experience, environmental sustainability, and implementation in places of worship. These findings strengthen the understanding of the benefits and challenges in integrating automation technology with religious practice. The research methodology involves designing and analyzing the "Automatic Wudhu Place" by utilizing sensor technology and automatic control. The testing process is done by involving users from the target group to use this product. Monitoring is carried out through 2 ways in which this product is equipped with internet of thing (iot) tools and also through monitoring. The results of the data found show that this product is very good, with a total of 43 responses agreeing with the use of this product to be developed and various other reasons that support this product being developed. The study summarizes the main findings, highlighting the success of the "Automatic Ablution Place" implementation in achieving its goals. The implications of this finding in improving the experience of Muslims in performing ablution also help those who need to perform ablution. Recommendations include recommendations for improvement and further development of this system, as well as suggestions for similar implementation in other places of worship. This research is expected to be a significant contribution in combining modern technology with religious practices, improving the comfort and sustainability of worship.

Keywords : sink, motion detection sensor, iot, frequency of use, user effectiveness

Islamic Sink

SUPERVISOR 1 :

TS. NORMASITA BINTI SULAIMAN

SUPERVISOR 2 :

EN. MUHAPIS BIN A HAKIM

GROUP MEMBERS :

MUHAMMAD ALI BIN MAHAYUDDIN

LUQMAN AL-HAQIM BIN PAKANA

MUHD KHAIRIL DANIAL BIN MOHD KHAIRUL NIZAM

NAZATUL HADIRAH BINTI MOHAMMAD NOOR

ABSTRACT

This research explores the latest innovation in meeting the needs of the Muslim community through automatic ablution facilities. This product aims to help various groups of society, including pregnant women, the elderly, and people with disabilities (OKU), by focusing on effectiveness and sustainability through sensor technology. The literature review involves effectiveness, cleanliness, sensor technology, user experience, environmental sustainability, and implementation in places of worship, providing an in-depth understanding of the benefits and challenges of integrating automatic technology with religious practices.

The research methodology involves the design and analysis of "Automatic Wudhuk Places" with sensor technology. and automatic control. Testing involved users from the target group, with monitoring using the Internet of Things (IoT) and live monitoring. The data results showed a positive response from 43 respondents to the "Automatic Ablution Place," prompting further expansion. Findings highlight the success of implementation, improve the experience of Muslims, and provide support to those with special needs. Recommendations for improvement and expansion are expected to contribute to incorporating technology in religious practice

OBJECTIVE

- Design a place for ablution
- Produce an ablution place that is easy to use
- Determine the level of product effectiveness through comfort and efficiency

PROBLEM STATEMENT

- Long queue. Especially in crowded places
- Ablution room. Lack of place to take ablution
- Nearby toilet. Need to find a nearby toilet
- No provision. For people in need

NOVELTY / ORIGINALITY

To create a new concept by using a portable sink and design it with our ideas that are different from others compared to normal sinks. This is also for the use of people who are less able to take ablution to make their affairs easier.

MARKET POTENTIAL

The market potential for Islamic sink products is very high, especially with the increasing demand for practical and efficient solutions in the implementation of ablution. This product meets the broad needs of the Muslim community, attracting various groups such as pregnant women, the elderly, and the disabled. With an emphasis on ease of use, cleanliness, and inclusivity, automatic ablutions have the potential to become an innovation that is sought after in the context of places of worship and other public facilities, accommodating the development of modern lifestyles and community needs as well as meeting the latest technological advances

PRODUCT DESCRIPTION

Automated ablution with IoT and sensors is a modern innovation in worship. Advanced sensors detect users, control water flow and other automated functions. Integration with IoT enables remote control through apps, offering comfort, cleanliness and inclusion, while prioritizing water efficiency and sustainability. Creating a modern and sustainable ablution experience.

APPLICATION

Compared to other sinks, this sink can be used with two different functions, not just washing hands. The sink cost of this product is only RM400 and has saved me from buying a versatile automatic sink worth RM1000.

A NEAR-FIELD COMMUNICATION BASED ATTENDANCE SYSTEM FOR CONSTRUCTION WORKERS

Ainul Haezah binti Noruzman, Ainul Husna binti Asril, Muhammad Khairil Akram bin Mohd Kamal, Nur Kamilia Arifa binti Mokhtar, Siti Nor Farrah Syakila binti Che Anwar
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Abstract

Near-Field Communication (NFC) Smart Attendance System stems from the need to improve traditional attendance tracking methods such as manual sign-in sheets or barcode scanning, it can be time-consuming, prone to errors, and lack efficiency. This study involved workers and managers at construction sites in Polytechnic Sultan Salahuddin Abdul Aziz Shah. Our objectives are to develop an NFC-based attendance tracking system that allows construction workers to easily and quickly clock in and out using their NFC-enabled mobile device, to evaluate the effectiveness of employees using smart applications and determine satisfaction among the workers regarding to the NFC system. The first phase is to install an NFC reader at the entrance to capture attendance data. Next phase is, ensure that each employee downloads our application, which contains their unique information to scan the NFC from the smartphone to the NFC reader. The data collection shows the system's NFC application facilitate the process of calculating working hour and payroll. There are total of 37 respondents in this research. Their percentage who answered no is 15% and 85% answer for yes for pre-test. The data collection after demonstration (post-test), 100% respondents answered yes of using system's NFC application to facilitate the process of calculating working hour and payroll. In conclusion, our application is important in recording attendance for workers at Polytechnic Sultan Salahuddin Abdul Aziz Shah. During the development of this application, there were obstacles, such as several times failing to download coding languages in our laptop and relatively weak internet access, but we manage to figure it out. For future, we try to work on our application so it can be download in larger devices such as computer or PC. We also hoping that we can improve existing applications so it can be used on IOS smartphones and ensure that applications comply with the latest security and privacy standards

Keywords : Near-Field Communication, construction, attendance system, smartphone, workers.

PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI

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6 Disember 2023 | Dewan Al Jazari PSA

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A NEAR-FIELD COMMUNICATION BASED ATTENDANCE SYSTEM FOR CONSTRUCTION WORKERS

Ainul Husna Asril
Muhammad Khairil Akram Mohd Kamal
Nur Kamilia Arifa Mokhtar
Siti Nor Farrah Syakila Che Anwar
Supervisor: Ts. Dr. Ainul Haezah Noruzman

Politeknik Sultan Salahuddin Abdul Aziz Shah

ABSTRACT

Near-Field Communication (NFC) Smart Attendance System stems from the need to improve traditional attendance tracking methods such as manual sign-in sheets or barcode scanning, it can be time-consuming, prone to errors, and lack efficiency. As for our innovation product, NFCAW, this study involved workers and managers at construction sites in Polytechnic Sultan Salahuddin Abdul Aziz Shah. Our objectives are to develop an NFC-based attendance tracking system that allows construction workers to easily and quickly clock in and out using their NFC-enabled mobile device, to evaluate the effectiveness of employees using smart applications and determine satisfaction among the workers regarding to the NFC system.

PROBLEM STATEMENT

1. Requires time and attention, and frequently results in disciplinary action.
2. Employee morale is harmed by poor attendance, which costs businesses overtime and reduce employee engagement.
3. Employees unwilling to queue due to time-consuming nature of the process

OBJECTIVES

- To develop an NFC-based attendance tracking system that allows construction workers to using their NFC-enabled mobile devices.
- To evaluate the effectiveness of employees using smart applications in dealing with workers attendance problems.
- To determine satisfaction among the workers regarding to the NFC system

PRODUCT DESCRIPTION

1) Download our apps and sign up.

2) Tap the "CHECK IN" box to use the NFC tag.

3) Tap the "Check In" below the maps.

4) Scan the NFC tag that we provide to use our apps.

5) You have successfully check-in.

NOVELTY

It offers:

- Instant notifications and the location of workers.
- Mobile app that allows workers to check-in and out using their smartphones.
- Immutable record of attendance.

COMMERCIALIZATION POTENTIAL

- Accessible to a wide range of customers.
- It is a free application and can be downloaded by users in Play Store.
- Enhancing their reputation for innovation and efficiency.
- Realize substantial cost savings.

TARGET MARKET

CONSTRUCTION WORKERS

PROJECT ID NO. 1023

HOME SAFETY DETECTOR

Mustazha Hakim bin Abu Tahari, Irham Syeqal bin Sadri, Mohamad Amri bin Mohd Arif, Muhammad Afiq Syakir bin Zaki, Muhamad Alif Saifuddin bin Azman
(mustazha.hakim@psa.edu.my, 08dpb21f1044@student.psa.edu.my, 08dpb21f1027@student.psa.edu.my, 08dpb21f1035@student.psa.edu.my, 08dpb21f1047@student.psa.edu.my

Abstract

Internet of Things (IoT) is a concept that aims to expand the benefits of continuously connected internet connectivity. IoT can be used as a smart home system for controlling electronic equipment that can be operated via an internet connection (Wi-Fi). This IoT-based home safety detector uses ESP8266 microcontroller as its hardware. The device can even be controlled with respect to the employed ESP stations. The adeptness of data transfer among the proposed remote locations depends mainly on the behavior of the system, while the security and the applicability of the system are considered as more efficient. This system detects gas leakage and flames to prevent fire. Two sensors were used; MQ2 sensor to detect gas leak such as liquified petroleum gas (LPG) and methane; and flame sensor to detect fire. The sensors deliver the input to the ESP8266 microcontroller, then the microcontroller will send the output to the building occupants via a Telegram notification. Based on the findings, we discovered that the MQ2 sensor can detect a gas leakage in less than 8 seconds, while the flame sensor can detect a flame in less than 3 seconds. Building occupants may receive the notification in less than 8 seconds. This product is expected to help building occupants in detecting gas leakage and flames, furthermore to lessen the risk of fire in buildings.

Keywords : Internet of Things, microcontroller, Liquified Petroleum Gas, MQ2 sensor, flame sensor.

PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI

PITEC 5

SESI 1:2023/2024

INNOVATION • ACCELERATES • TRANSFORMATION TVET

HOME SAFETY DETECTOR

SUPERVISOR

MUSTAZHA HAKIM BIN ABU TAHARI

IRHAM SYEQAL BIN SADRI
(08DPB21F1044)

MOHAMAD AMRI BIN MOHD ARIF
(08DPB21F1027)

MUHAMMAD AFIQ SYAKIR BIN ZAKI
(08DPB21F1035)

MUHAMMAD ALIF SAIFUDDIN BIN AZMAN
(08DPB21F1047)

INTRODUCTION

This research aims to upgrade existing gas and flame detectors in the market. The Home Safety Detector combines 2 detectors to detect gas leaks and flames. Input from the detectors will be received by the microcontroller, then a notification will be sent directly to the user via Telegram.

OBJECTIVE

- To design a gas & flame detector for building occupants.
- To apply IoT to the product using microcontroller.
- To provide early warning of gas leakage and flame to building occupants.

PROBLEM STATEMENT

- More than 60% of residential fires are caused by electrical failure (Amer Yusof, 2019).
- More than 50% of fires casses occur in residential houses (Amer Yusof, 2019).
- The carelessness of building occupants who forgot to turn off the stove fire and electrical equipment is one of the factors that contribute to the increase of fire cases (Nurul Nadhriah Shaari, 2018).

PRODUCT DESCRIPTION

This product is a modified conventional gas and flame detector that can transmit gas leak and fire warning to building occupants outside the building via Telegram.

PRODUCT SIGNIFICANCE

- This product focuses on domestic users.
- Warning notification will be received by building occupants via Telegram.
- This product is recommended to be placed in the kitchen, as it is one of the causes of fire hazards

METHODOLOGY

Start

Project Briefing.

Identify the current fire issues in Malaysia and the cause of fire.

Collect the information on gas & flame sensor.

Choose ESP8266 microcontroller as the main component in the project.

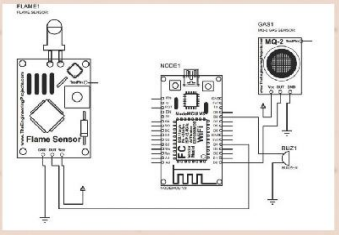
Prepare the materials & learn programming. Equip the components of the project.

Test the effectiveness of the product.

Collect data from the testing.

Finish

Elektrik penyumbang utama kebakaran



RESULT/ FINDINGS

Distance between the sensor and the gas source	Respond Time of The Gas Detector (RT) (s)			Average (s)
	1	2	3	
10 cm	9.83	8.96	5.33	8.04
20cm	5.15	8.40	5.54	6.36
30cm	8.50	8.23	5.88	7.54
40cm	6.50	10.46	8.86	8.6

Distance between the sensor and the flame source	Respond Time of The Flame Sensor (RT) (s)			Average (s)
	1	2	3	
10cm	1.03	1.67	1.76	1.48
20cm	1.80	1.57	1.32	1.56
30cm	1.36	1.42	1.23	1.33
40cm	1.52	1.77	1.63	1.64
50cm	1.04	1.28	1.18	1.17

PORTABLE EMERGENCY HOSE PUMP TYRE

Jamilah binti Abbas, Wan Raidi Qayyim bin Wan Rosyidi, Abid Amjad bin Khairudin,
Muhammad Alif bin Ishak, Thirishala A/P Suriya Kannan Naidu
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Abstract

The Emergency Portable Hose Pump Tyre serves as a crucial solution to prevent riders from being stranded due to sudden tire deflation or pressure loss, allowing them to promptly address these issues without immediate external assistance. This purpose-designed pump aims to ease emergency situations for riders. It comprises components such as a spiral hose, air filter, pump nozzle clip, connector, and pneumatic airline hose quick-release connectors for the compressor. The primary objective of the project is to design and develop an innovative emergency portable pump system tailored specifically for motorcycles, utilizing a renewable energy source. This system features a lightweight, portable hose pump that seamlessly connects to the motorcycle's exhaust system, efficiently using compressed air for tire inflation. The emphasis is on achieving a compact design for easy storage on the motorcycle without occupying excessive space. Both quantitative and qualitative methods were employed to collect data. Respondents, including riders, foremen, students, and users of motorcycles up to 250cc, tested our product and provided feedback through a Google Form. The study focused on the time taken to pump the tire using air from the exhaust, portability of the pump, and the product's effectiveness. Additionally, we conducted a market survey using Shopee to assess the product's marketability. In conclusion, a total of 72 respondents participated in the Google form survey. Among them, 37.5% identified as users of motorcycles with engines of 250cc and below, while 31.9% were Grab drivers, and 30.6% identified as long-distance drivers. Notably, 100% of the respondents unanimously agreed that the pump is both portable and lightweight, and all respondents confirmed that the product significantly aids in tire inflation through its utilization of renewable energy sources. An experiment recorded a quick inflation time of 16 seconds for pumping the tire. Based on the survey results, there's a strong indication of high demand for our product in the market. Additionally, feedback from our consultants suggests an improvement by slightly enlarging the oil filter.

Keywords: Emergency Portable Hose Pump, Motorcycle Tire Inflation, Renewable Energy, Compact Design, Marketability Analysis.

PORTABLE EMERGENCY HOSE PUMP TYRE

PUAN JAMILAH BINTI HAJI ABBAS
(PROJECT SUPERVISOR)

WAN RAIDI QAYYIM BIN WAN ROSYIDI (08DPB21F1030)
LEADER

MUHAMMAD ALIF BIN ISHAK (08DPB21F1046)

THIRISHALA A/P SURIYA KANNAN NAIDU (08DPB21F1049)

ABID AMJAD BIN KHAIRUDIN (08DPB21F1048)

1. ABSTRACT

The Emergency Portable Hose Pump Tyre represents an innovative solution designed specifically for motorcycle riders, aiming to prevent unexpected tire deflation or pressure loss that could potentially leave riders stranded. Comprising essential components such as a spiral hose, air filter, pump nozzle clip, and connectors, this system utilizes renewable energy from the motorcycle's exhaust for tire inflation. Its primary focus is on creating a lightweight and compact design that seamlessly integrates with the motorcycle without occupying excessive space, ensuring ease of storage and accessibility during emergencies. Employing a comprehensive approach, the development process involved both quantitative and qualitative data collection methods, including feedback from 72 respondents encompassing riders, foremen, students, and users of motorcycles up to 250cc, gathered through a Google Form survey. Results indicated unanimous agreement on the product's portability, lightweight nature, and effectiveness in tire inflation using renewable energy sources, with an experiment demonstrating a quick 16-second tire inflation time. Market assessments highlighted a strong indication of high demand, with consultants recommending minor improvements, such as enlarging the oil filter, based on gathered feedback.

2. PROBLEM STATEMENT

1. Existing pumps, reliant on electricity or manual labor, pose a challenge during emergencies or power outages, limiting motorcycle tire inflation accessibility and necessitating an energy-agnostic pump.
2. Motorcycle tire inflation devices are bulky and inconvenient, limiting riders' options for emergency tire inflation without sacrificing storage space.
3. Current motorcycle tire pumps in the market are slow, leading to prolonged inflation times during emergencies

3. OBJECTIVE

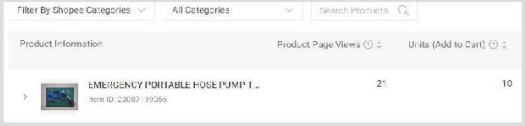
1. To design and develop an innovative emergency portable pump system for motorcycles that utilizes renewable energy source. ✅
2. Develop a portable and lightweight emergency hose pump that efficiently connects to the motorcycle's exhaust system, ✅ extracting and utilizing compressed air to inflate tires.
3. Aim for a compact design that is easily storable on the motorcycle without occupying excessive space.✅

4. ORIGINALITY

Our portable emergency tire pump uses motorcycle exhaust system air for efficient tire inflating on the go. The product's concept and design are our own, showcasing our dedication to originality and creative thinking in creating practical solutions for daily needs.

5. MARKET POTENTIAL

The portable hose pump tire has strong market potential backed by data analysis, public demand, and positive feedback. It fulfills a genuine need and shows promise in an innovative market.

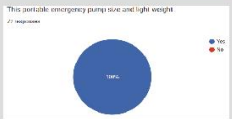


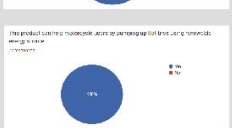
6. PRODUCT DESCRIPTION

The Portable Emergency Hose Pump Tyre is an innovative device that efficiently handles tire emergencies. It swiftly inflates tires using compressed air from a motorcycle's exhaust system, providing a lightweight and user-friendly solution for sudden tire pressure loss, enabling independent and reliable tire management during unexpected travel situations.

7. DATA ANALYSIS

- Collected responses via a Google Form from individuals who tested our project. (Objective 1 & 2)
- Tested the effectiveness of our project by conducting tests that involved recording the time taken to pump the tire, allowing us to measure and analyze the efficiency of the pump. (Objective 3)

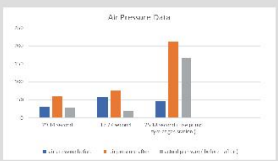




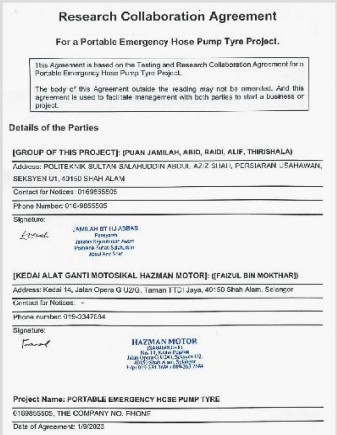
8. PROJECT SIGNIFICANCE

The project's impact lies in enhancing rider preparedness during emergencies, improving road safety by reducing accidents from deflated tires, aiding convenience in remote areas, and offering an eco-friendly tire inflation method

TIME TAKEN: 29 SECONDS!!!



9. METHODOLOGY



Research Collaboration Agreement

For a Portable Emergency Hose Pump Tyre Project.

This Agreement is based on the Testing and Research Collaboration Agreement for a Portable Emergency Hose Pump Tyre Project.

The body of this Agreement outside the reading may not be amended. And this agreement is used to facilitate management with both parties to start a business or project.

Details of the Parties

[GROUP OF THIS PROJECT]- (PUAN JAMILAH, ABID, RAIDI, ALIF, THIRISHALA)

Address: POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH, PERSIARAN USAHAWAN, SEKSYEN U1, 40150 SHAH ALAM

Contact for Notices: 0169655505

Phone Number: 016-9655505

Signature:

JAMILAH BT HJ ABBAS
Penyarah
Jabatan Kejuruteraan Awam
Politeknik Sultan Salahuddin Abdul Aziz Shah

[KEDAI ALAT GANTI MOTOSIKAL HAZMAN MOTOR]- ((FAIZUL BIN MOKTHAR))

Address: Kedai 14, Jalan Opera G U2/G, Taman TTDI Jaya, 40150 Shah Alam, Selangor

Contact for Notices: -

Phone number: 016-3347094

Signature:

HAZMAN MOTOR

Project Name: PORTABLE EMERGENCY HOSE PUMP TYRE

0169655505, THE COMPANY NO. PHONE

Date of Agreement: 1/9/2023

SUPERB KUSTRAP

Zarina binti Mat Sapri, Aisyah Ilyana binti Talib, Rabiatul Asyyikin binti Mohd Johari, Muhammad Husna Hariz bin Abd Rahim, Syiratul Hafiz bin Azizan
(zarina@psa.edu.my, 08dpb21f1036@student.psa.edu.my., 08dpb21f1051@student.psa.edu.my, 08dpb21f1045@student.psa.edu.my, 08dpb21f1040@student.psa.edu.my.)

Abstract

Superb Kustrap is a mousetrap innovation product project placed in an existing trash bin at a food premises equipped with the Internet of Things (IoT) digital system. The problem of the frequent presence of rats in food premises due to hygiene problems refers to the analysis of the Ministry of Health Malaysia (MOH) in 2012-2016, which found that 635,439 inspections of food premises throughout the country and that 15,731 unsanitary food premises were closed under Section 11 of the Food Act 1983. Meanwhile, in 2022, MOH recorded 8 food premises closed due to rat problems around Selangor. The objective of the production of this Superb Kustrap is to trap rats with an optimal amount. In addition, the product is also able to notify the owner of the premises when there is a presence of rodents. The structure of the Kustrap Superb is made of soft steel which can trap rats by 4 to 5 at a time. The size of this trap has been innovated from the existing trap which is 20 cm x 17 cm x 35 cm which is placed on the bottom in the existing bin at the food premises. The product acceptance survey was conducted on a total of 30 respondents comprising premises owners, customers, and local authorities (PBTs) around Shah Alam. The product has also been tested at four selected food premises around Shah Alam using different baits such as salted fish and baked belacan, fried chicken, and legumes as an attraction to trap rats as well as the rubbish available in the rubbish bins. The data collection process is carried out through quantitative methods (questionnaires) and qualitative methods (observation and interview). The findings were analyzed in the form of a percentage showing that 96% of respondents stated that this product is convenient for various parties such as premise owners, local authorities, and customers. While 92% of respondents also agreed that the electronic counter system can count the number of rats that go into the mousetrap. As a result of the test, data conducted around Shah Alam, the highest number of rat catches was 4 to 5 at each location at any given time tested with a total of 18 mice in total. In conclusion, the respondents' feedback on Superb Kustrap was positive and encouraging as the premise owners needed innovations to reduce the problem of the presence of rats on the premises. Through this study, it can also be proven that this product can trap rats and has great potential to reduce the presence of rat in food premises if improvements are made in the future

Keywords : rats, traps, trash bins, sensor, superb.

PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI

POTEC 5

SESI 1:2023/2024

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Superb Kustrap

OUR TEAM

SR ZARINA MAT SAPRI
Supervisor

AISYAH ILYANA TALIB

RABIATUL ASYYIKIN MOHD JOHARI

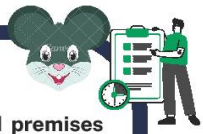
MUHAMMAD HUSNA HARIZ ABD RAHIM

SYIRATUL HAFIZ AZIZAN

1 ABSTRACT

Superb Kustrap is a mousetrap innovation product project placed in an existing trash bin at a food premises equipped with the Internet of Things (IoT) digital system. The stainless steel trap can trap 4 to 5 mice at a time and can notify the owner of the presence of rodents.

2 PROBLEM STATEMENT



The problem of the presence of rats in food premises due to hygiene problems which refers to the analysis of the Ministry of Health Malaysia (MOH) in 2012-2016 found 635, 439 inspections of food premises throughout the country. A total of 15,731 unsanitary food premises were closed under Section 11 of the Food Act 1983. Meanwhile, in 2022, MOH recorded 8 food premises closed due to rat problems around Selangor

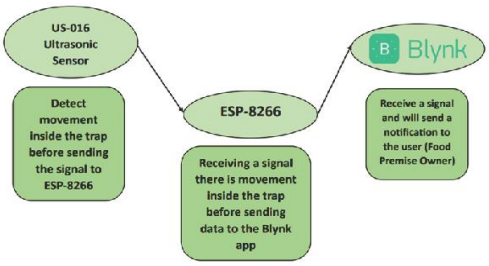
3 OBJECTIVES

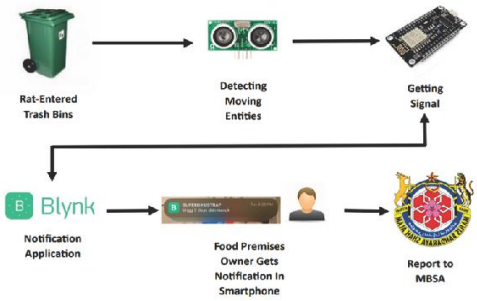
1. To trap mice with an optimal amount.
2. Able to notify the owner of the premises when there is a presence of rodents.

4 MARKET POTENTIAL

Local Authority

5 BLOCK DIAGRAM





6 RESULTS / FINDINGS

96% Product is convenient for various parties such as premise owners, local authorities, and customers

92% Agreed that the electronic counter system can count the number of rats that go into the mousetrap

During the run test  **18 rats** were trapped

7 PROJECT SIGNIFICANCE

- Great potential to reduce the presence of mice in food premises.
- User-Friendly Operation
- Eco-Friendly Materials
- Easy To Monitor

Keep It Clean
Keep It Comfort

ABSTRACT

ELECTRICAL ENGINEERING DEPARTMENT

CARBON MONOXIDE DETECTOR AND MONITORING SYSTEM

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Muhammad Syamil Ehsan Bin Shahril Amrl

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Selangor, Malaysia

Abstract

Carbon monoxide is a highly toxic gas that can be lethal when inhaled in large amounts. It is produced by incomplete combustion of fuels and can lead to symptoms such as headaches, dizziness, nausea, and in severe cases, death. It is important to take precautions to prevent carbon monoxide poisoning. This is especially important in Malaysia, where the lack of awareness and prevention measures result in hospitalizations and deaths. This project has been proposed to develop a device that can detect carbon monoxide gas to prevent poisoning incidents and save lives. To detect carbon monoxide, a carbon monoxide detector uses an electrochemical cell as its sensing element. Once carbon monoxide is detected, the signal is sent to a processing unit which then calculates the concentration of carbon monoxide in the air. If the concentration surpasses a predetermined threshold, the detector will indicate on LCD to alert individuals. The device will be easy to use, reliable, and effective, using sensors such as the MQ-7 Sensor. This device will be able to show clear indicators that can alert people to potential danger, which should be accessible to the public, particularly in high-risk areas. Successful implementation could prevent carbon monoxide poisoning incidents and save lives.

Keywords: Carbon Monoxide, Poisoning, Concentration

KEMENTERIAN PENDIDIKAN TINGGI

POLITEKNIK MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

POTEC 5
PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

INNOVATION - ACCELERATES - TRANSFORMATION TVET

CARBON MONOXIDE DETECTOR & MONITORING SYSTEM

DEPARTMENT OF ELECTRICAL ENGINEERING
POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH

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1 PROJECT BACKGROUND

This project aims to deal with the hidden danger of carbon monoxide (CO) poisoning in our daily lives. CO is a colorless, odorless gas produced by incomplete fuel combustion, posing serious health risks, including death. The project focuses on creating an affordable and user-friendly CO monitoring detector that continuously checks air quality, issues early warnings, and can be widely used. It also emphasizes educating people about CO sources and symptoms to empower them to take safety measures. The project collaborates with experts to develop an advanced CO detector to prevent incidents and save lives.

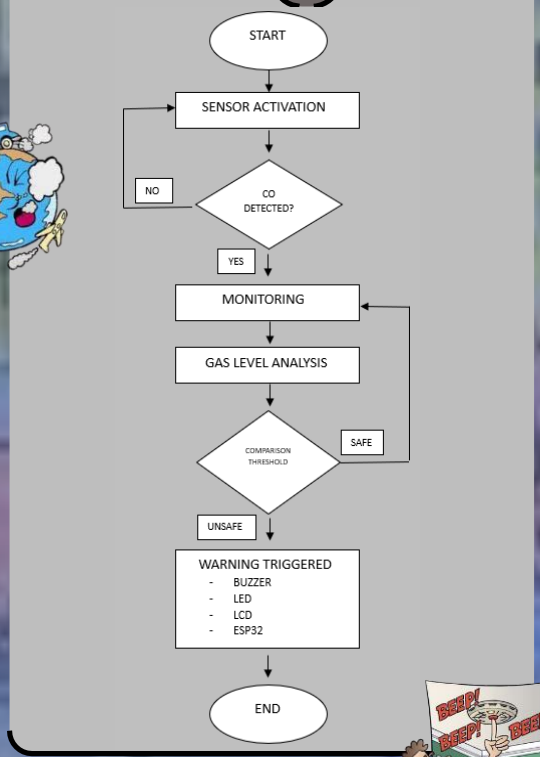
2 PROBLEM STATEMENT

Malaysia faces a significant risk of carbon monoxide poisoning due to widespread use of fuel-burning appliances like gas-powered water heaters and stoves, coupled with inadequate ventilation and limited awareness.

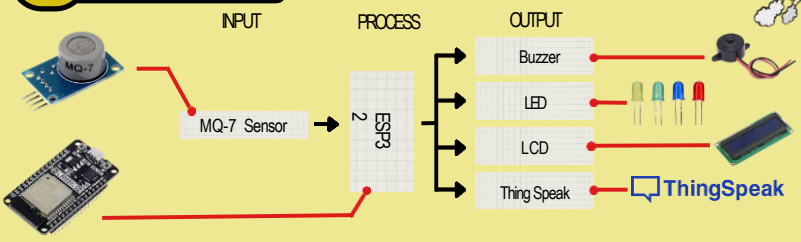
3 OBJECTIVES

To develop a carbon monoxide detector devices that prevent carbon monoxide poisoning incidents and save lives. By providing a reliable and effective means of detecting the presence of this deadly gas, the device can help ensure the safety of people at home and workplace.

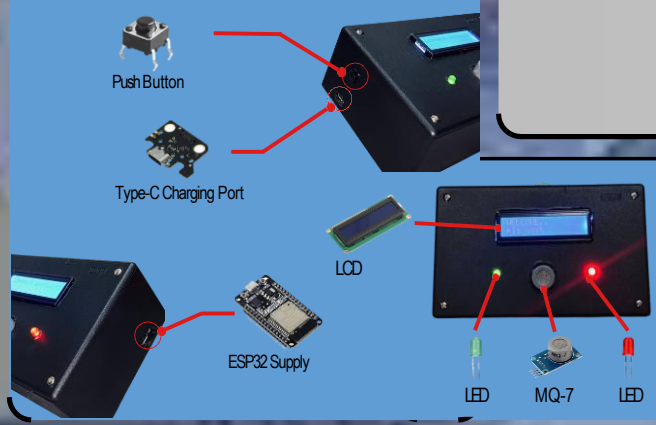
4 FLOW CHART



5 BLOCK DIAGRAM



6 PRODUCT DESIGN



PRODUCT SPECIFICATIONS

Weight: ~470 gram
Dimension: 97mm x 160mm x 55mm
Connectivity: Wi-Fi
Power Requirements: 3.7V supply voltage
Website use : Thing Speak

7 DATA ANALYSIS

Data Entries

CREATED AT	ENTRY ID	FIELD 1
2023-11-15 14:34:24 UTC	538	39.07203
2023-11-15 14:34:45 UTC	539	34.67643
2023-11-15 14:35:06 UTC	540	36.63003
2023-11-15 14:35:27 UTC	541	16.60561
2023-11-15 14:35:48 UTC	542	26.37362
2023-11-15 14:36:09 UTC	543	8.30281
2023-11-15 14:36:30 UTC	544	23.44322
2023-11-15 14:36:51 UTC	545	21.97802
2023-11-15 14:37:12 UTC	546	18.07081
2023-11-15 14:37:33 UTC	547	15.62881
2023-11-15 14:37:54 UTC	548	13.67521

8 PROJECT IMPACT

- **Safety Enhancement:**
  - Swift detection of elevated CO levels.
  - Early warnings prevent health issues and fatalities.
- **Health Protection:**
  - Continuous monitoring fosters a healthier indoor environment.
  - Reduces the risk of long-term health problems related to CO exposure.

SAFETY SPORT VEST

Nurul Izzah Binti Hashim, Dr. Fazida Binti Adlan (Supervisor Project),
Nasha Nabila Binti Ahmad Azahar
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Abstract

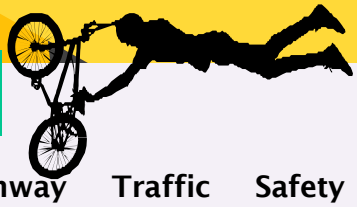
In our globalized world, frequent incidents involving bicycles and vehicles occur, often due to the unawareness of cyclists about their surroundings. Careless and aggressive driving poses a threat to cyclists, who may struggle to anticipate and react to such dangers. Many drivers, unaware that cyclists have the same road rights, closely tail bicycles, as noted by the National Highway Traffic Safety Administration (NHTSA). Recognizing bicycles as vehicles with equal rights, the NHTSA emphasizes the potential for catastrophic accidents. To address this, a project was initiated to develop a system utilizing Ultrasonic Sensors to detect vehicles from 0-13 feet away. Additionally, the project involves integrating LEDs and a buzzer to provide a warning to the wearer. The aim is to reduce accidents for both drivers and cyclists. The Safety Sport Vest, part of this initiative, proved effective as individuals wearing it could take precautionary measures, maintaining safe distances from vehicles behind them. The vest enhances alertness, aiding in avoiding hazardous drivers and minimizing the risk of injury. An added switch allows manual or automatic control of the sensor. The Safety Sport Vest not only enhances individual awareness but is also crucial for overall safety. Studies indicate an 85% reduction in the likelihood of accidents when wearing this vest and responding promptly.

Keyword: Accidents, Alert, Sensor, and warning signs.

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

SAFETY SPORT VEST



1.ABSTRACT

The National Highway Traffic Safety Administration (NHTSA) notes that many drivers are unaware that cyclists have the same road rights as any vehicle. To address this, a project was initiated to develop a system using Ultrasonic Sensors to detect vehicles from 0-13 feet away. The system includes LED and buzzer responses for the wearer. Wearing the Safety Sport Vest enhances awareness, enabling individuals to take preventive measures and maintain safe distances. This Safety Sport Vest, with an 85% accident reduction potential when worn, is crucial for universal safety and rapid response.

2. OBJECTIVES

- To develop a distance sensor system that can detect vehicles from a great distance.
- To develop the led light that can response as warning.
- To develop a buzzer that can response as trigger warning.

3. PROBLEM STATEMENT

- Always lacks vision at night.
- Speed restrictionsare strictly enforced by conscientious drivers.
- Slow action by cyclists

4. ORIGINALITY

They just give LED lights for the vest. This vest was enhanced with a distance sensor, alarm, and switch to make the wearer feel more safe.

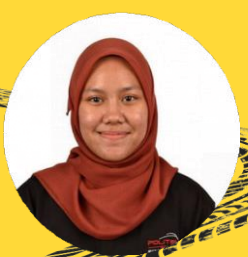
5. MARKET POTENTIAL

- Suitable for individuals,who likely to go cyclists.
- Used from age 12 and above.
- To the person, who is really care about their own lives.

6. DESCRIPTION

The Safety Sport Vest enhances road safety with its innovative design. Its fluorescent green color aids night vision, ensuring visibility. The Hc sr04 distance sensor detects vehicles up to 8 feet away, providing a crucial safety measure. Integrated LED lights and buzzers offer both visual and auditory warnings to the vest wearer, enhancing overall awareness. This combination of features makes the Safety Sport Vest a vital tool for promoting safety on the road, providing advanced visibility and alerting capabilities to mitigate potential risks.

7. APPLICATIONS



Presenter 1
NURUL IZZAH BINTI HASHIM

Project Supervisor
DR. FAZIDA BINTI ADLAN

Presenter2
NASHA NABILA BINTI AZAHAR

SMART ASSISTANT OFFICE BOT USING IR SENSOR

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Abstract

The utilization of sensors is crucial in the field of automation and robotics as it improves the effectiveness and security of different applications. The creation of an assistant office bot with both ultrasonic and infrared sensors is described in this abstract. This project's main objective is to build an adaptable and trustworthy autonomous robot that can navigate indoor spaces, particularly delivery offices. By using the IR sensor for proximity detection, the robot can identify and steer clear of impediments in its route. In the meantime, the bot can precisely navigate and perform its tasks by using the Ultrasonic sensor's distance measuring feature, which allows it to ascertain the exact distance between itself and other objects or barriers. The design and incorporation of these sensors into the robot's control system, along with the creation of obstacle avoidance and route optimization algorithms, are described in this abstract. It also covers possible uses, such as office logistics and effective package delivery. This application of infrared and ultrasonic sensors highlights how important these technologies are for improving automation and robotics in indoor spaces, which makes the Smart Assistant Office Bot an invaluable tool for optimizing office workflow.

Keyword: IR sensor, Smart Assistant Office Bot, Ultrasonic sensor, optimization algorithms**.**

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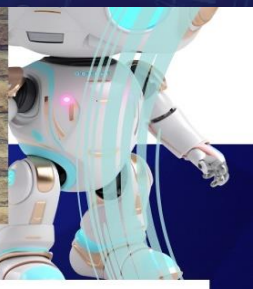
MALAYSIA MADANI
POLYCC POLITEKNIK KOLEJ KOMUNITI

OFFICE DELIVERY BOT WITH IR SENCOR



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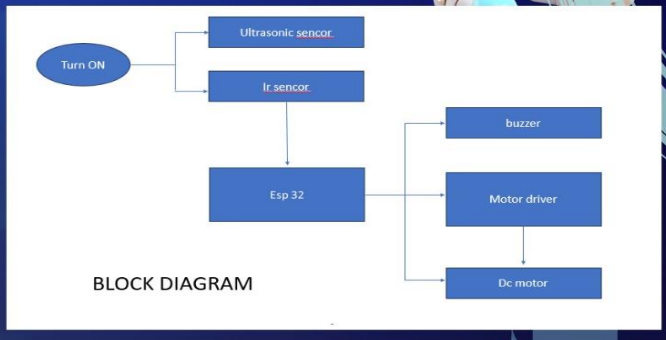


BLOCK DIAGRAM

ABSTRACT

.•The utilization of sensors is crucial in the field of automation and robotics as it improves the effectiveness and security of different applications. The creation of a delivery office bot with both ultrasonic and infrared sensors is described in this abstract. This project's main objective is to build an adaptable and trustworthy autonomous robot that can navigate indoor spaces, particularly delivery offices.

By using the IR sensor for proximity detection, the robot is able toidentify and steer clear of impediments in its route. In the meantime, the bot can precisely navigate and perform its tasks by using the Ultrasonic sensor's distance measuring feature, which allows it to ascertain the exact distance between itself and other objects or barriers.

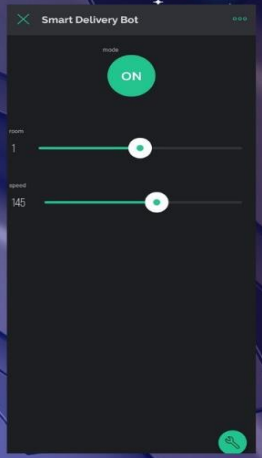
• The design and incorporation of these sensors into the robot's control system, along with the creation of obstacle avoidance and route optimization algorithms, are described in this abstract. It also covers possible uses, such as office logistics and effective package delivery. This application of infrared and ultrasonic sensors highlights how important these technologies are for improving automation and robotics in indoor spaces, which makes the Delivery Office Bot an invaluable tool for optimizing office workflow.

PROBLEM STATEMENT

· Create and implement a delivery bot for the workplace that uses infrared sensors to sense its surroundings, avoid obstacles, and deliver goods to designated locations quickly.

OBJECTIVE

- •To Develop algorithms to enable the bot to identify obstacles and plan alternative routes.
- To Implement a robust obstacle avoidance system using IR sensors to ensure the bot can navigate around objects in its path.
- To Optimize the bot's movement and delivery routes to minimize delivery time.



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I-MEDIC KIT

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Abstract

First-aid kit has been used widely by worldwide community and already has grown its own value in health care and humanities. The primary function of a first-aid kit is to provide quick and effective care to injured people before one can receive a qualified treatment from professional care. Although first-aid kit had been introduced to world a long time ago, there are still many people that aren't alert with the medical knowledge when using the kit. There are many patient that doesn't familiar with each kind of injuries and its corresponding treatment. In my research, most of the first-aid kit in the marketplace are still using traditional and manual ways. It is found that the contents inside are unorganized properly, it is difficult for user to get medicine they needed in time. Thus, the development of i-Medic Kit prioritizes on the delivery of instructions and communication between device and user via mobile application, lightning and buzzing notification. The innovated i-Medic Kit using a **HC-05 Bluetooth Module** to connects phone application and control **Arduino UNO**. Next, the medic kit use LED light to show user the exact placement of needed medicine. Another feature is a buzzer that will sounding voices to notify user. **MIT App Inventor** is used to develop an application specially made for i-Medic Kit. After the content in medic kit is taken, and user press process to next step in phone application, both of the LED light and buzzer will switches off. The programming for the phone's application, light and voice instruction are all processed by the Arduino UNO. In conclusion, the cooperation between a first-aid kit and a software linked with **IoT (Internet of Things)** technology results a user-friendly innovation that gives medical guidance when treating patients. All parts of the components work on their own role amazingly.

Keywords: First-aid kit, HC-05 Bluetooth Module, Arduino UNO, MIT App Inventor, IoT (Internet of Things)

POLITEKNIK MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION
PITEC 5

KEMENTERIAN PENGAJIAN TINGGI

i-MEDIC KIT

Description of Innovation 01

I-MEDIC KIT Is A Innovated First-aid Kit With Development Of Application, The "**I-medic APP**" using ***MIT App Inventor***. In My Research, Most Of Citizen *Doesn't Know The Procedure Of First-aid Treatment And Which Medicine Should Be Used*. My Innovation Is Aim To Develop A Smart Medicine Box That **Easy To Use** And **Suitable For Every Household**, Ensuring The Quality Of Healthcare While Increase The People's Awareness On First-aid. A Device That Provides **Step-by-step Instructions** May Reduce People's Panic To A Great Extent When Treating Patient.

02 Objective

1. To modify a device that can provide medical treatment guidance for users.
2. To implement a hardware prototype that are functional to use.
3. To develop a user-friendly mobile application that are able to run successfully on the device

05 Market Potential

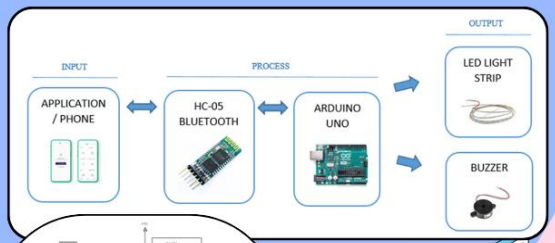
1. A user-friendly household device that suitable for everyone (youngster, adult, senior citizens)
2. Areas with inadequate medical facilities

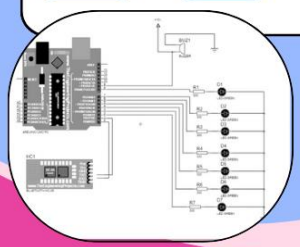
Final Product 06

Innovation Impact 03

1. Prevent Mistreatment
2. Give Basic Healthcare In Time
3. Guidance And Simple Instruction
4. Improve Lifestyle Quality

04 Block Diagram





07 Team Group Project

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FUTURISTIC PET CARRIER

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ABSTRACT

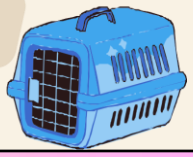
Transporting pets, usually dogs or cats, requires the use of a specially made enclosure or case called a pet carrier. Pets can be transported in these carriers in a safe and comfortable, and they are available in a variety of sizes, shapes, and materials. Pet owners' comfort and convenience should be taken into consideration. In particular, this refers to the current pet carrier, which is difficult to carry and lacks securement. In order to make moving easier, I designed and utilized a smart pet carrier that was compatible with handling controls and wheels. There is also an easy-to-use control included with the carrier. Peace of mind for the owner is provided by a GPS module that tracks the pet's location while they are traveling. An RFID door lock system is also included with the carrier. According to the results of my research, pet owners and traveling pet can enjoy a safe, high-tech environment with the smart pet carrier. Ensuring pet owners have a secure pet carrier to put their beloved pet is the goal. It should be simple for pet owners to access this product in public, especially in areas that pose a risk. It will provide convenience for animal lovers in every way. In conclusion, this project is successfully assembled and help a lot of peoples who love pets.

Keyword: Pet carrier, Securement, GPS, Carry

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

FUTURISTIC PET CARRIER FOR PET LOVER



1 ABSTRACT

Transporting pets, usually dogs or cats, requires the use of a specially made enclosure or case called a pet carrier. Pets can be transported in these carriers in a safe and comfortable, and they are available in a variety of sizes, shapes, and materials. Pet owners' comfort and convenience should be taken into consideration. In particular, this refers to the current pet carrier, which is difficult to carry and lacks securement. In order to make moving easier, I designed and utilized a smart pet carrier that was compatible with handling controls and wheels. There is also an easy-to-use control included with the carrier. Peace of mind for the owner is provided by a GPS module that tracks the pet's location while they are traveling. An RFID door lock system is also included with the carrier.

2 OBJECTIVE

- To design a pet carrier that accommodates cats or dog maximum weight 6kg.
- To create a smart pet carrier that can be move around easily with wheels.
- To use eco-friendly materials in the construction of the pet carrier where applicable.

3 PROBLEM STATEMENT

Hard to carry
Old pet carrier is hard to carry whenever go to travel or vet which can make quite stressful.

Inadequate Safety Features
Safety is a top concern during pet transportation. Develop a futuristic pet carrier with enhanced safety features.

Pet carrier or the pet loss
Without the GPS tracker or alarm, there is hard to track the pet or pet carrier when it goes missing.

4 ORIGINALITI /NOVELTI

By the time product arrive, it come with lack of securement, hard to carry, and can get lost easily because of forgot or stolen . So, this is my innovation that I create to prevent all of the issues for this product.

5 MARKET POTENTIAL

- Pet Shop
- Pet Lovers
- Vet
- Big Shopping Complex
- Online Website

6 PRODUCT

This is the innovated product which include RFID, GPS and wheels handling.

7 APPLICATION

- To transport pet via land, air and sea.
- Pet hotels.
- Pets event.
- Bringing pet sightseeing.

8

SCAN FOR MANUAL

9 TEAM GROUP PROJECT

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CONTACTLESS HEIGHT MEASUREMENT USING ULTRASONIC SENSOR FOR CLINICAL UTILIZED

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Abstract

The standard method of measuring height involves glancing at a scale that is at eye level. Reading and estimating lead to inaccuracies. A more costly option is to use a commercial automatic height meter. These days, it's easy to construct a straightforward, precise, and affordable measuring instrument via the development of Arduino microcontroller boards and sensors. Clinically, the physical growth records are necessary for patient databased and will be measured every time during the checkup. Growth indicators like the height of the individual can be used in estimating the importance of calculating the body mass index (BMI) which helps in diagnosing conditions such as Marasmus and Kwashiorkor in children and pulmonary function. The digital height meter was measured using an ultrasonic sensor with an Arduino board. The ultrasonic sensor will measure the distance between the patient's heads and subtract it from 200 centimeters. The subject's height was shown digitally on an LCD panel. According to the results, the ultrasonic sensor's efficiency has an error range of 0.5-1.5% for measurements up to 200 cm. With a measuring error of 3%, the comparison between the typical measurement and the digital height meter resulted in a substantial discrepancy. This innovation in height measurement for hospital utilization is inexpensive and simple to build. It offers a quick method that is contactless, particularly to prevent infection while contacting the meter to measure height.

Keyword: Height measurement, Arduino, Ultrasonic sensor, Digital height meter

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CONTACTLESS HEIGHT MEASUREMENT USING ULTRASONIC SENSOR FOR CLINICAL UTILIZED

NO Myipo :

1 ABSTRACT

Reading and estimating in height measuring lead to inaccuracies and long time. The digital height meter using an ultrasonic sensor with an Arduino board integrated with an application is developed. The ultrasonic sensor will measure the distance between the patient's heads and subtract it from 200 centimeters and shown digitally on an LCD panel. The ultrasonic sensor's efficiency is 3% and in a substantial discrepancy. It offers a quick method that is contactless, particularly to prevent infection while contacting the meter to measure height.

2 PROBLEM STATEMENT

- In clinics or hospitals has many people, so it takes time to measure patient height using stadiometer.
- Equipment and human error.
- Patient height record manually.

3

4 OBJECTIVES

- Design an automatic human measurement.
- Development of an Application to record the height via WiFi-Module.

5 DESCRIPTION OF INNOVATION

Revolutionize height measurement in healthcare. Say goodbye to stadiometers and human errors. This solution allows quick, accurate measurements without assistance, while an integrated app effortlessly records patient heights. Efficient, precise, and modern – elevating healthcare procedures with technology.

6 MARKET POTENTIAL

- For clinical used and will be extended to school utilized.
- Low cost
- Provide application to record the height automatically.

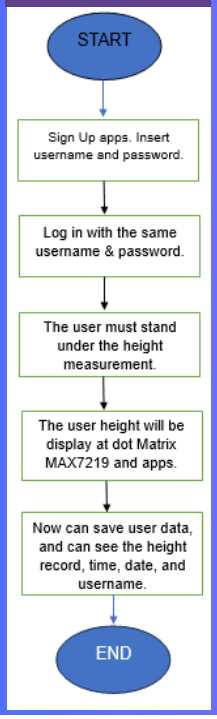
7 IMPACT OF PROJECT

- Prevent height measurement errors.
- Measuring height properly and precisely.
- User height recording can be saved automatically.

8 APPLICATION

- CLINICS
- HOSPITALS
- SCHOOL
- MILITARY INSTITUTION

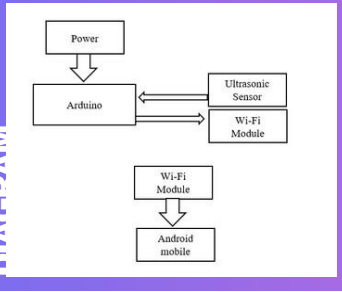
METHODOLOGY



9

SCAN ME

BLOCK DIAGRAM



SIXTH SENSE FOR THE BLIND

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Abstract

According to the World Health Organization (WHO), 49.1 million people are estimated to be blind worldwide. This resulting them to face a lot of hardship in carrying out their daily activities. Therefore, the affected ones have been using the traditional white cane for many years which although being effective, but still has a lot of cons. Besides, the cost of having guide dogs is high. By considering all the problem above, I have come up with a solution entitled 'Sixth Sense for the Blind.' Sixth Sense for the Blind is a fully automated wearable watch-like device which helps the blind people to navigate by detecting the nearby obstacles using the help of ultrasonic sensor and notify them with buzzer sound and vibration through microcontroller Arduino Pro Mini 328. The intensity of vibration and rate of beeping increases with decrease in distance. The aim of this project is to develop a cheaper and a more efficient way to help the visually impaired to navigate anywhere confidently. Moreover, this project can be enhanced by adding on three more devices attached to both arms and legs to provide a 360 degree of obstacle detection for the blind. In conclusion, this device is specially designed for the blind people to be independent and boost their survival rate thus ensures safety whenever they travel to their destination.

Keyword: ultrasonic sensor, vibration, buzzer, Arduino Pro Mini 328

6TH SENSE 4 BLIND

GROUP LEADER:
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TEAMMATE:
LAWRENCE A/L RICHARD

SUPERVISOR:
MISS FATIN AFFIQAH BINTI MAT JAH

ABSTRACT

49.1 million people worldwide are blind, facing challenges in daily activities.
Traditional tools like white canes have limitations, and guide dogs are expensive.
Proposed Solution - 'Sixth Sense for the Blind':

Wearable, watch-like device using ultrasonic sensors for obstacle detection.
Automated system with Arduino Pro Mini 328, providing feedback through buzzer and vibration.
Cost-effective and efficient navigation aid for the visually impaired.

Potential expansion with additional devices on arms and legs for 360- degree obstacle detection.
Aims to empower the blind, fostering independence and improving safety during travel

OBJECTIVES

1. Create obstacle detection system for blind individuals.
2. Design wearable with ultrasonic sensors for proximity alerts.
3. Develop navigation system for blind users using ultrasonic sensors.

PROBLEM STATEMENT

1) Unreliable traditional white Canes
2) High cost & shorter guide dogs lifespan

MARKETING POTENTIAL

- Durable
- Affordable
- Portable

NOVELITY/ ORGINALITY

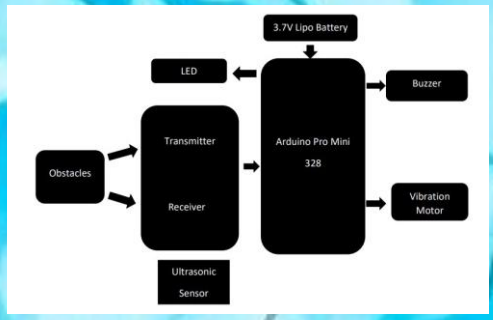
Our project utilizes Arduino Pro Mini 328. Unlike traditional white canes and guide dogs, main source rely on 3.7 Lipo Rechargable Battery and reduces burden carrying stick & walking dogs.The novelty lies in the autonomous vibration and buzzer of the system, ensuring the blind from hitting the obstacles.

APPLICATION

- Allow blind people to recognize and navigate their surroundings.
- Increase the mobility of the user.
- Allows users to avoid obstacles around them which allow them to carry out their daily activity with ease.
- Achieves the technological advancement as this project involves the usage of microprocessor , Arduino Pro Mini 328.

PROJECT HARDWARE

BLOCK DIAGRAM



SAFELAB NOTIFY

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Abstract

This project addresses the critical need for enhanced fire detection in chemical laboratories through the integration of Arduino and GSM module technology. The existing challenge of unreliable fire detection systems in such environments necessitates a robust solution. The objectives of this study encompass the design of a highly accurate fire detection system, the implementation of a notification mechanism utilizing SMS and call alerts, and the overall enhancement of system reliability. The proposed system comprises a sophisticated ensemble of a fire detection sensor, MQ2 sensor, Arduino Uno microcontroller, GSM module, and a dedicated power supply unit. Upon detecting a fire and gas leakage, the system promptly notifies designated personnel, ensuring swift response to potential hazards. The research methodology emphasizes performance optimization, effectiveness assessment, and the timely delivery of notifications. The results highlight the system's commendable reliability and efficiency, thereby significantly contributing to the advancement of laboratory safety. Key findings underscore the system's ability to meet stringent safety standards, offering a substantial impact on risk mitigation within chemical laboratories. The study concludes with suggested improvements, paving the way for future enhancements in fire detection technology. In summary, this project contributes to the advancement of laboratory safety by presenting a dependable and efficient fire detection system for chemical environments.

Keywords: Fire Detection, Arduino, GSM Module, Laboratory Safety.

POLITEKNIK MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

SAFELAB NOTIFY

ARDUINO-GSM FIRE MONITOR FOR LABS

SCAN ME

1 DESCRIPTION

The SafeLab Notify is a sophisticated fire detection and notification system designed to enhance safety and security in chemical laboratories. This system leverages Arduino microcontroller technology and GSM communication modules to detect fire incidents and instantly notify relevant personnel via calls and SMS.

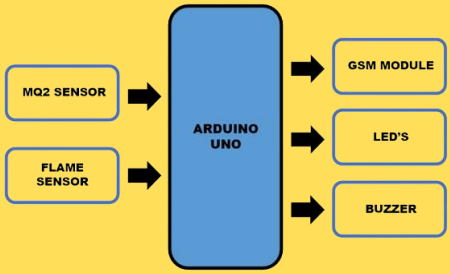
2 RESEARCH OBJECTIVE

- To design a fire detection system in Chemical Laboratory using Arduino and GSM module.
- To implement the system is reliable, accurate, and efficient in detecting fires
- To develop a notification system that sends SMS and call alerts to designated personnel in case of fire

3 PROBLEM STATEMENT

Chemical labs are high-risk areas with the potential for fires and gas leaks, posing serious threats to safety and valuable research. Current safety measures often lack the speed needed for a quick response, increasing the risk of disasters.

4 BLOCK DIAGRAM



5 IMPACT OF PROJECT

- Faster Response: The project quickly notifies people about fires or gas leaks, helping them respond faster.
- Better Emergency Readiness: The project ensures that people know about incidents right away, improving emergency preparedness.
- Safer Environment: It promotes a safety-first mindset, making labs safer for everyone.
- Cost Savings: It can save money by preventing damage, reducing downtime, and avoiding expensive repairs.

6 FINAL PRODUCT

8 TEAM GROUP PROJECT

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STUDENT 2

PUAN NOR KHARUL AINA
BT MAT DIN
SUPERVISOR

Portable Solar Tent With IOT Power Meter

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Abstract

Now the use of electricity has become something that is mandatory to live daily life. Every tool used by humans requires electricity, but electricity consumption must be used prudently, and not all places and conditions allow users to use electricity. For example, remote or disaster-hit areas such as floods, wars, and outdoor activities such as camping, can be proven when the floods in Malaysia and the war in Palestine make electricity cut off. Also "Rising electricity costs from wasteful use affect finances and relationships with distribution firms. This project aims to create portable solar generators with tents that meet the needs of safe, transportable, and environmentally friendly off-grid electricity and also to develop. a system that can find the amount of electricity used. The project is similarly founded on the idea of producing clean electricity utilizing solar power and is designed to allow for the universal use of electricity. The next project can measure how much electricity is consumed. It will have a smartphone application that allows users to monitor and remotely operate switches, receive information, and have the option to turn off the electricity if usage exceeds a predetermined limit. Thus, an inverter, solar panel, battery, and solar charger. Because it produces electricity so well, this component is particularly useful. Moreover, the ESP32, 5 v Relay, and ACS712 Current Sensor can all sense electricity and transmit signals to the ESP32 to record use information and alert the user to the amount of current being consumed.

Keywords: Portable, Monitoring, Clean Energy, Calculate Power.

POLITEKNIK MALAYSIA
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PORTABLE SOLAR TENT WITH IOT POWER METER

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1 INTRODUCTION

The introduction of portable solar tent underscores their pivotal role in providing self-contained and eco-friendly electricity. Comprising photovoltaic panels, a charge controller, battery storage, and an inverter, these generators efficiently harness and convert solar energy. Designed for diverse applications, from emergency response to off-grid living, they contribute to sustainability by reducing reliance on traditional energy sources. This brief overview sets the stage for a detailed exploration of technical components, functionalities, and real-world applications in the subsequent sections of this technical report.

The introduction for an IoT power meter could start by highlighting the growing global demand for electricity and the challenges posed by rising costs and inefficient energy use. It could emphasize the need for innovative solutions to monitor and manage electricity consumption effectively. Mentioning the increasing importance of IoT technology in revolutionizing energy management systems could set the stage for introducing the IoT power meter as a pivotal solution. The introduction should encapsulate the essence of the IoT power meter, emphasizing its role in providing real-time monitoring, control, and optimization of energy usage for both consumers and utility providers.

2 OBJECTIVES

To create portable solar generators with tents that meet the needs of safe, transportable, and environmentally friendly off-grid electricity production with systematic components for Emergency and Outdoor Activities.

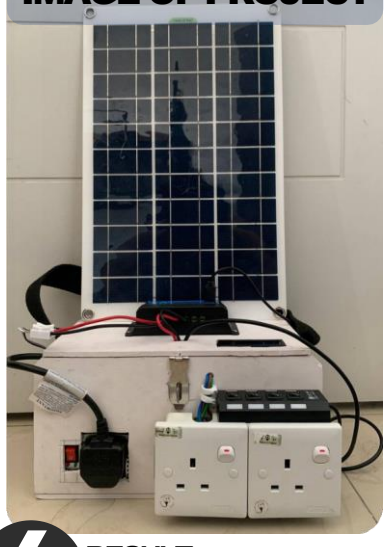
To develop a system that can find the amount of electricity used by the portable solar generator.

3 PROBLEM STATEMENT

"Amidst the challenges faced in remote regions or crises like floods, having access to electricity becomes a crucial need. A portable solar tent serves as a beacon of hope, enabling daily tasks, powering devices, and easing recovery efforts during emergencies.

The issue of high electricity costs and wasteful usage begs for a thoughtful solution. Enter the IoT power meter, a technology designed to create harmony by diligently monitoring energy consumption. Its role extends beyond tracking usage; it fosters a more mindful and efficient use of energy, paving the way for a more harmonious relationship with our resources.

IMAGE OF PROJECT

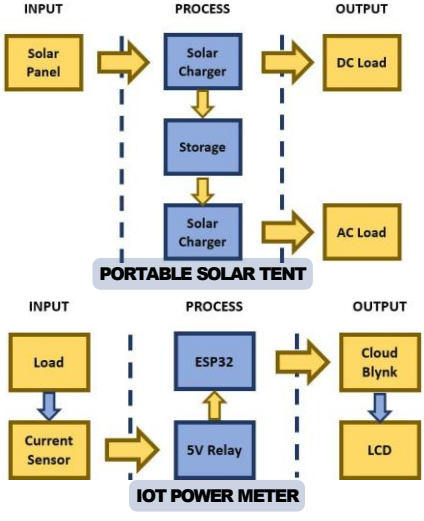


4 PROJECT SCOPE

Portable Solar tent:
- For campers, homeowners, remote workers, and eco-friendly enthusiasts.
- Use for camping, emergencies, remote work, and off-grid living.
- Powers phones, laptops, lights, appliances, etc., anywhere.

IoT Power Meters:
- Useful for homeowners, businesses, and utility/renewable energy sites.
- Tracks energy usage, saves costs, improves efficiency, and enables predictive maintenance.
- Saves money, energy, and hassle.

5 BLOCK DIAGRAM



6 RESULT

FOR NIGHT USE
(FULL CHARGE IS 90W)

Load	Type	Power Consumed (Watt)	Quantity	Total Power (Watt)	Operating Time	Capacity
Light	Led Bulb	5W	1	25W	5 H	18 H
Charging	Mobile Phone	7.8W	2	46.8W	3 H	2 Charges
	Portable Fan	5W	1	5W	1 H	18 Charges

7 COMPARISON WITH OTHER PRODUCTS

Watt power	90W-100W		500-540W	300W
Product Weight	1.5KG		5.8KG	3.5KG
Characteristic	• Can use IOT system monitoring • Allow charges using solar • Can trace real-time current use by component		• Can run bigger load • Overvoltage protection	• cannot charge using green energy • Accurate battery percentages display
PRICES	• RM 204	• RM 60	• RM1,359.00	• RM 430

8 IMPACT OF PROJECT

This portable solar tent with IoT power meter and phone control simplifies energy use, saving money through solar power, providing remote control convenience, promoting environmental friendliness, and offering an educational experience in a single, impactful project.

IOT BASED WATER POLLUTION MONITORING SYSTEM

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POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH, PERSIARAN USAHAWAN,
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ABSTRACT

Effective detection of water pollution has always been an important research topic. Water pollution detector analysis is a useful tool for detecting pH, turbidity and water temperature. However, there is consensus on the optimal water pollution detector in water pollution assessment. This study proposes the analysis method of the World Health Organization (WHO) based on the mode of water pollution detection to Develop water pollution detectors to preserve marine aquatics from existing and Develop water pollution monitoring systems to ensure that water quality is good and safe. always. Next to the system for monitoring and controlling water quality, predictive analysis of the collected data was carried out. The neural network outperformed all other techniques with 93% accuracy, according to experimental data using machine learning algorithms to classify water quality. The software solutions we create, consisting of mobile applications and dashboards, enable remote monitoring and control of processed data as well as water flow regulation. Therefore, it is possible to achieve personal analysis to further study water pollution.

Keywords: pH sensor, Turbidity sensor , temperature sensor ,ESP32 ,LCD.

"Preserve Water, Conserve Life: Say No to Pollution Strife!"

PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI SESI 1 2023/2024

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Sultan Salahuddin Abdul Aziz

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SUPERVISOR
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MDM ROHANIZA BINTI MOHDZALI

IOT BASED WATER POLLUTION MONITARING SYSTEM

1) PROJECT BACKGROUND

- In the 21st century, pollution, global warming, and other issues are causing a lack of safe drinking water.
- Real-time water quality monitoring is crucial to address these issues due to global warming, limited water supplies, and population growth.
- Turbidity, the number of invisible suspended particles in water, is also important, with higher turbidity increasing the risk of diarrhea and cholera.
- By utilizing water properties, pH, turbidity, and temperature sensors, we can better monitor water quality and ensure safe drinking water for our growing population.

2) PROJECT OBJECTIVE

- To develop a water pollution monitoring system to make sure the quality of water is good and a safe always.
- To develop a water pollution detector to preserve marine aquatic from extint..

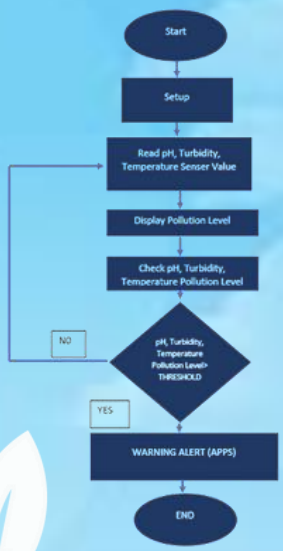
3) PROBLEM STATEMENT

- Harm to aquatic life: Pollutants can kill fish and other aquatic organisms, disrupt food chains, and damage habitats.
- Human health risks: Contaminated water can cause a variety of health problems, including diarrhea, cholera, and typhoid fever. It can also exacerbate existing health conditions, such as asthma and heart disease.
- Economic impacts: Water pollution can damage tourism and fisheries, and increase the cost of drinking water treatment

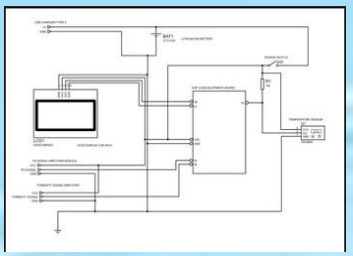
4) IMPACT OF PROJECT

1. Environmental Protection: By continuously tracking water quality parameters, these systems enable early detection of contamination events, allowing for timely intervention and remediation efforts.
2. Human Health Protection: By providing real-time data on water quality, these systems empower public health authorities to take preventive measures, such as issuing boil water advisories or implementing treatment strategies
3. Sustainable Water Management: By providing real-time insights into water quality, these systems enable informed decision-making regarding water allocation, usage patterns, and infrastructure development.

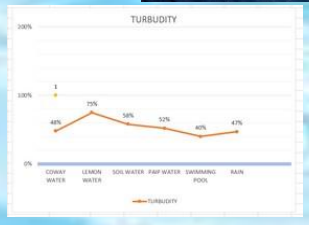
5) FLOWCHART



7) BLOCK DIAGRAM



8) PROJECT OUTPUT & RESULTS



Polluted Waters, Poisoned Future: A Wake-Up Call for a Clean Water Revolution

ABSTRACT

MECHANICAL ENGINEERING DEPARTMENT

MICE TRAP WITH MOTION SENSOR

Mohd Afiq Saifuddin Bin Razali, Nik Faris Haikal Bin Nik Halim, Muhammad Bin Amalan, Noor Haznida Binti Bakar

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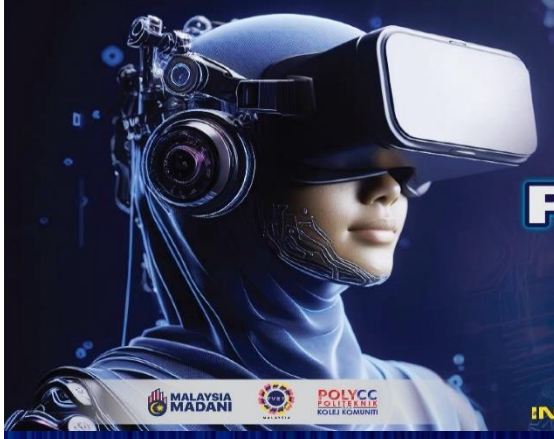
Abstract

The issue of mice is often a hot topic in our society. It is frequently heard that houses, especially landed properties, face problems with mice, which can be quite disruptive for homeowners. By conducting detailed research and analysis, we have developed an upgraded product called the 'Mice Trap' that utilizes the latest technology. This mouse trap is designed to meet the users' needs at any time and in various locations. Mice can carry diseases, including those transmitted through their urine, which can be fatal. Another , existing cages or traps in the market can pose risk of accidents to children due to insufficient safety measure. The objective of this project is to create a product that can capture mice without requiring user intervention, with the aim of making it easier for users to maintain their health and prevent dangerous diseases. With this machine, people can live without the disturbance of pest animals in their daily lives, providing a sense of safety. Position a motion sensor mice trap strategically in areas with mouse activity, ensuring proper power and bait application. Follow the manufacturer's placement guidelines, understand the trap's activation mechanism, and regularly monitor for captured mice. Dispose of mice, reset the trap, and maintain cleanliness. Consider using multiple traps for increased effectiveness, providing a humane and efficient approach to mouse control.

Keyword : mouse, trap, cages



PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI

POTEC 5

PSA INNOVATION TECHNOLOGY & COMMERCIALIZATION

SESI 1:2023/2024

6 Disember 2023 | Dewan Al Jazari PSA

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DEVELOPMENT OF "MICE TRAP"

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ABSTRACT

In current society, mice are a common topic of discussion. It's common knowledge that mice are an issue for homes, particularly landed properties, which may be quite upsetting for owners. We have created an updated product called the "Mice Trap" that makes use of the newest technologies through research and analysis. The purpose of this mouse trap is to accommodate users' needs in a variety of settings and at any time. Mice can carry lethal infections, including ones that are spread by their urine. Inadequate safety measures in some of the current cages and traps on the market might also put children at danger of accidents. The goal of this research is to develop an apparatus that has the ability to catch mice without the need for human assistance.

OBJECTIVE

i. To create an environmentally friendly and user-friendly mice trap for consumers.
ii. To develop a sensor-based mice trap for improved effectiveness.
iii. To ensure that the sensor features in the trap's door are efficient and yield satisfactory results for the product.

PROBLEM STATEMENT

i. Mice infestation inside homes.
ii. Mice can carry diseases, including those transmitted through
their urine, which can lead to fatal.

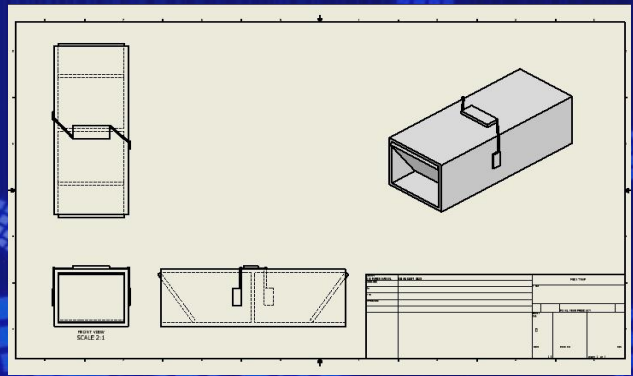
NOVELTY /ORIGINALITY

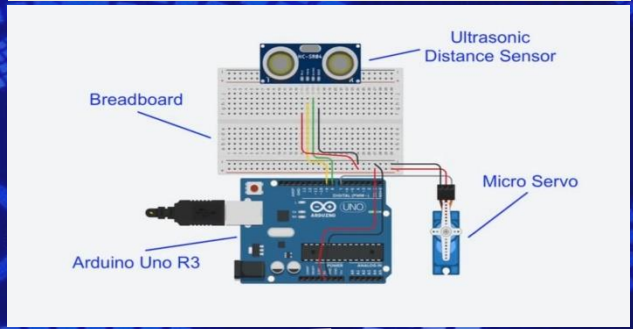
- Renewable design

MARKET POTENTIAL

i. Targeting the sale of these products to local residents who have problems with mice in and around their homes, especially residents of landed housing
ii. Create a mouse trap product that has never been produced in the outside market, which uses a motion sensor to close the trap door quickly.

PRODUCT DESCRIPTION





APPLICATION

- This product use a sensor as a motion detector. It can detect in two directions and it can catch two mice at the same time.
- The components we use to create the sensor of motion are: micro servo, Arduino Uno, ultrasonic distance sensor, breadboard and jumper wires. Finally, we use the Arduino IDE software to program the Arduino board. The function of the Arduino and the sensor is to detect movement in the trap and react by closing the trap door quickly.

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SMART IRRIGATION SYSTEM

SATHISH KUMAR A/L LETCHUMANAN, ZULKARNAIN BIN HAMID

Abstract

The project involves developing a smart irrigation system that optimizes landscape watering using weather and soil moisture data. This addresses challenges in dry periods by replacing labor-intensive manual monitoring. The goal is an efficient, automated system ensuring optimal soil moisture.

Incorporating smart technology creates a suitable environment for plant growth, considering soil and weather conditions. A user-friendly interface lets residents monitor humidity, preventing wilted plants.The primary objective is an IoT-based smart irrigation system using real-time data on soil moisture, temperature, and humidity. It minimizes human intervention, boosts crop production, saves time, and

allows remote monitoring. This system, based on IoT principles, integrates physical objects with IP addresses for internet connectivity. Sensors collect data for automated irrigation.Findings show reduced manual intervention and increased crop yield with the IoT-based system. Real-time monitoring offers an efficient, resource-conscious irrigation approach. Future plans include improving soil sensor technology with predictive analytics for compatibility with various crops and soils.In conclusion, the IoT-driven smart irrigation system is a significant step in addressing agriculture challenges, enhancing efficiency, crop yield, and sustainability in modern farming practices. It provides a manageable solution for both farming and household needs.

08DKM21F1099

SMART IRRIGATION SYSTEM

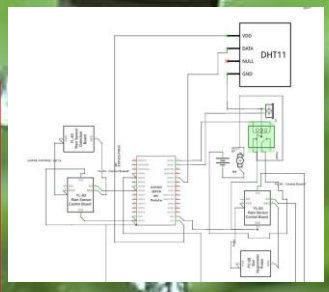
SATHISH KUMAR-RESEARCHER
SUPERVISOR-ENCIK ZULKARNAIN BIN HAMID

ABSTRACT

The project develops a smart irrigation system using weather and soil data, replacing labor-intensive monitoring. It tackles challenges in dry periods, aiming for an automated system ensuring optimal soil moisture and plant growth. The user-friendly interface allows residents to monitor humidity, preventing plant wilt. The IoT-based system, using real-time data, minimizes human intervention, increases crop production, and enables remote monitoring. It integrates physical objects with IP addresses, employing sensors for automated irrigation. Findings reveal reduced manual effort, increased crop yield, and resource-conscious irrigation. Future plans involve enhancing soil sensor technology with predictive analytics. In conclusion, this IoT-driven smart irrigation system is a vital step in addressing agricultural challenges, offering efficiency, sustainability, and ease for both farming and households.

OBJECTIVE

Optimize water usage in agriculture through Smart Irrigation System. Employ sensors and advanced tech to precisely manage irrigation, minimizing costs while ensuring crops receive essential moisture for optimal growth.



PRODUCT DESCRIPTION

The block diagram shows the basic connection structure of the main components used to complete this innovation project. The project uses main input that produced by which are 12Vto supply the Nodemcu ESP3266 and relay while 5V to supply the water pump.

PROBLEM STATEMENT

-To avoid time consuming with human efforts
-To avoid plant dead due the moisture content on the soil
-Make farmer easy to check the humidity and avoid wilted plants

POTENTIAL MARKET

-Businessman
-Farmers
-Flower shop owner
-Seniors who owns land
-Landscape owners

FINAL RESULT

CONCLUSION

In conclusion, the study underscores the benefits of smart irrigation systems, including enhanced crop yields and reduced water usage. Recommendations focus on overcoming challenges, urging stakeholders to adopt sustainable practices for the planet's long-term well-being.

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MAGNETIC ELECTRODE HOLDER

Abstract

This project magnetic electrode holder is applied based on the comfort of the welder when doing the arc welding process. The objective of this project is to design a project that is able to provide enough convenience when doing the welding process when in the workshop. In addition, there are several research scopes that have been set in This project, which is a magnetic electrode holder product, can be adjusted and modified according to the comfort of the welder for projects that require an angle that is difficult to set and this product can only be used for arc welding only and a more minimalistic and easy-to-hold design to produce quality output. All this, set to solve the problems that can be detected from this observation such as, the difficulty to install the electrode and the minimum area of the earth clamp and the rod that is easy to move. For this project material, requires special features that are easier to hold, lighter and lower cost. Through research that has been studied, materials such as iron plates are the most suitable for this project based on the special characteristics that must be present for this project. As for the component formation process, methodological methods are used to plan the production process of this project by using a flow chart as a planning guide in producing and testing this project. From the findings of the study, it is hoped that the project can be used in a good condition, hence the use of the motor placed in this 'Magnetic electrode holder' project is effective and can help welders and students who are still not skilled in the welding process. In conclusion, our magnetic electrode holder is more effective for welders than existing electrode holders because we use the MIG concept on our project . We just need to press the button to move the rod and as for the earth magnet, we only need to attach the magnet to any surface to make it work.

Keyword: Magnetic Electrode Holder, low cost, MIG concept, small industry and educational institutions.

MAGNETIC ELECTRODE HOLDER

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ABSTRACT

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PROBLEM STATEMENT

- The width of electrode clamps and earth wire has a limit.
- clamps are not tight causing the electrode to move during welding

OBJECTIVE

- Designing a "magnetic elector holder" that can facilitate the welding process.
- Fabricating a "magnetic elector holder" that is more efficient and easy to hold and easy to change according to the object.
- Testing the "magnetic elector holder" that can produce neater and more beautiful welding results.

ORIGINALITY

- Our product is not as the same as the product on industry or institusy.
- This design is only suitable for arc welding.
- There is no innovation for the electrode holder and earth clamp but we innovate to solve the problems that occur.

MARKET POTANTIAL

We target small industry and also institutions. Because the process of using our product is easier than the original product and the price of this product we innovate is cheaper compared to MID and TIG weldings.

PRODUCT DISCRIPTION

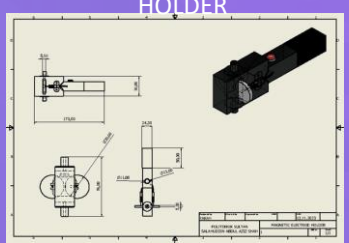
- Magnetic Electrode Holder product has a combination of 5 manufacturing provide such as mini wheel, DC motor, battery, coupling dan steel plate.
- This product is for welder because we costume just for personal user.

APPLICATION

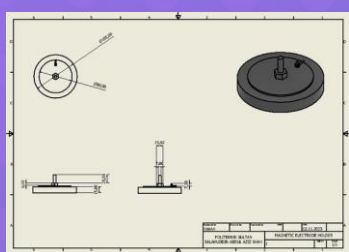
- Button controller- helps the welder to control electrode production
- Safety- The handle is wrapped to prevent electric shock and burns
- Efficient design- has a DC motor to move the electrodes

RESULT

AUTOMATIC ELECTRODE HOLDER



EARTH MAGNETIC



DEVELOPMENT OF TEN- B BOT

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Nurus Sadiqin binti Abdul Razak Khan
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Abstract

The Ten-B BOT project seeks to revolutionize the tennis court by automating the process of collecting tennis balls, thereby reducing the physical strain on players. This project is designed to address the common issue of back pain associated with picking up tennis balls during and after a game. The main objective of the project is to create a remote-controlled robot that can efficiently collect tennis balls. This objective was chosen due to the considerable time and effort required to collect balls manually during a game. The robot is powered by a 12-volt battery that serves as the primary electricity source for its operation. The research and development of this project involved a thorough search through previous research journals to identify the best practices.

Keyword : Remote control, bluetooth, ergonomic

DEVELOPMENT OF TEN-B BOT

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ABSTRACT

The Ten-B BOT project seeks to revolutionize the tennis court by automating the process of collecting tennis balls, thereby reducing the physical strain on players. This project is designed to address the common issue of back pain associated with picking up tennis balls during and after a game. The main objective of the project is to create a remote-controlled robot that can efficiently collect tennis balls. This objective was chosen due to the considerable time and effort required to collect balls manually during a game. The robot is powered by a 12-volt battery that serves as the primary electricity source for its operation. The research and development of this project involved a thorough search through previous research journals to identify the best practices.

OBJECTIVE

To develop a tennis ball collector robot that can be operated using a remote control with sufficient storage capacity.

PROBLEM STATEMENT

Energy consumption - Collecting balls from a large tennis area requires a significant amount of energy and time, leading to inefficiencies and delays.

Ergonomics - The shape of the previous product was inadequate and caused user discomfort and back pain while picking up the balls, making it challenging to use.

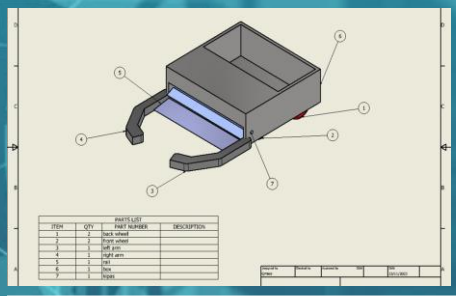
SPECIFICATION

Ball capacity - 30 balls
Control - Remote control using apps at the phone
Volume - 320mm x 300mm x 110mm
Weight – 3kg

MARKET POTENTIAL

Sports school
Tennis club
Sports event

PRODUCT DESCRIPTION



Utilizing Bluetooth technology, this product connects to a smartphone to control its movement. The product is designed to be durable, using stainless steel to ensure its longevity. Effective coding and programming are critical to ensuring the product functions optimally. The product features ample space to store multiple tennis balls and a built-in fan to secure them in place and prevent them from rolling out.

CONCLUSION

Ten B-Bot is a remarkable leap forward in tennis ball collection technology. It can collect up to 30 tennis balls and features Bluetooth control functionality, setting it apart from traditional tennis ball collectors. Adopting the Ten B-Bot offers users a more contemporary, streamlined experience. Furthermore, its effortless handling and user-friendly interface add to its appeal. All in all, the Ten B-Bot represents a significant breakthrough in the realm of tennis ball collection.

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DRAIN CLEANER TECHNO (DCT)

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Abstract

A Drain Cleaner Techno (DCT) project is an innovative application of technology that can revolutionize the drain industry by introducing a new level of efficiency and convenience. This project involves the development of a system that can automatically detect rubbish and clear clogs using advanced sensors and algorithms. The primary aim of a drain cleaner techno project is to improve the functionality and reliability of drain systems by reducing the need for manual intervention and preventing potential damage to the drainage system. The system typically includes various sensors such as an automatic on off switch, and a water level sensor which can detect when a drain is clogged and trigger the cleaning process. The system works by collecting data from these sensors and analysing it using advanced algorithms namely blynk to determine the appropriate action to take. If a clog is detected, the system can initiate a mechanical or chemical cleaning process to clear the blockage. This not only saves time and effort but also reduces the risk of human error, which can lead to further damage to the drainage system. Moreover, the use of DCT can also significantly reduce the need for costly repairs or replacements of drain systems. Overall, a DCT project has the designed potential to revolutionize the drain industry by providing a more efficient, reliable, and cost-effective solution to clogged drains. By means of continued research and development, this technology could become commonplace in homes and businesses around the world, improving the functionality and longevity of drain systems for years to come.

Keyword: Drain, Blynk, Automatic on off, Sensors

DRAIN CLEANER TECHNO

1 ABSTRACT

Drain Cleaner Techno (DCT) project is an innovative application of technology that can revolutionize the drain industry by introducing a new level of efficiency and convenience. This project involves the development of a system that can automatically detect rubbish and clear clogs in drain systems using advanced sensors and algorithms. The primary aim of a drain cleaner techno project is to improve the functionality and reliability of drain systems by reducing the need for manual intervention and preventing potential damage to the drainage system. The system typically includes various sensors such as an automatic on off switch, and a water level sensor which can detect when a drain is clogged and trigger the cleaning process. The system works by collecting data from these sensors and analyzing it using advanced algorithms namely Blynk apps to determine the appropriate action to take. If a clog is detected, the system can initiate a mechanical or chemical cleaning process to clear the blockage. The drain cleaner techno system is designed to be highly efficient and reliable, with minimal manual intervention required. This not only saves time and effort but also reduces the risk of human error, which can lead to further damage to the drainage system. Moreover, the use of DCT can also significantly reduce the need for costly repairs or replacements of drain systems. By detecting and clearing clogs early, the system can prevent further damage to the drain system, which can save homeowners and businesses a significant amount of money in the long run. Overall, a DCT project has the potential to revolutionize the drain industry by providing a more efficient, reliable, and cost-effective solution to clogged drains. By means of continued research and development, this technology could become commonplace in homes and businesses around the world, improving the functionality and longevity of drain systems for years to come.

2 OBJECTIVE

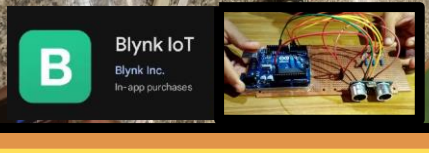
1. To design and develop drain cleaner techno
2. To facilitate and speed up drain cleaning

3 PROBLEM STATEMENT

I. The problem of garbage clogging the drain
II. Problem in collecting garbage in the drain
III. Due to too much garbage in the drain, causing the water to be polluted the water rises to overflowother area

4 APPLICATION

As an automatic drafter, the DCT project uses the Blynk programmes. To detect rubbish, it relies on an Arduino Uno system as well as a water level sensor.



5 MARKET POTENTIAL

1. To promote the project to JPS and MBSA
2. The potential profitability of an organization, product, or service.

6 NOVELTY / ORIGINALITY

Approval letter for innovation application-drain cleaner techno was approved by Technogerma Engineering & Consulting sdn.bhd

7 PRODUCT DESCRIPTION

This DCT presents 3 main components namely the main drive system, the Arduino Uno system, and the garbage storage.

ADVANCED TURN OFF SIGNAL ALERT SYSTEM

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Abstract

There is a lot of an accidents happened because of the motorcycle. It is because of the rider forget to turn off their signal. for example, as a car driver we always confuse if the rider want to enter the intersection or not. Therefore, the goal of this project is to create a turn off signal warning system that uses a vibrating device to alert the riders immediately to turn off their turn signals. Our aim also to reduce the number of an accidents involving motorcyclists who often forget to turn off the signals. An advanced turn off signal alert system is a device or software application using arduino ide system that helps the riders to avoid forgetting to turn off their signals with three mode of vibration which is slow 30 seconds, medium 45 seconds , high 60 seconds sync with the sound. Besides that, this system also placed at the motorcycle seat. it is because to avoid the rider from shocked when the system put at the handle. Impact of this project is it will help to reduce the number of an accidents to the rider and enhance the driver awareness and their responsibilities. This project also the innovation for the motorcycle signals. However this project is only in prototype if it managed to work as well we will apply the project on real motorcycle and minimize the wire to avoid short .

Key words : motorcycle signals, arduino ide system , vibration mode , motorcycle seat

ADVANCED TURN OFF SIGNAL ALERT SYSTEM

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ABSTRACT

A LOT OF ACCIDENTS HAVE OCCURRED AS A RESULT OF THE MOTORCYCLE. THE REASON IS THAT THE RIDER FORGOT TO TURN OFF THEIR SIGNAL. FOR EXAMPLE, AS A CAR DRIVER, WE ALWAYS CONFUSE IF THE RIDER WANT TO ENTER THE INTERSECTION OR NOT. THEREFORE, THE GOAL OF THIS PROJECT IS TO CREATE A TURN OFF SIGNAL WARNING SYSTEM THAT USES A VIBRATING DEVICE TO ALERT THE RIDERS IMMEDIATELY TO TURN OFF THEIR TURN SIGNALS. OUR GOAL IS ALSO TO REDUCE THE NUMBER OF ACCIDENTS INVOLVING MOTORCYCLISTS, WHO MANY TIMES FORGET TO TURN OFF THE SIGNALS. AN ADVANCED TURN OFF SIGNAL ALERT SYSTEM IS A DEVICE OR SOFTWARE APPLICATION USING ARDUINO IDE SYSTEM THAT HELPS THE RIDERS TO AVOID FORGETTING TO TURN OFF THEIR SIGNALS WITH THREE MODES OF VIBRATION, WHICH IS SLOW 30 SECONDS, MEDIUM 45 SECONDS, HIGH 60 SECONDS SYNC WITH THE SOUND. BESIDES THAT, THIS SYSTEM ALSO PLACED AT THE MOTORCYCLE SEAT. IT IS TO PREVENT THE RIDER FROM BEING SHOCKED WHEN THE SYSTEM IS APPLIED TO THE HANDLE. THE IMPACT OF THIS PROJECT IS THAT IT WILL HELP TO REDUCE THE NUMBER OF RIDER ACCIDENTS AND ENHANCE DRIVER AWARENESS AND RESPONSIBILITIES. THIS PROJECT IS ALSO THE INNOVATION FOR THE MOTORCYCLE SIGNALS. HOWEVER, THIS PROJECT IS ONLY IN PROTOTYPE. IF IT MANAGED TO WORK AS WELL, WE WILL APPLY THE PROJECT ON REAL MOTORCYCLE AND MINIMIZE THE WIRE TO AVOID SHORT.

KEY WORDS : MOTORCYCLE SIGNALS, ARDUINO IDE SYSTEM , VIBRATION MODE , MOTORCYCLE SEAT

OBJECTIVES

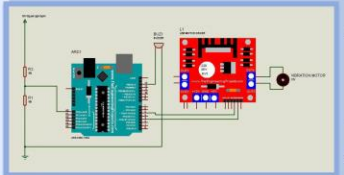
- TO CREATE A TURN-OFF SIGNAL WARNING SYSTEM THAT USES A 12V VIBRATOR DEVICE TO ALERT THE DRIVER IMMEDIATELY TURN OFF THEIR TURN SIGNALS.
- TO REDUCE THE NUMBER OF ~~AN~~ ACCIDENTS HAPPENED THAT INVOLVES THE RIDER, WHO OFTEN FORGETS TO TURN OFF THE SIGNAL.

PROBLEM STATEMENT

INATTENTIVE RIDERS FORGET TO TURN OFF THEIR SIGNALS WHICH MAY CAUSE CONFUSION AND ~~IT MAY~~ LEAD TO HAZARDS POTENTIAL.

PRODUCT DESCRIPTION

THE PROJECT FUNCTION BY USING THE BUZZER AS THE MAIN COMPONENT FOR THIS PROJECT. THE ACTIVATION OF THE VIBRATOR HAS BEEN CONDUCTED AT THE SEAT OF THE MOTORCYCLE WITH THREE LEVELS OF MODE SYNC WITH THE SOUND AFTER THE LAST MODE ON,SO IT CAN HELP THE RIDERS NOTICE THAT THEIR SIGNAL DID NOT TURN OFF YET.



THE CIRCUIT DESIGN INVOLVES ATTACHING A 12V VIBRATOR CONNECT TO THE L298N DRIVER MOTOR SYSTEM STRAIGHT TO THE ARDUINO IDE SYSTEM AND BUZZER. IT CAN VIBRATE AND PRODUCE THE SOUND AUTOMATICALLY IF THE RIDER FORGET TO TURN OFF THEIR SIGNAL WITH IT TIMER'S AND IT CONNECTED WITH VOLTAGE REGULATOR. THE POSITIVE WIRE OF THE VOLTAGE IS THEN CONNECTED TO THE 12V SIGNAL INPUT WHILE THE NEGATIVE WIRE IS CONNECTED TO ANY NEGATIVE WIRE OF THE CIRCUIT

MARKET POTENTIAL

- TARGET : MOTORCYCLE FACTORY & MARKET
- MAIN : MOTORCYCLE RIDERS

ORIGINALITY

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WATER TANK AUTO-SHUTOFF DEVICE

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ABSTRACT

'WATER TANK AUTO-SHUTOFF DEVICE' this project was created due to the many cases of water wastage due to overflow from the main tank without the user realizing it. So, the construction of this project is to deal with that problem. Furthermore, there is a high rate of wastage of treated water. Leakage in the plumbing system at the premises is believed to be one of the causes of the high-water bill, said Air Selangor. This has the effect of increasing household water costs dramatically and making Malaysia the country with the largest amount of treated water waste. The main objective we want to achieve is to prevent water overflow using a flow control valve, will stop the treated water from flowing into the tank when it overflows. The research methodology is a process to plan, collect, and analyse data to create a comprehensive design study to implement our project 'WATER TANK AUTO-SHUTOFF DEVICE'. Our project which is 'WATER TANK AUTO-SHUTOFF DEVICE ' shows a significant change in the electricity bill if there is an overflow in the main tank of the house. The design of the project is very different from the project in this market because our project uses an automatic system to prevent water from being wasted. WATER TANK AUTO-SHUTOFF' was created to solve the many conflicts that occur due to the overflow of the main tank at home.

Keyword: Water Tank Auto-Shutoff Device, Overflow, and treated water waste.

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ABSTRACT

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OBJECTIVE

i. To prevent overflowing water using flow control valves, will stop treated water from flowing into the tank when the overflow.
ii. To create a water tank auto shut-off device suitable for most types of home tanks.
iii. To save treated water which now often occurs during the dry season all over the world due to environmental issues.

PROBLEMS STATEMENT

1. Water tanks with floating valves often get damaged, causing leaks that users may not notice.
2. Leakage in the plumbing system leads to high water bills, causing significant waste of treated water in Malaysia.
3. Malfunctioning float valves result in the loss of millions of ringgit annually and harm Malaysia's environment by affecting the treated water waste.

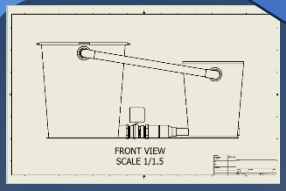
ORIGINALITY

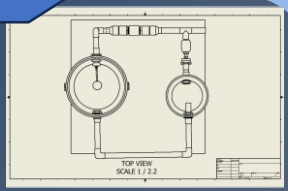
- New idea project

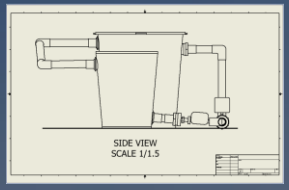
MARKET POTENTIAL

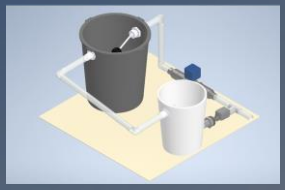
1. Homeowners seek solutions to prevent water tank overflows and leaks, for ensuring water conservation
2. Businesses with water storage needs can be benefit from automatic shut off to reducing operational costs

PRODUCT DESCRIPTION

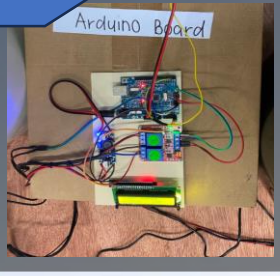








APPLICATION



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SMART WALKING AID

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Abstract

Walking frames are commonly used by individuals recovering from injury or surgery, those with balance problems, the elderly, and people with certain medical conditions that affect mobility. They require stability and support, helping the user to maintain their freedom of movement in a comfortable position to reduce the risk of falling. The purpose is to help patients, especially Geriatric rehabilitation, and Amputee rehabilitation. This product is improved by adding an armrest to make it easier for stooped people to use it and changing the height adjustment method more easily. The actuator can lift up to 150 mm and took about 13 to complete the movement and uncomplicated by just using a 6-pin button switch and a linear actuator. This project can facilitate patients who need a walking frame that may incorporate advanced design features, such as lightweight materials, ergonomic handles, and better maneuverability, leading to better mobility for the user. It can be equipped with walking aids with sensors that can analyze the type of terrain (uneven surfaces, stairs, etc.) and adjust the assistance settings to provide optimal support and stability. We have performed an analysis on an elderly person to test our product, we have tested our product on walking and the sustainability of our walking aid, and because of our test, we found that the body posture of a bent subject can be straightened. In conclusion, the results of the analysis and discussions that have been conducted that this product has achieved the objectives that have been discussed.

Keyword: Keywords: walking aid, rehabilitation, help, linear actuator, body posture

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SMART WALKING AID

ABSTRACT

Walking frames are commonly used by individuals recovering from injury or surgery, those with balance problems, the elderly, and people with certain medical conditions that affect mobility. They require stability and support, helping the user to maintain their freedom of movement in a comfortable position to reduce the risk of falling. The purpose is to help patients, especially Geriatric rehabilitation, and Amputee rehabilitation. This product is improved by adding an armrest to make it easier for stooped people to use it and changing the height adjustment method more easily and uncomplicated by just using a 6-pin button switch and a linear actuator. This project can facilitate patients who need a walking frame that may incorporate advanced design features, such as lightweight materials, ergonomic handles, and better maneuverability, leading to better mobility for the user. It can be equipped with walking aids with sensors that can analyze the type of terrain (uneven surfaces, stairs, etc.) and adjust the assistance settings to provide optimal support and stability. We have performed an analysis on an elderly person to test our product, we have tested our product on walking and the sustainability of our walking aid, and because of our test, we found that the body posture of a bent subject can be straightened. In conclusion, the results of the analysis and discussions that have been conducted that this product has achieved the objectives that have been discussed.

Keywords: walking aid, rehabilitation, help, linear actuator, body posture

OBJECTIVE

- Multi-functional frame design with safety features
- Innovative solutions for the elderly, those with chronic knee problems, acute injuries and stooped posture.
- The walking frame design is easy to adjust without external help

PROBLEM STATEMENT

- Non-adjustable frames can pose a challenge to the patient.
- Those with a hunched posture struggle with conventional walking frames.
- The welfare home has difficulties in caring for the elderly at the same time.

NOVELTY/ ORIGINALITY

- MYIPO Number
- New Innovations Concept Idea

APPLICATION

1.Height Adjustment:
The smart walking aid adjusts height with four actuators and a user-friendly rocket switch, ensuring simplicity for users of different heights.
2.Sturdy and Mobile:
Designed for stability, the aid's robust frame and front wheel offer both safety and maneuverability.
3.Comfortable Design:
Additional armrests increase user comfort, and also provide a comfortable resting place with the seat.
4.Efficient Control:
Powered by a 12V battery, the walking aid's wiring and rocket switch 6 pin allow effortless height adjustment control.

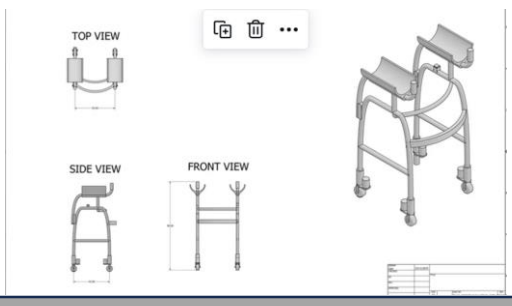
MARKET POTENTIAL

Elderly individuals who are in a welfare home:
Adjustable height accommodates diverse preferences for a personalized walking experience.
- "RUMAH SERI KENANGAN CHERAS"

Rehabilitation Patients:
Adjustable height aids healthcare professionals in tailoring devices to patients' recovery needs.
- "KLINIK SITI NOOR HAJAR"

PRODUCT DESCRIPTION

Walking Aid: Main frame providing support for the user
Linear Actuators: - Enable height adjustment
- Actuators are powered by a 12V battery
Battery: 12V battery providing power for the linear actuators.
- Housed in an acrylic box for protection.
Rocker Switch 6 Pin: Control switch for activating the linear actuators.
Arm Rest: As an additional user support and comfort.
Wheel: Front wheel for ease of movement for users.
Acrylic Box: - Holds and protects the 12V battery



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ROLLING LADDER WITH SAFETY BRAKE

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Abstract

This idea aims to revolutionise workplace safety and efficiency by building an abstract mobile ladder outfitted with a cutting-edge safety braking system. The present issue of inadequate safety measures on typical rolling ladders, which leads to an increased risk of accidents and injuries, needs a comprehensive solution. The goals include the creation of a ladder with better safety features and operation, thorough testing to evaluate the efficiency of the safety brake, and an evaluation of ergonomic design for user comfort. The impact of this breakthrough is enormous, promising to significantly reduce workplace accidents, improve employee well-being, and promote productivity. Suggested enhancements include investigating sensor-based safety measures, lightweight materials for increased portability, and other user-friendly features. Finally, this abstract rolling ladder offers a significant development in workplace safety requirements, providing a secure and efficient solution withthe potential for further advancement.

Keyword: Safety Brake, Sensor, workplace safety

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MOHAMAD NUQMAN ARIEF BIN MOHAMAD ZAIB

MUHAMMAD FITRI BIN ZABANI

ABSTRACT

The rolling ladder with a safety brake is an innovative project designed to improve usability and safety. Its features, including horizontal and vertical movement, storage space, and ultrasonic sensors, prioritize user experience and safety, potentially enhancing productivity. The project's detailed planning reflects a commitment to efficiency and systematic development, aligning with the broader economic belief in the transformative power of technological innovation.

OBJECTIVE

- To design the ladder with ergonomic principles in mind, reducing physical strain and enhancing user comfort during elevated work.
- To create a ladder that uses a mechanical system to move both horizontally and vertically.

PROBLEM STATEMENT

- Wasting time and energy to move the ladder while on work (going up and down repeatedly to position the ladder)
- Lack of space to keep things on the ladder.
- Traditional ladders do not have sufficient safety features, increasing the risk of accidents and injuries when working at height.

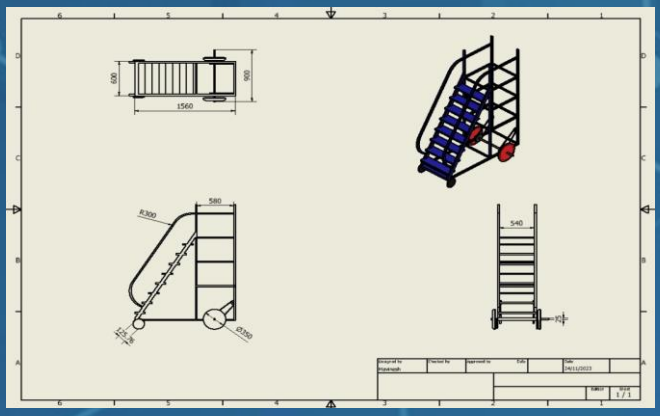
NOVELTY/ORIGINALITY

MYIPO number - LY2022W04937

MARKET POTENTIAL

- Rolling ladders with safety brakes are often utilized in industrial and commercial situations where employees need to access elevated places. This comprises warehouses, factories, retail areas, and other structures. The demand for such ladders is frequently linked to the expansion of these sectors.

PRODUCT DESCRIPTION



APPLICATION

WEIGHT [kilogram]	DISTANCE [meter]	TIME [seconds]
60kg	20m	43s
80kg	20m	67s
100kg	20m	111s

This ladder serves to shorten the time of the worker as someone goes down and moves the ladder, causing the working time to be shortened. Our stairs can be controlled from a smartphone app. In addition, this ladder can store items when working, such as spanners, screwdrivers, paint cans, and so on.

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Abstract

A waste bin, typically crafted from materials like metal or plastic, serves as a temporary storage space for solid waste. Positioned in specific areas where people can conveniently dispose of items such as fruit peels, bottles, empty cans, or plastic food containers, some bins come equipped with a top cover to contain unpleasant odors. The manual opening of conventional trash cans poses an issue due to the potential presence of bacteria on their surfaces, discouraging users. Additionally, when these bins reach full capacity without prompt action for garbage collection, overflow occurs, leading to environmental untidiness. Addressing these challenges, the Smart Trash Can was introduced. This innovative solution features an automated lid that opens and closes when users wish to discard waste. Notifications alert users when the bin reaches full capacity. Developed with IoT technology, this automated trash can system minimizes direct contact with the lid, reducing the risk of bacterial exposure. Consequently, this smart waste management solution aims to decrease excessive waste, encouraging users to maintain cleanliness in their surroundings and prioritize personal hygiene.

Keyword: IoT,Blynk,LCD screen,bin

PERTANDINGAN PROJEK AKHIR PELAJAR DAN PAMERAN INOVASI

POTEC 5

SESI 1:2023/2024

6 Disember 2023 | Dewan Al Jazari PSA

INNOVATION • ACCELERATES • TRANSFORMATION TVET

DEVELOPMENT OF INTELLIBIN

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ABSTRACT

A waste bin, typically crafted from materials like metal or plastic, serves as a temporary storage space for solid waste. Positioned in specific areas where people can conveniently dispose of items such as fruit peels, bottles, empty cans, or plastic food containers, some bins come equipped with a top cover to contain unpleasant odors. The manual opening of conventional trash cans poses an issue due to the potential presence of bacteria on their surfaces, discouraging users. Additionally, when these bins reach full capacity without prompt action for garbage collection, overflow occurs, leading to environmental untidiness.Addressing these challenges, the Smart Trash Can was introduced. This innovative solution features an automated lid that opens and closes when users wish to discard waste. Notifications alert users when the bin reaches full capacity. Developed with IoT technology, this automated trash can system minimizes direct contact with the lid, reducing the risk of bacterial exposure. Consequently, this smart waste management solution aims to decrease excessive waste, encouraging users to maintain cleanliness in their surroundings and prioritize personal hygiene.

OBJECTIVE

i. To create a prototype for an intelligent waste bin (Intellibin).
ii. Lid automatically opens when it detects someone disposing of trash.
iii. The alarm will sound when the trash bin is full, and the cleaners will receive a notification through the designated application to collect the waste.

PROBLEM STATEMENT

i. Opening the lid of the dustbin always results in getting hands dirty.
ii. Even when the dustbin is full, nobody is willing to empty it.

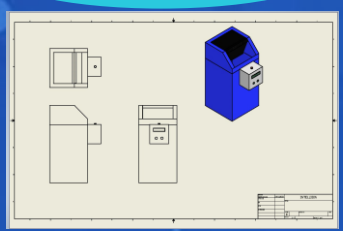
NOVELTY/ORIGINALITY

i. Wi-Fi wireless technology connects our intellibin to transmit data. Through the blynk app, the connectivity enables our trash cans to interact with the phone.Additionally, our intellibin has an LCD screen that shows the amount of trash inside the intellibin.

MARKET POTENTIAL

Progress in sensor technology, the Internet of Things (IoT), and artificial intelligence has paved the way for the creation of intelligent waste bins. These bins can autonomously gauge waste levels, issue notifications when full, and are particularly well-suited for communal spaces like apartments.

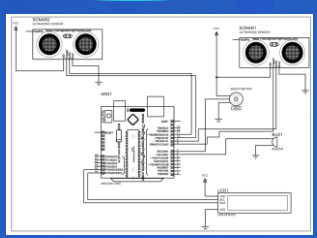
PRODUCT DESCRIPTION



i. Brief explanation on the product development / process .

1. Our intellibin is equipped with an ultrasonic sensor to detect the presence and type of trash. This sensor can also detect when the trash can is full.
2. Our intellibin are connected using Wi-Fi wireless technology to send data. The connectivity allows our trash cans to communicate with the telephone through the blynk application
3. The microcontroller or arduino uno is responsible for processing sensor data and making decisions based on certain algorithms. It also manages communication and other devices and controls the various functions of the intellibin.
4. Our intellibin use batteries as an energy supply to operate.
5. When our intellibin reaches a maximum level, the cleaner will get a notification. This feature can help in effective trash collection and the necessary maintenance.

APPLICATION



Sensors in smart dustbins can detect the fill levels of waste containers in real-time. This information can be used to optimize waste collection routes, ensuring that collection trucks visit bins only when they are nearing full capacity.

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ABSTRACT

COMMERCE DEPARTMENT

UNEE-T APPLICATION

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ABSTRACT

Volunteering encompasses sincerely and voluntarily planned activities, programs, or services. Organizations seeking volunteers allocate resources to manage and publicize these activities, yet potential volunteers often struggle to find suitable registration platforms. This project aims to address this gap by employing the design thinking method to design and develop an application facilitating the promotion and registration for volunteering programs. The application promises time efficiency and convenience, enabling individuals to easily join volunteering activities at their fingertips, anytime and anywhere. As the public increasingly adopts volunteering applications, a surge in volunteers is expected, resulting in a significant positive impact on individuals, communities, and society. Through a post survey conducted among 35 extreme users, a mean of 4.54 shows that volunteer's mobile application helps them to search and join volunteering activities while the same mean value of 4.54 shows that volunteers will download and use this application to join volunteering activities in the future. This aligns with the nation's agenda to cultivate the volunteerism particularly among the youth as per stated by Prime Minister Anwar Ibrahim in 2024 budget allocation. Through ongoing enhancements to features and reliability, the goal is for the application to evolve into a centralized mobile platform for volunteering. In the global pursuit of the United Nations' 17 Sustainable Development Goals (SDGs), volunteers play a pivotal role, and this mobile application is positioned to be a crucial tool in advancing the movement of volunteerism, supporting their considerable and enduring commitments to provide assistance.

Keywords: volunteerism, applications, youth, volunteers

UNEE-T APPLICATION

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Supervisor

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ABSTRACT

Volunteering encompasses sincerely and voluntarily planned activities, programs, or services. Organizations seeking volunteers allocate resources to manage and publicize these activities, yet potential volunteers often struggle to find suitable registration platforms. This project aims to address this gap by employing the design thinking method to design and develop an application facilitating the promotion and registration for volunteering programs. The application promises time efficiency and convenience, enabling individuals to easily join volunteering activities at their fingertips, anytime and anywhere. As the public increasingly adopts volunteering applications, a surge in volunteers is expected, resulting in a significant positive impact on individuals, communities, and society. Through a post survey conducted among 35 extreme users, a mean of 4.54 shows that volunteer's mobile application helps them to search and join volunteering activities while the same mean value of 4.54 shows that volunteers will download and use this application to join volunteering activities in the future. This aligns with the nation's agenda to cultivate the volunteerism particularly among the youth as per stated by Prime Minister Anwar Ibrahim in 2024 budget allocation. Through ongoing enhancements to features and reliability, the goal is for the application to evolve into a centralized mobile platform for volunteering. In the global pursuit of the United Nations' 17 Sustainable Development Goals (SDGs), volunteers play a pivotal role, and this mobile application is positioned to be a crucial tool in advancing the movement of volunteerism, supporting their considerable and enduring commitments to provide assistance.

PROBLEM STATEMENT

There is no centralized platform for volunteers to search for and join volunteer activities. Additionally, there is a notable absence of volunteering applications based in Malaysia in the Google Play Store. 88.2% of 34 pre-survey respondents have never seen a volunteering application in play store.

OBJECTIVES

- To design an application that allows volunteer to easily access volunteering activity.
- To develop an application that can be used to promote and register into volunteering programs.
- To evaluate the usage of the application among volunteers and various organisation.

MARKET POTENTIAL

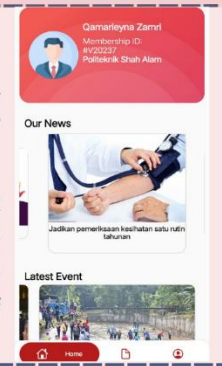
UNEE-T offers benefit to various stakeholders including volunteers, organizations, institution and government agencies

Statement	N	Min	Max	Mean	Standard Deviation
This volunteer's mobile application helps me to search and join volunteering activity.	35	4	5	4.54	0.505
I will download and use this application to join volunteering activities in the future.	35	3	5	4.54	0.657

PRODUCT DESCRIPTION

UNEE-T volunteering application allows the user to use this application as 'Individual' or 'Organizer' based on their need.

As an individual, users can look for the latest volunteering activities and opt to join any event, hassle-free. As an organiser, users can publish the volunteering events that are being organized and stay up to date with the number of volunteers joining the event.



APPLICATION

UNEE-T volunteering application can be used by both volunteers and organiser. Volunteers can use it to search and join into volunteering activities. While organiser can use it to promote and publish volunteering event.

ORIGINALITY

This is the first volunteer application based in Malaysia that provides details on how to join volunteer activities and helps organiser to update volunteer activities that are organise by them.

TAMA PASTE

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Abstract

Since 2018, the disposal of eggshell waste has increased and reached 8.58 million metric tons in landfills and is not managed well. The effect can contribute to pollution such as water and air. The goal of this project is to develop a paste that can reduce eggshell waste by recycling eggshells into new products. The Design Thinking Method was used for this project. Eggshells are a rich source of calcium carbonate, that is difficult to decompose. Therefore, with this eggshell innovation, it can solve the issue of excessive food waste thrown into the environment and it will benefit the industry in several ways. However, there is still need an improvement for the future. To confirm the product durability such as moldy or too difficult to form, further observation on the condition of the product in long period of time should be done.

Keywords: eggshells, paste, recycle, landfill, design thinking method,

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TAMA PASTE

ABSTRACT

Since 2018, the disposal of eggshell waste has increased and reached 8.58 million metric tons in landfills and is not managed well. The effect can contribute to pollution such as water and air. The goal of this project is to develop a paste that can reduce eggshell waste by recycling eggshells into new products. The Design Thinking Method was used for this project. Eggshells are a rich source of calcium carbonate, that is difficult to decompose . Therefore, with this eggshell innovation, it can solve the issue of excessive food waste thrown into the environment and it will benefit the industry in several ways. However, there is still need an improvement for the future. To confirm the product durability such as moldy or to difficult to form, further observation on the condition of the product in long period of time should be done.

OBJECTIVES

-To develop a paste made from eggshells to reduce eggshell wastage.

-To implement and analyse product durability

-To identify the capabilities and usefulness of Tama paste.

PROBLEM STATEMENT

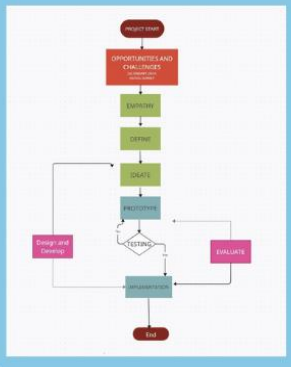
- Most of the eggshell waste is frequently disposed of in landfills without prior treatment.
- Eggshell is considered a harmless natural solid waste, the organic protein matrix may attract rats and worms, which could be harmful to the public.

DOH Shu Ing, CHIN Siew Choo (2014)

ORIGINALITY

Tama Paste is a new and innovative idea that has not been widely explored or implemented before. It was a creative and innovative approach to problem-solving, which led to the unique solution that is Tama Paste by giving users a new and different experience than what they have encountered before

PRODUCT DESCRIPTON



MARKET POTENTIAL

APLICATION

TAMA PASTE CAN BE MADE INTO

- JEWELRY HOLDER
- KEYCHAIN
- VASE
- PENCIL HOLDER

NYAMAN SCENT CAR AIR FRESHENER

NISA IRDINA BINTI AZMAN, ALIA NAJIHAH BINTI ZUL AZRI, AINA NATASYA BINTI ROSLAN, MUHAMMAD AIDIL BIN JUMARI And NOORLAILI MOHD KASSIM
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Abstract

Car air fresheners have evolved beyond their utilitarian origins, now serving as an important accessory that not only neutralises odours but also adds a touch of personalization to the vehicle's interior. In these days, car air freshener in current market is not suitable price. The reason why car air freshener in current market is pricey because it contains luxury ingredient such as chemical synthetic and others. The main objective of this project is to implement a range of natural and authentic fragrances derived from natural essential oils and to design a longer-lasting fragrance compared to traditional air freshener. Our air freshener contains natural and refreshing ingredients also formulated with essential oils and other natural ingredients that are believed to have therapeutic benefits, such as coconut oil, calamansi skin, and peppermint leaves are all known for their pleasant and aromatic qualities. With this combination of ingredients, our air freshener is likely to provide a rejuvenating and invigorating scent profile, perfect for creating a fresh and pleasant ambiance in a car and various spaces. Our car air fresheners also can be used in other places besides cars, such as bedroom, living room, classroom, office, and others, as long you enjoy the scent and find it suitable for the intended space. According to the questionnaires we collected, the majority of them claim that the car air freshener they bought does not last long. As a result, most of them replace the car air freshener every two to three months. This occurs because the car air freshener's components are of low-quality and use a lot of chemicals. Based on our findings, we were able to produce a chemical-free automotive air freshener with a longer scent life. We make our product using natural ingredients to ensure that our customers feel safe using it.In conclusion, the purpose of this project is to develop and introduce a car air freshener that minimises its impact on the environment throughout its entire lifecycle. Ensuring that the eco-friendly car air freshener not only benefits the environment but also contributes to a healthier and enjoyable driving experience for users.

Keywords: Car Air Freshener, Natural ingredients

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NYAMAN SCENTS: ESSENTIAL OIL CAR AIR FRESHENER

Nyaman scent is a car air freshener that made from natural ingredients. We created this as natural or eco-friendly alternatives to provide pleasant fragrance and eliminate odours without using synthetic chemicals or potentially harmful ingredients. The purpose of this project is to help everyone that have cope with unpleasant odors. Aside from its olfactory appeal, Nyaman Scent offers user-friendly features such as a versatile and compact appearance that blends effortlessly into diverse car interiors. Because of its durability and continuous performance, the product is a dependable companion for everyday commutes, long excursions, and road trips.

OBJECTIVES

- To implement a range of natural and authentic fragrances derived from natural essential oils.
- To design a longer-lasting fragrance compared to traditional air freshener.

PROBLEM STATEMENT

- In current market the price is not suitable
- Most of the product in market use chemical ingredient
- Most of the air freshener are not long-lasting

PRODUCT DESCRIPTION

Our group used the design method to create the Nyaman Scent product, a car air freshener with essential oil based on natural ingredients including coconut oil, mint leaves, and calamansi lime and using a soft wood block material as the place to put the essential oil, the design is compact and portable. The product's natural components offer numerous benefits to both the consumer and the environment.

ORIGINALITY

- Environmental factors
- Unique formulations and fragrances
- Design and packaging

APPLICATION

Our car air fresheners are designed to be versatile and usable anywhere and everywhere not only in the vehicle but also in various environments such as homes, offices, or any personal space

POTENTIAL MARKET

- Students
- Office Workers
- Individual that owns car
- Individual that love the scent of refreshing
- Individual that faced odour problem

COLORS OF EMOTION GAME

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Abstract

This project focuses on children demonstrating a spectrum of emotions in social circumstances at an early age. Emotions and emotional competencies are critical to positive social and academic outcomes; students need to recognize, differentiate, and adaptively regulate their emotions to ensure the best opportunity for learning (Dell'Angela et al., 2020). Whether for children who are beginning to develop emotionally or advancing their emotional development, engaging in cognitive development activities can benefit emotional development. As children's cognitive development progresses, they can distinguish their own and others' emotions, as well as the situations that contribute to their manifestation. In turn, this emotional knowledge enables youngsters to monitor and regulate their emotions to cope with unpleasant situations. Furthermore, we will continue this exploration by examining the emotions elicited by the act of playing Colors of Emotion Game that are designed for children who struggle to comprehend and convey their feelings to those other than their own. As a result, the goal of this study is to investigate the children experience emotions and provide support for the big emotions. Acknowledge the emotions and empathize with the child, knowing that no emotion is too small to substantiate with the intent to support children in developing and discovering emotion.

Key Words: emotion, children, game, emotion development

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Nama ahli kumpulan 1: Nur Azizah Binti Mohd Nasir (08DPM21F1100)

Nama ahli kumpulan 2: Puteri Nuralyaa Balqis Binti Akbol @ Aman (08DPM21F1116)

Nama ahli kumpulan 3: Nurin Shafina Binti Shahlizal (08DPM21F1108)

Nama Penyelia: Puan Ruzanna Binti Jubaidi

PENYELIA

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AHLI KUMPULAN

NURIN SHAFINA BT HIPNI SHAHLIZAL

08DPM21F1108

COLORS OF EMOTION GAME

Colors of Emotion is an innovative product specially designed for children to overcome difficulties in expressing their emotions. The goal of this study is to help the children to develop and express their emotions and provide support for the children in identifying emotions. Thus, we hope that the creation of our board game will help the kids in understanding their emotions.

PROBLEM STATEMENT

Difficulties in effectively expressing emotions

Kids haven't yet learned to identify emotions

OBJECTIVE

To design and develop COLORS OF EMOTION GAME

To evaluate and implement COLORS OF EMOTION GAME more fun and effective

NOVELTY

Kids emotional intelligence development game inspired by dart game

Combination of board and card games

MARKET POTENTIAL

Kids who have difficulties in expressing their feelings

Age range: 7-11 years old

APPLICATION

Children

Scan me

Application video

73

PRODUCT IMAGE

SAFETY KEYCHAIN DEVICES WITH CONCEALED DESIGN

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Abstract

This project focuses the escalating issue of personal safety for female in Malaysia, from simple crime such as snatching to threatening crime such as sexual crimes. Existing self-defence products in the Malaysian market suffer from limited availability, product malfunction, and ostentatious design, making them inconvenient and expensive. Methodology process that was used in the project is design thinking. The project's objective is to innovate an affordable, multifunctional safety device with a concealed feature, intuitive operation, and covert alert. From the survey, results showed that this product is necessary in daily life. For future improvement, the product need to be made louder, lighter and smaller in size as suggested by respondents. Additionally, collaboration with law enforcement for enhanced emergency notifications is considered. The project aims not only to provide a tangible solution but also to instil security and confidence, enabling students especially females to navigate their educational environments fearlessly. In conclusion, our project strives to innovate personal safety for students in Malaysia, creating a discreet, multifunctional protective device to support SDG-16, peace, justice and strong institutions.

Keyword: safety, self-defence, concealed, multifunctional.

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ANJEON KEYCHAIN

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TEAM MEMBER 1
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031021-10-0409

TEAM MEMBER 2
THINESWARRMOORTHY A/L NARAYANAMOORTHY
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TEAM MEMBER 3
MUHAMMAD AZMIL BIN ARZIMI
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(030415-08-1437)

ABSTRACT

The project aims to improve personal safety for females in Malaysia by creating an affordable, multifunctional safety device with concealed features, intuitive operation, and covert alert. The design thinking methodology will be used to improve product availability, durability, and affordability. Collaboration with law enforcement will enhance emergency notifications. The project supports SDG-16, peace, justice, and strong institutions. Respondents stated that this kind of product is hardly can be seen in the market and suggested that the product to be louder, lighter, and smaller in size. It implied that there is room for improvement . Intangible solution such as instill security and confidence, enabling females to pursue their ambition without barriers.

PRODUCT DESCRIPTION

ANJEON KEYCHAIN

- Safety keychain with concealed design
- Pepper spray, alarm and GPS tracker
- Handy in any threat of crimes
- 3D printer was used and the material is polylactic acid.

OBJECTIVES

- To design and develop a personal safety solution with a concealing design.
- To develop a simple user interface for defense purpose with pepper spray.
- To implement and evaluate the functionality of daily life safety accessory with feature to ward off perpetrator, covert alert and self activating personal alarm.

PROBLEM STATEMENT

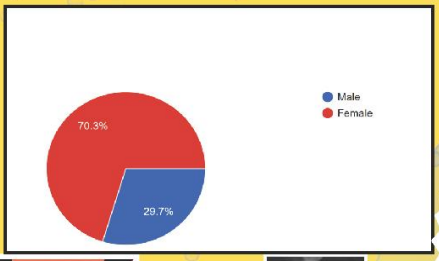
- Safety devices that lacks of multifunction and design.
- Daunting personal safety cases related to females

ORIGINALITY

Product that carries surprise element to ensure safety of the user with a unique design integrating personal safety alarm to activate during a potential threat situation, GPS that locates the movement of the user and pepper spray to ward off perpetrator.

APPLICATION

To all women that might in the face of threat relating to potential crime or danger.



POTENTIAL MARKET

Executive Women

https://anjeonkeychain.my.canva.site/

MOVABLE RUBBISH DETECTOR (MR. CLEANY)

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Through this day, littering has become one of the environmental issues and it leaves a big impact on the environment. Various steps have been implemented to ensure that the cleanliness of the environment is attained. However, littering is still a proximate cause of corruption in environment cleanliness as a lack of civic consciousness especially among students. The objective is to design and develop a rubbish detector to reduce the amount of rubbish in the environment. Furthermore, to implement a new smart rubbish bin feature and analyse user feedback and performance metrics to assess its impact on user experience. Moreover, the objective of this product is to implement garbage disposal practices. The design thinking method was utilised to develop a solution that may be used as a learning aid to assist teachers in educating youngsters about littering. A survey was conducted and the results indicate a significant potential for commercialising the movable rubbish detector. The impacts of this product cultivate a heightened environmental awareness among children. Besides, the robot serves as a hands-on learning aid, as the sound of the buzzer triggers children to associate picking up litter, instigating behavioural change. One of the improvements to consider is incorporating gamification elements into this product for children's experience. By turning waste collection into a game with rewards or points, it can make the learning process more enjoyable. In conclusion, the movable rubbish detector is a key resource in creating a more resilient future to improve littering issues and support environmental sustainability.

Keywords: Childhood education, Teaching and Learning aid.

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MOVABLE RUBBISH DETECTOR (MR. CLEANY)

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SUPERVISOR

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MELLYANA LISTYA BT AHMADDIN
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NATRADEWITA BT HASROL
08DIN21F1030

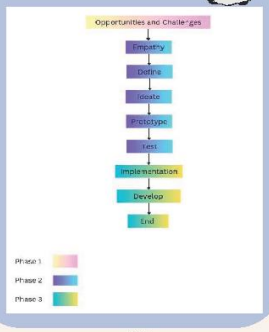
SOPHIA LENTIE ANAK DATU
08DIN21F1038

ABSTRACT

Through this day, littering has become one of the environmental issues and it leaves a big impact on the environment. Various steps have been implemented to ensure that the cleanliness of the environment is attained. However, littering is still a proximate cause of corruption in environment cleanliness as a lack of civic consciousness especially among students. The objective is to design and develop a rubbish detector to reduce the amount of rubbish in the environment. Furthermore, to implement a new smart rubbish bin and analyse user feedback and performance metrics to assess its impact on user experience. Moreover, the objective of this product is to implement garbage disposal practices. The design thinking method was utilised to develop a solution that may be used as a learning aid to assist teachers in educating youngsters about littering. A survey was conducted and the results indicate a significant potential for commercialising the movable rubbish detector. The impacts of this product cultivate a heightened environmental awareness among children. Besides, the robot serves as a hands-on learning aid, as the sound of the buzzer triggers children to associate picking up litter, instigating behavioural change. One of the improvements to consider is incorporating gamification elements into this product for children's experience. By turning waste collection into a game with rewards or points, it can make the learning process more enjoyable. In conclusion, the movable rubbish detector is a key resource in creating a more resilient future to improve littering issues and support environmental sustainability.

Keywords: littering , movable rubbish detector, childhood education, teaching and learning aid.

METHODOLOGY



OBJECTIVE

1. To design and develop a rubbish detector to reduce the amount of rubbish in the environment.
2. To implement a new smart rubbish bin and analyze user feedback and performance metrics to assess its impact on user experience.
3. To implement garbage disposal practices.

MARKET POTENTIAL

- Educational institution
- Primary school
- Kindergarten
- NGO Organizations

APPLICATION

The application of movable rubbish detector to children could involve incorporating the device into educational activities. For example, it could be used in interactive games or projects that encourage children to identify and properly dispose of litter.

PRODUCT DESCRIPTION

APP

- Bluetooth : Can connect to any Android devices
- Sensor : Can detect rubbish within 15cm
- Buzer : To aware people in the surrounding to pick up the rubbish
- Rubbish bin : Push button bin
- Design : Small and convenient
- Tyres : Movable
- App : To control the movable rubbish detector

PROBLEM STATEMENT

Various steps have been implemented to ensure that the cleanliness of environment is attained. However, littering issue is still a proximate cause of corruption in environment cleanliness as lack of civic consciousness especially among student.

ORIGINALITY

There are a lot of movable rubbish bin that is sold in the market. What makes our product different is the sensor and the buzzing sound that is used as a teaching aid to create more awareness to the children since early age.

RESULT

No	Question	Strongly Disagree	Disagree	Slightly Agree	Agree	Strongly Agree
1	What is your first reaction to the product	-	-	12.8%	28.2%	59%
2	This product is innovative	-	-	10.4%	20.3%	61.3%
3	This product is something you need	-	5%	15%	27.5%	24.6%
4	This product has a potential for commercializing	-	2.5%	15%	27.5%	55%
5	This type of product has been commercial in the market	20.5%	15.4%	20.5%	10.3%	33.3%
6	I am interested in this product	-	-	10.3%	33.3%	56.4%
7	It is a quality product	-	-	12.8%	30.8%	56.4%
8	The performance of the product is outstanding	-	2.6%	10.3%	35.9%	51.3%
9	I would buy this product	2.6%	7.7%	12.8%	30.8%	46.2%

55% respondents agree that the product can be commercialized

B-CLEANING (BATHROOM CLEANING SERVICE)

Muhammad Danish bin Hamizul, Siti Wardina Syafiyyah binti Rahmat,
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Abstract

A clean bathroom is crucial for maintaining hygiene, preventing the spread of germs andcreating comfortable environment. It contributes to personal well-being and ensures a healthier a living space. However, the prevalent sentiment of lethargy among individuals who express reluctance to clean their bathroom due to perceived time consuming efforts coupled with the frustration of achieving cleanliness that meet the hygiene standard and the frenetic pace of T20 households income find themselves ensnared in a paradox, a genuine desire to maintain a pristine bathroom amidst the relentless busyness that leaves little time for cleaning poses a significant challenge. Therefore this study attempts to evaluate the bathroom cleaning service and to determine the level of customer purchase intention towards the service among residents in Shah Alam .This study uses descriptive analysis, which offers a quantitative summary that enables a thorough comprehension of each variable. A random sample methodology is used to choose a subset of respondents from the target population, and a QR code act as the data collection tool. The findings indicate that there was a positive correlation between customer purchase intention and this service. By investing in high quality equipment, we believe that it can give direct impact on increasing productivity of this service. Hence, the result suggest BCleaning service may be a good bathroom cleaning service that would benefit the society.

Keyword: B-cleaning, Addie Model, purchase intention, service

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PUAN AZLIDA BINTI ABDULLAH		SUPERVISOR
MUHAMMAD IRSYAD ILHAM BIN NOOR ZAMZURY	08DPI21F1071	GROUP LEADER
MUHAMMAD DANISH BIN HAMIZUL	08DPI21F1073	GROUP MEMBER
SITI WARDINA SYAFIYYAH BINTI RAHMAT	08DPI21F1051	GROUP MEMBER
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B-CLEANING (BATHROOM CLEANING SERVICE)

ABSTRACT

A clean bathroom is crucial for maintaining hygiene, preventing the spread of germs and creating comfortable environment. It contributes to personal well-being and ensures a healthier a living space. However, the prevalent sentiment of lethargy among individuals who express reluctance to clean their bathroom due to perceived time consuming efforts coupled with the frustration of achieving cleanliness that meet the hygiene standard and the frenetic pace of T20 households income find themselves ensnared in a paradox, a genuine desire to maintain a pristine bathroom amidst the relentless busyness that leaves little time for cleaning poses a significant challenge. Therefore this study attempts to evaluate the bathroom cleaning service and to determine the level of customer purchase intention towards the service among residents in Shah Alam .This study uses descriptive analysis, which offers a quantitative summary that enables a thorough comprehension of each variable. A random sample methodology is used to choose a subset of respondents from the target population, and a QR code act as the data collection tool. The findings indicate that there was a positive correlation between customer purchase intention and this service. By investing in high quality equipment, we believe that it can give direct impact on increasing productivity of this service. Hence, the result suggest B- Cleaning service may be a good bathroom cleaning service that would benefit the society.

OBJECTIVES

- To evaluate bathroom cleaning service
- To determine the level of customer purchase intention towards the service

ORIGINALITY

- B-Cleaning differentiates itself by carefully combining innovative cleaning technologies with environmentally friendly products, ensuring not only a clean environment but also an attention to sustainability.

SERVICE DESCRIPTION

DEEP CLEANING (RM 25/HOUR)

MOLD & STAIN CLEANING (RM 20/HOUR)

POST-RENOVATION CLEANING (RM 30/HOUR)

METHODOLOGY

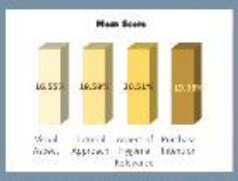
PROBLEM STATEMENT

- Career woman had no time to do housechores due to busy schedules
- T20 household income usually want to save time to prioritize important matter

MARKET POTENTIAL

- T20 Households
- Busy Homeowner

RESULTS



- This study use descriptive analysis to quantify mean values as an effective approach for evaluating variables such as visual aspect, tutorial approach, hygiene relevance and purchase intention

THE DEVELOPMENT AND EVALUATION OF BC BASKET USING ADDIE MODEL

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Abstract

BC Basket is a simplification of the bottle cap basket which is a product created from recycled bottle caps to reduce plastic waste in landfills. Plastic is the third most common waste in the world as it is widely used in the packaging industry due to its versatility characteristics. Finding from the exploratory survey shows that, in the Klang Valley most plastic waste endsup in landfills due to low awareness on plastic recycling and its negative impact on environment. Furthermore, the high use of plastic especially ready-to-eat foods and beverages, also contributed to high plastic waste. The first objective of this study is to design and develop the multipurpose basket using recycled bottle caps and the second objective is to determine the level of purchase intention to purchase BC Basket among Klang Valley Consumers. A self-administered questionnaire was distributed among Klang Valley users using Google form and data from 312 respondents were used for descriptive analysis. The design and the color of the product is very attractive because various color bottle caps are used to create different design, sizes and multi function. Use ADDIE model method throughout the process from generating ideas to the final products. Most respondent agree that the product has visual aspects, applicability and they are ready to buy it. This product is accepted by Klang Valley users because it is able to reduce the plastic waste in the future.

Keyword: Plastic waste, environment, recycle,

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BC BASKET: MULTIPURPOSE BASKET

PUSHPALATHA A/P APPANAIDU
(PENYELIA)

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08DPI21F1058
(KETUA KUMPULAN)

SITI AISYAH BINTI MAZLAN
08DPI21F1053
(AHLI KUMPULAN 1)

NOR FAREENA TASYA BINTI ZANI
08DPI21F1052
(AHLI KUMPULAN 2)

AKMAL HARITH BIN AZMAN
08DPI21F1045
(AHLI KUMPULAN 3)

VEENA A/P PUVANANDARAN
08DPI21F1039
(AHLI KUMPULAN 4)

ABSTRACT

BC Basket is a simplification of the bottle cap basket which is a product created from recycled bottle caps to reduce plastic waste in landfills. Plastic is the third most common waste in the world as it is widely used in the packaging industry due to its versatility characteristics. Finding from the exploratory survey shows that, in the Klang Valley most plastic waste ends up in landfills due to low awareness on plastic recycling and its negative impact on environment. Furthermore, the high use of plastic especially ready-to-eat foods and beverages, also contributed to high plastic waste. The first objective of this study is to design and develop the multipurpose basket using recycled bottle caps and the second objective is to determine the level of purchase intention to purchase BC Basket among Klang Valley Consumers. A self-administered questionnaire was distributed among Klang Valley users using Google form and data from 312 respondents were used for descriptive analysis. The design and the color of the product is very attractive because various color bottle caps are used to create different design, sizes and multi function. Use ADDIE model method throughout the process from generating ideas to the final products. Most respondent agree that the product has visual aspects, applicability and they are ready to buy it. This product is accepted by Klang Valley users because it is able to reduce the plastic waste in the future.

OBJECTIVES

1. To design and develop a multi-purpose basket using bottle cap (BC Basket).
2. To determine the level of purchase intention to purchase BC basket among Klang Valley consumers.

PROBLEM STATEMENT

- Highly accessible to single use plastic
- Lack of awareness on plastic waste
- Insufficient knowledge on plastic recycling

MARKET POTENTIAL

- Housewife
- Students
- Art and craft collector : home
- Gift shops

ORIGINALITY

We proudly introduce BC BASKET, a groundbreaking innovation and the first of its kind in the Malaysian market. Crafted from recycled bottle caps, BC BASKET stands as a symbol of pioneering creativity and sustainability environment

PRODUCT IMAGE

TUTORIAL VIDEO

PORTABLE WHITEBOARD

NURFARZANA NAJWA BINTI ABDULLAH, MUHAMMAD ADAM BIN ZAPRUNNIZAM,
RABIATUL IRDINA BINTI HAMZAH, KRISSANTINI A/P BALAKRISHNAN,
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Abstract

RANK Stationery Sdn.Bhd is a business that is focused in selling whiteboards and other types of stationery products. RANK Stationery Sdn.Bhd, includes a whiteboard that can be folded, is lightweight, and is portable because it is special and lightweight, our device is referred to as a "portable whiteboard." The portable whiteboard offers enhanced flexibility and mobility, enabling dynamic interaction, brainstorming, and presentations in diverse settings such as offices, classrooms, and on-the-go work scenarios. The research explores the design features, usability, and benefits of the portable whiteboard, emphasising its role in fostering creativity, facilitating spontaneous idea sharing, and supporting interactive learning and collaborative work practices. The portable whiteboard's ability to optimise space, encourage creativity, and support agile collaboration makes it a valuable tool for professionals and educators seeking flexible and engaging work or learning environments.In conclusion, the portable whiteboard presents itself as a transformative solution catering to the evolving needs of dynamic work and educational environments. Its adaptability, spacesaving design, and ease of mobility offer unparalleled advantages for fostering collaboration, creativity, and interactive engagement.

Keywords : foldable, optimise space, cheaper

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SUPERVISOR'S NAME:

PUAN LILIS SERI YANA BINTI SIRUN

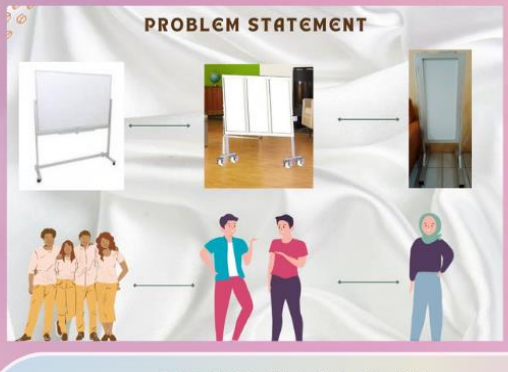
PORTABLE WHITEBOARD

ABSTRACT

A portable whiteboard is a whiteboard that can be easily moved and used in various situations. They are often used in classrooms, meeting rooms, and public presentations. The portable whiteboard enables the transfer of abstract ideas to concrete ideas and can be adapted to different sizes to meet different needs.

OBJECTIVE

- Produce a portable whiteboard with a stronger structure
- Innovate the whiteboard so that it can be used more efficiently
- Develop a whiteboard that is easy to store and carry anywhere



POTENTIAL MARKET

- Versatility and widespread usage in various sectors
- Adoption in education and corporate sectors
- A device provides an engaging and interactive learning experience and is convenient for business use.

ORIGINALITY

- New idea product
- Fit the customer's need because it is so convenient easy to carry

APPLICATION

- People who utilize the whiteboard in the job routine.
- Use for writing notes and information
- Sketching and realization of the design

PRODUCT DESCRIPTION

- People who utilize the whiteboard in the job routine.
- Use for writing notes and information
- Sketching and realization of the design

FOLDABLE DUO UMBRELLA

NAJIHAH HIDAYAH BINTI MOHD SAIDI, SARAH SAFIYYA BINTI EZAR SHUHAIRI, ISNA WARDANI BINTI MOHD ISA, NATASAAZIRA BINTI MUZAKIR, LEE WAY JIAN, MAZIHARITA BINTI MOHAMOOD
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Abstract

This Foldable Duo Umbrella was invented by Valens Kasa Sdn. Bhd. with various benefits. It is designed to be used for protection against rain and sunlight for more than one person, as it can provide a double surface area compared to a basic umbrella. Valens Kasa Sdn.Bhd. created a Foldable Duo Umbrella to solve problems such as monetary cost, limited coverage, and single use. Our characteristics for our Foldable Duo Umbrella are cost-saving, more coverage, and multifunction protection. The main objectives of the Foldable Duo Umbrella are to provide users with multipurpose benefits for protection against rain and sunlight and to introduce features such as an auto-fold mechanism is activated by a button and allows for easy opening and closing, making it quick and convenient to use. Our methodology is that our Foldable Duo Umbrella can be folded, allowing for easy portability. The size can be adjusted for one user and can be used by two or more people when needed. Our Foldable Duo Umbrella will be sold at RM40.00. We also provided an add-on exclusive box, a customized name, and a gift card. Questionnaires were distributed among the Polytechnic Sultan Salahuddin Abdul Aziz students, and the findings indicate that respondentsagreed that the Foldable Duo Umbrella has market potential. The product has a high potential in the market and is targeted at all different ages of customers. In future, the company plans to improve the material used for the holder by implementing carbon fiber as a substitute, making it more adjustable and lightweight. In conclusion, a foldable duo umbrella is an umbrella with new innovation that makes people's lives more convenient when using it.

Keyword: Foldable Duo Umbrella, Auto-fold mechanism, Protection, and Convenience.

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FOLDABLE DUO UMBRELLA

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NATASAAZIRA BINTI MUZAKIR
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SARAH SAFIYYA BINTI EZAR SHUHAIRI
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LEE WAY JIAN
08DPR21F1060

ABSTRACT

This Foldable Duo Umbrella was invented by Valens Kasa Sdn. Bhd. with various benefits. It is designed to be used for protection against rain and sunlight for more than one person, as it can provide a double surface area compared to a basic umbrella. Valens Kasa Sdn.Bhd. created a Foldable Duo Umbrella to solve problems such as monetary cost, limited coverage, and single use. Our characteristics for our Foldable Duo Umbrella are cost-saving, more coverage, and multifunction protection. The main objectives of the Foldable Duo Umbrella are to provide users with multipurpose benefits for protection against rain and sunlight and to introduce features such as an auto-fold mechanism is activated by a button and allows for easy opening and closing, making it quick and convenient to use. Our methodology is that our Foldable Duo Umbrella can be folded, allowing for easy portability. The size can be adjusted for one user and can be used by two or more people when needed. Our Foldable Duo Umbrella will be sold at RM40.00. We also provided an add-on exclusive box, a customized name, and a gift card. Questionnaires were distributed among the Polytechnic Sultan Salahuddin Abdul Aziz students, and the findings indicate that respondents agreed that the Foldable Duo Umbrella has market potential. The product has a high potential in the market and is targeted at all different ages of customers. In future, the company plans to improve the material used for the holder by implementing carbon fiber as a substitute, making it more adjustable and lightweight. In conclusion, a foldable duo umbrella is an umbrella with new innovation that makes people's lives more convenient when using it.

Keyword: Foldable Duo Umbrella, Auto-fold mechanism, Protection, and Convenience.

OBJECTIVE

- To modify and upgrade basic umbrella for a better use
- To make a umbrella quick and convenient to use

ORIGINALITY

What make our foldable duo umbrella unique is we has interactive designs which it has two various ways to use our umbrella. The main umbrella is used for one person, the second umbrella is used for more than two or more

MARKET POTENTIAL

- People who usually bring umbrella in their daily life
- People that using public transport such as lrt, bus, ktm and etc

PROBLEM

Limited coverage

Monetary cost

Single use

PROBLEM SOLVING

More coverage

Save cost

Multifunctional protection

PRODUCT DESCRIPTION

Two various way

Automatic button

Folding mechanism

Eco-Friendly

APPLICATION

This innovative umbrella can also help to save money as you got multifunctional umbrella

VALENS.KASA.UMFOR

VALENKASA

VALENSKASAOFFICIAL

PENGHARGAAN

Terima Kasih

→ DIUCAPKAN KEPADA PIHAK PENGANJUR, JAWATANKUASA PELAKSANA SERTA SEMUA PIHAK YANG TERLIBAT SAMA ADA SECARA LANGSUNG ATAU TIDAK LANGSUNG DALAM MENJAYAKAN PROGRAM.

BUKU PROGRAM DIGITAL

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Sila imbas qr code yang disediakan untuk mendapatkan buku program digital

http://tiny.cc/PITEC5

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