CREATIONS de UiTM

INTERNATIONAL MEGA INNOVATION CARNIVAL 2023

Fostering Innovation to Global Communities

LET'S CRAFT A BETTER WORLD TOMORROW!

ABSTRACT BOOK

20th MAY 2023

UNIVERSITI TEKNOLOGI MARA
CAWANGAN SELANGOR, KAMPUS DENGKIL
MALAYSIA

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CREATIONS de UiTM: INTERNATIONAL MEGA INNOVATION CARNIVAL 2023

ABSTRACT BOOK

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ABSTRACT BOOK/
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PROGRAM OVERVIEW

CREATIONS de UiTM: INTERNATIONAL MEGA INNOVATION CARNIVAL 2023 (CDU2023) is inspired by UiTM2025 Strategic Plan, which outlines the university's transformation to become a leading global university of science, technology, humanities, and entrepreneurship by 2025. Innovation development is crucial to gain knowledge, information, know-how, and technology, which could offer opportunities to the institution as well as the country to achieve the national development agenda. The implementation and diffusion of new ideas and talents, as well as their continual evolution, are critical in making innovation a major catalyst that can propel Malaysia five years ahead toward the status of a developed and high-income country.

In 2023, the Centre of Foundation Studies at UiTM Cawangan Selangor Kampus Dengkil once again assumes the responsibility of hosting an international innovation exhibition and competition following the success of a mega exhibition and innovation competition in previous years. With the theme "Fostering Innovation to Global Communities", CDU2023 provides a golden opportunity for innovators from all walks of life to showcase their creativity and the spirit of innovation. This program will adapt to the new norms and be conducted in hybrid mode. The innovation competition is open virtually to both international and Malaysian innovators ranging from school students to professionals. The physical exhibition is open to UiTM industrial partners, selected primary and secondary schools, and our students, to share their work with the local community. The aim of this program is to provide exposure and experience with various academic content on innovation that is not only interesting but also useful to the community. It keeps countries and innovators remain relevant, competitive, and adaptive, which also strengthening the culture of innovation among innovators, as a well-nurtured and optimized culture of innovation plays a pivotal role in successful innovation.

CATEGORY A
Professional

Polarization of Light Experimental Kit: New Design

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ABSTRACT

Polarization is an important property of light that has numerous applications in science and technology. It refers to the orientation of the electric field vector of a light wave as it propagates through space. Polarization is one of the topics that have been taught in the Foundation Physics course. Time constraints and a lack of appropriate laboratory apparatus are the two main reasons why this topic is only being taught theoretically, making it difficult for students to grasp the concept. Due to these constraints, a group of physics lecturers at the Centre of Foundation Studies UiTM Dengkil introduced and developed a simple experimental kit called the "Polarization of Light Experimental Kit" as an initiative to help students' understanding by visualising the polarization process. This kit is portable, mobile, and easy to handle. Thus, it will attract students' interest and serve as an interesting hands-on activity for them. A preliminary questionnaire survey was distributed to Foundation Science and Engineering students at UiTM Dengkil back in 2017 to assess their understanding on the polarization concept before and after using previous design of this experimental kit in their learning process. From the analysis, about 58% from 120 students agreed that this experimental kit was able to enhance their understanding on polarization of light concept and their interest in learning Physics. The design of this kit is being improvised to make it more practical and attractive to be marketable. Recently, a new survey has been distributed by introducing our new design of the Polarization of Light Experimental kit to a sample of 126 foundation students at Centre of Foundation Studies to assess their understanding on the polarization concept before classroom session, during classroom session and after using the new design experimental kit in classroom learning process. From the analysis, the percentage of the students that agreed the new design experimental kit gave them a better impact on enhancing their understanding and interest on polarization of light concept has increased to 70%. This experimental kit has a high potential to be commercialized as a useful teaching aid for educators and students who want to gain a deeper understanding of the polarization of light concept and its applications.

Keywords: Polarization of Light; Polarized Light; Experimental Kit

Affixes: Vocabulary Game

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ABSTRACT

Learning different vocabulary in a second language is challenging for most students. Fortunately, knowledge of affixes has proven to be a practical and efficient way for students to grasp new words (Laufer, 1986; Schmitt & Meara, 1997; Nation, 2001). This is because, understanding the meanings of prefixes, suffixes, and root words can assist learners to discern a word's meaning without having to look it up in a dictionary, making affix knowledge a vital component of vocabulary knowledge (Liu, 2021). One way to teach vocabulary is by implementing a gamification tool. This method has proven to be effective in vocabulary learning as students have reported positive feedback, including increased motivation (Waluyo, 2021). Thus, this innovation discovers the effectiveness of forming prefixes and suffixes in vocabulary acquisition through gamification in language classrooms to educate and motivate learners via a modified version of the board-and-tile game. The “Affixes: Vocabulary Game” invention encouraged learners to practice their vocabulary skills of affixes in a fun and exciting way. In this skill-building game, two to four players compete in forming words with affixes using ten randomly drawn letters. Points are collected as words are placed on the board based on various point values of the letters. Player with the highest possible score based on combination of letters wins the game. This method showed that learners have significantly improved their vocabulary acquisition especially in forming prefixes and suffixes. It could be concluded that implementing gamified components using a board-and-tile game positively impacts students’ attitude toward learning English language and vocabulary mastery. Therefore, this innovation can be considered by teachers, families, and society as an enjoyable experience in learning the English language and to produce long-term skilled language learners.

Keywords: Affixes; vocabulary; board games; English language learners

Game-Based Learning: Inference Skills for Reading

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ABSTRACT

Making inference is a vital skill in reading comprehension. It is a complex skill requiring readers to integrate relevant information and schemata to construct an understanding of the reading text. Unfortunately, ESL learners generally struggle to make good inferences in reading (Lee, 2014; Zin, Wong, & Rafik-Galea, 2014). Students lacked the motivation or aptitude to read and think critically is one of the contributing factors to this problem (Srisang, 2017; Zin, Wong, & Rafik-Galea, 2014). Thus, this innovation discovers the effectiveness of developing inference skills in reading through gamification in language classrooms to educate and motivate learners via reading comprehension games. The board game, "Conquering Mount Kinabalu" invention encouraged learners to practice their inferencing skills in a fun and exciting way. In this skill-building board game, players read the clues or short passages based on three (3) different levels and answer the follow-up questions by making inferences. Each correct answer moves them further up the trail to the peak of Mount Kinabalu. The obstacles along the way may send them back to the starting line, which is at Kinabalu Park headquarters. Successful players to reach the top of Mount Kinabalu will receive a certificate of accomplishment for conquering the highest mountain in Southeast Asia. This method showed that learners have significantly improved their reading comprehension, especially making inference skills. In summary, implementing gamified components using a board game positively impacts students' attitudes toward reading and making inference skills. Therefore, this innovation can be considered by teachers, families, and society as an enjoyable experience in learning reading to produce a long-term skilled reader.

Keywords: Making inference; reading skills; reading comprehension; board games

CoGLIEx: Exhibiting Knowledge, Skills and Talent

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ABSTRACT

In modern education, educators play a vital role in facilitating the learning process and supporting learners' growth through innovative teaching strategies that allow them to explore knowledge and improve skills independently. However, the overemphasis on traditional pen-and-paper assessments is not sufficient for developing soft skills. The Contemporary Global and Legal Issues Exhibition (CoGLIEx) is an innovative assessment tool that allows participants to showcase their talents, learn essential skills, and share knowledge on contemporary global and legal issues. It aims at developing innovative assessments by using exhibitions as a learning activity that identifies talent and improves learners' knowledge and skills. Integrating CoGLIEx into learning activities promotes the development of leadership, interpersonal, problem-solving, and communication skills, as well as fostering self-esteem, confidence, collaboration, and creativity among participants. Visitors of CoGLIEx also benefit from this exhibition as it exposes them to contemporary global issues and creates awareness of society's role in curbing these issues. Additionally, CoGLIEx also offers the opportunity of exploring possible collaborations with other organizations or stakeholders to expand the reach and impact of the exhibition. This could involve partnering with academic institutions or non-profit organizations to bring in new perspectives and resources, allowing it to have a greater impact in promoting learning and awareness of contemporary global issues. This paper opens for further discussion on the use of exhibitions as assessment tools in higher education.

Keywords: Innovative Assessment Tool; Authentic Assessment; Exhibitions; Soft Skills; Project Based Learning.

Chlorella Vulgaris in the Microbial Fuel Cell (MFC)

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ABSTRACT

Numerous research and innovation are accomplished to achieve the ultimate goals of sustainable clean water. High-quality water is essential for humans in daily activities. Therefore, wastewater effluent must be treated before being discharged to the water bodies. Nowadays, the technology of microbial Fuel Cells is used to treat wastewater while producing electrical energy simultaneously. Here is the innovation of the Microalgae Microbial Fuel Cell (mMFC), in which microalgae are used as the catholyte in the microbial fuel cell to remove the pollutants in the wastewater. This study evaluates the treatment using microalgae, *Chlorella Vulgaris*, in treating the pollutant from the wastewater treatment plant from Pusat Asasi UiTM Dengkil. From the results, it is expected that microalgae would help consume carbon as the wastewater substrate. The experiment was observed in fourteen days to reduce pollutants from the two mediums of wastewater and synthetic seawater and microalgae growth. The results found that an increase of 32% in potential energy from day 1 to day 14 showed evidence of chemical energy being converted into electrical energy for the mMFC. Therefore, this finding showed that *Chlorella Vulgaris* could be used in the MFC to produce electricity and simultaneously treat the wastewater.

Keywords: *Chlorella Vulgaris*; microbial fuel cell; microalgae; wastewater

C.A.K.A.P. (Communication Kickstart Pro.)

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ABSTRACT

After years of being constrained to virtual communication platforms due to the COVID-19 pandemic, students' communication ability to speak in English in a physical situation are deteriorating. Students encounter difficulties to practice English language, especially when speaking skills are concerned as they require ample number of speaking practices outside of the classroom. Moreover, students find that the MUET speaking component is difficult when compared to other components and the number of practices in class are not sufficient for MUET. C.A.K.A.P. (Communication Kickstart Pro.) is an innovation created to help UiTM foundation students to practice the English language with other students virtually as well as receive curated help from experienced lecturers or AI assistant for tips and tricks to improve on their speaking skills, as well as becoming a platform where students can gain information related to MUET. As students in Foundation Studies are not widely exposed to MUET setting, this platform will help students practice individually and in groups to reduce their reluctance of speaking in English without inhibiting the familiarity and reliance on online platforms. C.A.K.A.P. is looking forward to expanding and helping students across Malaysia in improving their speaking skills in preparation for MUET speaking test.

Keywords: MUET; speaking; e-learning; online platform; website

A Garden Storage Trolley with Dried Leaves and Trash Collector

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ABSTRACT

A fabrication of a garden storage trolley with a lawn dried leaves and trash collector has been designed in this project. The objective and main purpose is to reduce the burden of housewife or gardener bringing the gardening tools while sweeping dried leaves when doing gardening or cleaning activities in their area. The add on dried leaves and trash collector make them easy and less energy used to collect the dried leaves and trash at a medium grass area. The partition and storage of gardening tools were fabricated using mild steel material. Some fabrication processes of the product like cutting, grinding, welding, finishing have done completely. Conclusion, it will help people especially gardeners or housewives doing gardening or cleaning work with less energy used and user friendly.

Keywords: Garden; trolley; trash; collector

THE MOOVY I: INTERACTIVE GAME FOR VOCABULARY LEARNING

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ABSTRACT

Vocabulary is the backbone of any language because, without sufficient vocabulary, nothing can be conveyed. There is no greater frustration in language learning than not being able to convey messages to others. Consequently, it would take away the joy of learning. In learning a language, traditional vocabulary learning strategies have included matching exercises – synonyms and antonyms, fill-in-the-blanks worksheets, and flash cards. While some of these strategies remained beneficial, teachers and students in today's technology-driven world are strongly urged to adapt to Generation Z's learning style which is learning by doing and through gadgets. For this reason, numerous mobile applications have been developed, especially for English language learners. Nevertheless, some applications are not tailored to the needs of Malaysian pre-university students preparing for the Malaysian University English Test (MUET). This standardized language proficiency is used to assess the proficiency level of pre-university students who wish to pursue their first degree and they should obtain a minimum band score to qualify for admission into their desired course of study. Hence, this study aims to assist MUET students in enhancing their vocabulary through gamified lessons using a tool called MOOVY I. The MOOVY I prototype has incorporated a few game mechanics such as points and challenges that would motivate students to learn and complete tasks. The tool has significant commercial potential in the educational technology market, especially in Malaysia where it can be marketed to individuals, including MUET test-takers, who are looking to improve their English language skills. In conclusion, MOOVY I has substantial commercial potential in the education technology market, and with the development strategies, it can become a leading vocabulary learning tool in Malaysia and beyond.

Keywords: Vocabulary; Malaysian University English Test (MUET); gamified lessons; game mechanics.

Hybrid Biology Teaching and Learning Module

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ABSTRACT

The global COVID-19 pandemic of 2020 has affected and altered the landscape of the educational system. Online distance learning has become the main method of teaching and learning, as social interactions were required to be drastically reduced. Entering the endemic phase of COVID-19, academia was urged to revert to face-to-face methods, leaving behind the virtual teaching and learning. This study proposed an innovative and comprehensive hybrid teaching and learning module for Biology courses that adapted both methods; Method A (Face-to-face) and Method B (Virtual). The purpose of developing the hybrid teaching and learning module is that it can serve as an academic guideline that can be instantly referred to and applied in the teaching and learning process when encountering the need for teaching and learning in isolation such as the occurrence of sudden catastrophes, another pandemic, or floods. A 5-point Likert scale engagement survey was given to 114 science foundation students of UiTM to evaluate how the hybrid approach affects their cognitive and emotional engagement levels in studying biology subject. The data revealed that 65.8% of students agree that online virtual teaching and learning materials uploaded on the YouTube and UiTM UFuture platforms are convenient and beneficial to aid and complement face-to-face teaching in the classroom.

Keywords: Biology**;** face-to-face method; online method; hybrid method

Preparation of Casein Protein-Based Bioplastics Prepared at Different Temperature and Percentage of Acid Used

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ABSTRACT

The purpose of this study was to prepare casein protein-based bioplastics for biodegradable plastic materials application. Casein was extracted from spoiled cow milk heated at different temperatures (40 ºC, 50 ºC and 60 ºC) and amount of acetic acid was varied (1 ml, 5 ml and 10 ml). By adjusting the extraction parameters of casein, two different types of protein-based bioplastics were produced: smooth and rough surface polymers. The preparation by using this technique can be beneficial as it is the most convenient and cost-effective process. These bioplastics have high potential for development of biodegradable plastic; the challenge of solid waste management can be wisely controlled if the plastics that are being used made up of waste material such as casein from the spoiled milk.

Keywords: Casein; plastic; biodegradable; spoiled milk; polymer

Beethoven Light Improve Image Quality by Complying to Breathing Instruction for Patient with Hearing Impairment in Cardiac MRI

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ABSTRACT

Cardiac magnetic resonance imaging (CMR) is a medium to diagnose a wide range of heart conditions by using magnetic resonance imaging (MRI). To be able to perform the procedure; effective communication on breathing instruction is crucial in every CMR patient including those who have hearing challenges and language barrier. The patient needs to comply with the repetitive breathing instruction respectively. Failure to do so will lead to the verge of production of poor image quality of heart that has no diagnostic value and the physician having trouble diagnosing the patient's condition even worse leading to fatality and mortality. Hence, this is where Beethoven Light comes into a picture to overcome this problem. It is designed to be such a portable device and convenient handling that consist of only 2 colors of light: red and green. The Beethoven Light successfully could aid the patient with its simple instruction for those who cannot comply and bare breathing instruction especially patients that have hearing disability, elderly, and also communication and language barrier.

Keywords: CMR; MRI; Beethoven Light; magnetic resonance imaging; hearing challenge

ChaCO-Ban: The Revolutionary of Eco-Charcoal Utilising Kitchen Food Waste

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ABSTRACT

The heavy reliance of traditional charcoal is worrying as this will continuously cut down the mangrove trees for its production. Major mangrove deforestation had affected not only the environment but also the socio-economic of the local community. To date, there have been several attempts to produce eco-friendlier charcoal (biochar). These studies had amplified from producing biochar for combustion into many other functions such as soil nutrients, carbon dioxide removal, catalysts and others. The aims of this study are to produce a biochar from the biomass domestic kitchen food waste (banana peel and orange peel) with minimal cost. Previous biochar production needed to use pyrolysis but this study used a domestic oven in order for the public to replicate this at home. This will not only be reducing the food waste in the landfill but also minimise the cost for charcoal production. To sum up, this study gave an early conclusion that biochar can substitute traditional charcoal for combustion and more studies needed to verify the usage of biochar for other purposes.

Keywords: Biochar; food waste; orange peel; banana peel

Pointer Calculator: Integrating Web Based in Calculating GPA and CGPA

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ABSTRACT

Grade Point Average (GPA) is the student's average grade attained in each course for a specified semester, and Cumulative Grade Point Average (CGPA) is the average result from all the semesters taken. Both GPA and CGPA are indicators of students' academic achievement. Though grading systems vary depending on countries or schools, GPA and CGPA are widely adopted systems for assessing students' academic achievement at various levels of education in higher education institutions. Although the system is widely used, SPM leavers find it hard to understand the calculation leading to the GPA and CGPA values obtained. Therefore, this study took the initiative to provide exposure to the students with the development of GPA and CGPA calculators. Using this pre-built calculator, students only need to enter the grade for each subject they are taking. The advantage of this calculator is that students can see the working route for the GPA and CGPA computations, which they can also print. Academic mentors are permitted to receive data for monitoring reasons from the department. Students only need to download and utilize the applications for free.

Keywords: GPA; CGPA; calculator; academic performance; pointer

The Application of Jack D' Pack Energy Kit in Bio-Battery

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ABSTRACT

The main objective of this project is to produce an environmentally friendly bio-battery product or kit from two types of fruit waste, namely jackfruit (*Artocarpus heterophylus*) and durian (*Durio zibethhinus*), and also to explain the bio-battery application of the Jack D' Pack Energy Kit. The arrival of this season is eagerly awaited by Malaysians to taste the delicious pulp of jackfruits and durian. However, only the juicy pulp of jackfruits and durians is consumed and the peel (the green peel) is thrown away. To solve this problem, an electrochemical concept was introduced to prevent this issue. Electrochemistry is a relationship between electricity and chemical changes. It results from the outcome of the chemical reaction. In this project, we developed an alternative to use jackfruit and durian fruit waste by generating energy for electricity. Durian and jackfruit waste have the potential to generate energy because the peel structure of durian and jackfruit is similar. Both types of fruit have one thing in common: a pungent aroma and strong smell. This kind of indicator will show great potential in producing bio-battery and producing it as a product or kit for marketing.

Keywords: Bio-battery; electrochemical; renewable energy; fruit waste; bioenergy

mBot Robot Kit Module: Scratch Coding for Special Needs Student

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ABSTRACT

As the usage of high levels of technology usage in our daily life is becoming more common and keeps on advancing every day, it is important for the teaching and learning process to cater for special needs students to be included in this advancement. A teaching module for robotics is a structured program designed for special needs students on how to assemble basic robot, the concept of sensor function and their applications and program robots using scratch programming. The focus of this module is to approach the special needs student by focusing more on the visual observation for learning the programming. In conclusion, this module for robotics is a good introduction to the fascinating world of robotics and prepares the student for the advancement of technology in daily life.

Keywords: Teaching and learning1; module 2; robotic 3; scratch programming 4

Rabbitry System: Smart Rabbit Breeding Monitoring System

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ABSTRACT

Previously in rabbit farming activities, data for a species type, weight, amount and type of nutritional diet, number of doses of vaccine taken, duration the frequency with which the parent rabbits were bred as well as the expected period the rabbits matured and ready for sale as broiler rabbits was taken and manage manually and needs to be recorded in detail for each rabbit individually. Usually, these data were recorded by using a logbook and the probability of getting some errors while recording the data is very high because of the large number of rabbits need to be monitored as well as the factor of loss or damage of the logbook itself. Therefore, this mobile application called Rabbitry System was developed as a smart farming management system that can be operated via smart phone or tablet. As a cloud-based computer system, all personal data relating to rabbits and/or farming operations may be saved, monitored, managed, and facilitated more systematically and efficiently in a single database platform. This information was transformed into QR codes, which may be accessed from anywhere. Furthermore, this invention may boost the effectiveness of livestock output while also increasing our local farmer revenue to an optimal level.

Keywords: rabbit; farming; logbook; mobile application; QR code,

30 TO 3000 MAGNETITE

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ABSTRACT

This work presented the extracted magnetite from waste mill scales through an eco-friendly and low-cost approach. The extraction of the magnetite involved two magnetic separation steps which were named as magnetite separation 1, and curie temperature separation technique. The magnetite is then used in removal of copper ions from an aqeous solution. Different milling times were used to reduce the size of the raw mill scale which is 24, 48 and 72 h. The increase in the milling time resulted in the homogenous dispersion of iron oxides particles, the reduction of particle clustering, and the reduction of distances between the particles. Magnetite was characterized using XRD, SEM and particle size distribution. Solubility of the iron oxides increased as the milling time increased. The concentration of copper ions was determined by a spectrometer. As a result, 72 hours milling time had shown highest adsorptions of copper which is 95 % removal efficiency at the optimum conditions. The characterizations of the millscales waste after the process having magnetite XRD spectrum and successfully reduced the size to microparticles. To conclude this, the price of millscales waste from RM30/kg now turned to magnetite can be up to RM3000/kg.

Keywords: Waste mill scales; milling time; iron oxides; Cu ions; removal efficiency (RE)

A Study of X-Ray Diffraction (XRD) and Surface Morphology Studies of PVC Complexes

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ABSTRACT

In this work, the proton conducting polymer electrolytes were prepared by solution cast technique. Poly (vinyl chloride) PVC is used as the polymer host, ammonium triflate ($NH_4CF_3SO_3$) as the doping salt and ethylene carbonate (EC) and butyltrimethyl ammonium bis trifluoromethyl sulfonyl imide (Bu_3MeNTf_2N) is used as the plasticizers. Characterization techniques of XRD and FESEM were used to study the properties of the PVC based proton conducting polymer electrolytes. XRD studies shows that amorphous PVC becomes largely amorphous in nature upon addition of $NH_4CF_3SO_3$. Largely amorphous in nature is also obtained upon addition of EC and Bu_3MeNTf_2N to PVC-$NH_4CF_3SO_3$. XRD studies of the salted samples showed that they are largely amorphous in nature. However, XRD studies could not identify for sure the most amorphous sample. Identification of the most amorphous sample is imperative as conduction in polymer electrolytes is known to occur in the amorphous region. The FESEM micrographs gave a qualitative idea of the amorphousity of the salted samples in that A4 had the most grey regions in its micrograph giving a strong indication of it being the most amorphous sample. In case of the EC plasticised system, the micrographs showed that the pore size increased with increasing concentration of EC which in turn caused the amorphous regions (grey area) to decrease. This means that B1, which has the smallest pore size and the most grey area is the most amorphous sample. In the micrographs of Bu_3MeNTf_2N plasticised samples, the sample C3 is observed to be more homogeneous with more white spherulites indicating presence of more trapped ionic liquid. This broadly indicates that C3 is the most amorphous due its homogeneity as compared to the sample C1.

Keywords: Polyvinyl Chloride (PVC); X-ray diffraction; surface morphology; polymer electrolytes; amorphous

Effect of Lights on Oyster Mushroom Indoor Cultivation

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ABSTRACT

Common edible oyster mushrooms are grown extensively over the world. However, the production yields of the oyster mushrooms are lower than the market demand. Additionally, traditional outdoor agriculture uses more area and is seasonal, which brings more unpredictable factors into the cycles of production. In order to save space, indoor production of the oyster mushroom was used in this work to study how the mushroom responded to various light intensities. Red, white, and no light at all were the intensities employed. According to this study, oyster mushrooms grow to their highest stem and cap sizes when exposed to white light, followed by red light and no light. In contrast to white light, oyster mushrooms are more numerous in red light intensities. Finally, it should be noted that the oyster mushroom's growth depends greatly on the light environment. The findings of this study may be useful to farmers in their efforts to increase harvest productivity as well as to other agricultural organisations.

Keywords: Oyster mushroom; light intensity; indoor; cultivation

Polychaete Nervous System: A New Potential Model for Brain Disease Studies

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ABSTRACT

Polychaetes or commonly known as marine worms are grouped under the phylum Annelida which comprises a very wide variety of invertebrate species. The nervous system in most of the polychaetes is well developed, consisting of the brain tissue and nerve cord that elongates from the head (anterior) to the tail (posterior), similar to humans that have the brain and the spinal cord. What makes polychaete's nervous system more interesting is the regeneration capacity that it has. This nervous system regeneration is part of their survivability adaptation from predators. Neurodegenerative diseases such as Alzheimer's, Parkinson's and dementia are examples that we can learn to reverse from the understanding of nervous system regeneration in polychaetes, which available organisms currently are still having shortfalls. This innovation is aimed to introduce a new potential human brain disease model from a polychaete nervous system through the schematic representation of our extensive imaging investigations from basic histology to tomography. The final outcome of our project will lead to a computer model with details ranging from types of brain tissues, circuits, cells and even neurotransmitters.

Keywords: Brain disease; polychaete; brain model; neuroregene

CATEGORY B
Postgraduate/Undergraduate

Innovation of File Folder Using the Implementation of Augmented Reality Technology and QR Code

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ABSTRACT

According to Fariza Binti Khalid (2017), it proven that the use of technology in education to increase the level of student motivation where the most advanced technology in education is Augmented Reality and QR codes on a file folder. The file folder function as a document repository, which can store multiple sheets of paper renewed with a new concept of folder design and a combination of Augmented Reality technology innovation and QR code, when scanned will display the printing process of the machine and Printing Technology program e-books. Combination Augmented Reality and QR codes to solve problems and advance education in order to encourage more SPM and STPM graduates to enrol in Printing Technology Program courses. A total of 30 students from the Printing Technology course filled out a questionnaire and evaluated the importance of Augmented Reality elements and QR codes. When all the files in this folder are used, it means that it achieves the necessary objectives to meet the needs of lecturers and students. In conclusion, the production of file folders should be combined with the innovation of Augmented Reality and QR code so that students or others can easily get more information in the Printing Technology course.

Keywords: File folder; Augmented Reality; QR code

Design and Development of Handle Packaging for Croffle with QR Code and Augmented Reality Technology

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ABSTRACT

The packaging of food products plays an important role in attracting customer interest. There are many quality products that have been produced by Small and Medium Enterprises (SME) entrepreneurs, but, fail to enter the foreign market. In era of Industrial Revolution 4.0, most packaging printing technology is more focused on the development and improvement of comfort for customers. Because, today most customers do not accept certain packaging, especially food packaging, which is food packaging in plastic containers, food is put in a plastic bag. So, it will easily roll in the plastic bag and can cause the condition of the food to be affected. Packaging comes out with the name handle packaging, it is designed with the objective to produce stable food packaging to maintain food quality and easy for customers to take anywhere. In addition, the material used is from 270 gsm art cards, which is easy to recycle and environmentally friendly. This packaging innovation renewal has been done as an additional feature to give a wide impact on a brand and also includes elements of Augmented Reality and QR codes, this is a current technology that allows customers to easily obtain information by simply scanning.

Keywords: Handle packaging; Augmented Reality (AR); QR code (QR)

The Creation of Innovation Packaging from Plastic to a Handle Box with Implementation of Augmented Reality Technology and QR Code

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ABSTRACT

The creation of technological innovation used on packaging is aimed at increasing creative thinking and innovative approaches in standard of product. Production of Augmented Reality (AR) and QR codes placed on Box Handle Packaging. With the Augmented Reality (AR) technology available, customers can scan the product logo on the packaging to watch the video of how curd is prepared. Through this innovation, it can open people's eyes to see ideas on how to best educate the currently global and techno savvy students. The QR codes are also an innovation that creates commercialization purposes to provide details about the product. The packaging design will be able ease customers bring the product to home after purchase. Besides, the handle box packaging have the look of innovation that creation of transform packaging from plastic to a box with compartment. Adding a handle to the box packaging not only creates an attractive image, it is also keep a product secure and improve the level and standard of the products. Significantly, this creation of handle box innovation packaging can entice customers to buy the product. The creative and eye-catching innovation made the packaging help to attract new and returning customers.

Keywords: Handle box packaging; Augmented Reality (AR); QR code

Tackling Smart City Traffic Congestion

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ABSTRACT

One of the key issues noticed in traffic light points is that many vehicles queue and wait for a long time to cross the traffic light signal even if there is no pedestrian to cross the zebra cross. This time-consuming ineffective traffic control system, as a result, increases the growth of energy loss and harmful gas loss to the environment. In this study, a smart automated traffic control system later named OptiTraffic was developed to capture real-time data and make judgments automatically in order to efficiently and effectively handle the traffic control system. The basic goal of this technology is to automatically detect pedestrians and enable them to cross the road. As a result, reducing the line of vehicles at the traffic light because the traffic signal would not be halted for oncoming vehicles until there are genuine people waiting to cross the road. The smart system utilized deep learning, Raspberry Pi microcontroller, pressure sensors and cameras to collect real-time data and make choices on the pedestrian traffic light management system. The system has cameras along with pressure sensors to validate the pedestrians waiting at the side of the road to cross the road. In this study, the YOLOV5s deep learning model was trained and integrated with the microcontroller to detect pedestrians using the camera. The timer shall turn on for a short period of time when pedestrians get detected at the side of the road. When the stated time of the timer turns on, the system shall turn on the green light for pedestrians in order to allow the pedestrian to cross the road. The input from both the camera and the pressure sensor would act as a confirmation that the pedestrian is certainly willing to cross the road. The final prototype outcome is a complete success as per the previous expectations from the researchers as the real-time detection accuracy of pedestrians was around 88% and also the system was working smoothly overall. The system would overcome the current issues faced by people at the traffic signal points. Lastly, the report concluded with recommendations for further improvements to the developed system.

Keywords: Internet of things; Computer Vision; Optimised Traffic Control System

Photosensitisation of Novel Ag_2CO_3/Nb_2O_5 Photocatalyst for EDCs Removal in Wastewater

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ABSTRACT

Ag-based semiconductor materials are currently catching the interest and research efforts of numerous material researchers due to their wide range of applications. This study aimed to examine the effect of incorporation of niobium pentoxide (Nb_2O_5) to the structural and morphological properties of silver carbonate (Ag_2CO_3), as well as the photocatalytic performance of the materials on EDCs, such as Bisphenol A (BPA). The preparation and evaluation on Ag_2CO_3, Nb_2O_5, and Ag_2CO_3/Nb_2O_5 composite were discussed in detailed. Ag_2CO_3, Nb_2O_5, and Ag_2CO_3/Nb_2O_5 composite were synthesized by facile precipitation method at room temperature and were characterised by Fourier Transform Infra-Red (FTIR) spectroscopy, and Field Emission Electron Microscopy (FESEM) for its structural and morphological properties. FTIR analysis revealed the emergence of CO_3^{2-}, C–O and Nb=O groups, as well as the development of bridging Nb–O–Nb in the composite structure. Morphological analysis revealed that Nb_2O_5 were irregular spherical-shaped and were evenly dispersed on the surface of irregular short rod structure of Ag_2CO_3. Moreover, this study provides a profound understanding towards the coupling system of Ag_2CO_3/Nb_2O_5 heterojunction. Lastly, the Ag_2CO_3/Nb_2O_5 composites has the potential to be directly and continuously applicable in a real-life event of industrial wastewater treatment on plastic manufacturing and epoxy resin industry.

Keywords: Silver carbonate; niobium pentoxide; Bisphenol A; visible light; EDCs

NanoRelief Gel: An Advanced Celecoxib Nanoemulgel for Effective Pain and Inflammation Relief

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ABSTRACT

Celecoxib (CXB) is a medication for the treatment of relieving pain and reducing inflammation in osteoarthritis and rheumatoid arthritis. It has low bioavailability when administered orally due to its lipophilic nature and low water solubility. Transdermal administration can allow targeted drug delivery without first-pass metabolism. However, it is difficult to get through the outermost layer of the skin due to the nature of the stratum corneum. To solve this issue, nanoemulsion (NE) serves as a vehicle for the delivery of various active pharmaceutical ingredients and has attracted great attention in the drug delivery field. One of our approaches is to modify NE into a new dosage form, which is nanoemulgel (NEG) for improved skin permeability. NanoRelief Gel is a topical gel that contains CXB as the active component. The gel's particle size of 149.07±1.42 nm demonstrates great permeability and therapeutic effects, with a narrow size distribution of 0.21±0.01 and good stability with the zeta potential value of -33.07±2.87 mV. NanoRelief gel provides effective alternative to traditional oral pain relief medications and can be site-specific, further enhancing its effectiveness. It has strong commercial potential value for arthritis patients due to its safety and effectiveness.

Keywords: Celecoxib; Fractionated medium chain triglycerides (FMCTs) oils; Nanoemulsion gel; Transdermal delivery; Pain and inflammation relief

CATEGORY C
Foundation/Matriculation

PECoF

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ABSTRACT

Our innovation product is focusing more on environmental problems which begin from carbon dioxide that is released by many sources. The rising carbon dioxide concentration in the air has a serious effect on human health as well as the surrounding environment. In addition, we also give full attention regarding the use of non-renewable sources as our country is currently dependent on them to generate power that can cause pollution to the environment and give adverse effects on human health. The objective of this innovation is to extract excessive carbon dioxide in the air and provide an alternative way to generate power by renewable source which is from the wind and sunlight. This innovation has two developments which are extracting carbon dioxide using Direct Air Capture (DAC) and generating power from natural sources. DAC involves a few stages which are sucking the air using the power generated, adsorption and desorption phase. Then, the second development is to generate power from natural sources that involve a turbine that will help to generate power by the wind produced from traffic speeding when vehicles pass by. The solar panel was installed to absorb sunlight and function to generate power. We believe this innovation has the potential to overcome the related problems as it has a unique invention from the combination of two functions (DAC and power generation by natural source) in one product. To conclude, this innovation could be the best way to bring the problems stated under control. Including an environmental monitor could be one of the consideration ideas to improve this innovation.

Keywords: Carbon dioxide; direct air capture; wind; sunlight; power

The Solarluxe Torchlight

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ABSTRACT

The solar torchlight innovation aims to provide sustainable and reliable lighting solutions to communities with limited access to electricity. The innovation employs solar panels to absorb and convert solar energy into electrical energy, which is stored in rechargeable batteries that power light sources. The solar torchlight innovation represents a promising solution to address the challenges of energy poverty and climate change. Moreover, addition with many features like compass and bulb as lighter make it a multi-purpose torchlight. The purpose of this innovation is to implement new ideas to bring about positive change and improve efficiency, effectiveness, and competitiveness to the community since there are many complaints about flashlights nowadays like the lack of feature and reliability of the torchlight. The analysis study also can see their criticisms regarding torchlight nowadays performance by users make up 75% of the reported complaints which are LED failure, water leakage, the batteries no longer keeping the charge as they initially had, and the switch failing. Thus, we explore the concept of innovation torchlight, SOLARLUXE and its vital role in shaping the modern world. By highlighting successful examples of innovation, we demonstrate how the torchlight of innovation can drive organizations towards growth and success. Overall, the innovation torchlight represents a beacon of hope for organizations looking to stay relevant and competitive in a rapidly changing world.

Keywords: Torchlight; solar; multi-purpose

Epididymitis: A Silent Male Issue

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ABSTRACT

Epididymitis is an inflammation of the coiled tube, called the epididymis, at the testicals. It functions to store and carry sperm. Epididymitis caused by bacterial infection like sexually transmitted infections (STIs). About 1 in 1000 men develop epididymitis annually, and acute epididymitis accounts for more than 600,000 medical visits per year. However, this disease is underdiagnosed since not all sufferers, even the health practitioner, are well aware of it. The objective of this study is to develop innovative education videos of epididymitis to create awareness among men especially the youngsters. The five minutes video includes informative content such as the causes, symptoms, and complication of epididymitis that we are acting in the video. YouTube was used as a platform to share this video to the public. A google form was used to get the feedback on the awareness of the viewers about epididymitis. 50 respondents were successfully recruited in the study. The outcome reported none of them was familiar with this disease. This shows that it is a critical task and concern to create public awareness of this disease among the young generation. It is thus promising for the early diagnosis of the disease with appropriate treatment management, and reduces its risk among men such as fertility.

Keywords: Epididymitis; epididymis; disease; awareness

Communication Campaigns on Cardiovascular Disease Awareness: A Case Study among Youngsters in Malaysia

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ABSTRACT

Cardiovascular disease (CVD) is a major public health concern in Malaysia, with increasing prevalence and mortality rates in recent years. While CVD has traditionally been viewed as a disease of older adults, recent studies have shown that youth in Malaysia are also at risk. Additionally, a study on coronary artery disease (CAD) among Malaysian youth found that almost 70 per cent of participants aged 15 to 24 have at least one cardiovascular risk factor. Besides, in the 2018 survey, the prevalence of self-reported CVD was 5.8%, which increased to 6.7% in the 2020 survey. This represents a significant increase in just three years. This campaign aims to provide a comprehensive overview of the current state of knowledge regarding CVD among youth in Malaysia. On the other hand, spreading awareness to the youth by using posters are popular and effective method for health campaigns due to their ability to convey information in a visually appealing and accessible manner. In fact, three posters that comprise current news, symptoms, factor risk, treatment, labelled heart structure and a family tree of genetic inheritance disease will be used throughout this campaign. On top of that, flashcards will be used as they provide a quick and effective way to communicate important health messages to audiences. Overall, the use of posters and flashcards in the health campaign was successful in promoting healthy eating habits and physical activity among school-aged children in the rural community. The campaign demonstrated that simple and visually appealing tools can be effective in raising awareness about health issues and promoting positive behaviour change among youth.

Keywords: Youngsters; awareness; posters; flashcards; healthy

Development of Epilepsy Action Plan: An Innovation of Disease Management

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ABSTRACT

Epilepsy is a chronic non-communicable disease which interferes with the brain cell that affects people of all ages. It causes frequent seizures and starts at any age but usually in childhood and people over 60. It is often lifelong, but sometimes gets better over time. Epilepsy sufferers experience hurdles with their quality of life (QOL) and sometimes face problems due to unexpected seizure episodes in public. People with epilepsy often do not receive appropriate care from their surroundings, which often results in their illness remaining untreated, affecting both their physical and psychological health. The objective of this study is to design a campaign to raise awareness of epilepsy on how it can be well managed as it is highly treatable. Besides, it can increase the public's knowledge, especially the caretaker of this neurological condition which affects nearly 50 million people worldwide. This epilepsy campaign was designed using an informative and attractive video that has information about the emergency treatment and post action care to overcome seizure. In this video, the first aid training demonstration to prepare everyone when they are facing emergency situations that involve epilepsy was presented. The feedback gained from 50 viewers of the video reported that about half of the respondents are aware of epilepsy but are not aware of how to handle it. All in all, this campaign has successfully made the community understand and realize the importance of treating and helping epilepsy patients when needed does increase the interest of the public to know more about these diseases.

Keywords: Epilepsy; disease; management; campaign

SMATBOX-9000

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ABSTRACT

Nowadays, carrying keys and storing items with a conventional lock has been a cliché method and there has been a problem with people intruding with their lock pick skills. Ergo, the safety of items in a safe box would be reduced to nil. Plus, the budget for buying a safety box made out of steel to ensure durability and lost-lasting would be pricey for some users. The involvement of RFID technology is the main component that is used as a security measurement. A specific card or tagging with an Identification embedded with the RFID scanner would be the key to unlocking the locker. The body of a lock box as a storage space would be made of different kinds of wood with different prices as it is custom-made. With a custom setting where the user can pick different sizes of boxes and types of wood used it would be much easier for them to set a budget from low to high price. The targeted audience would be school authorities for keeping documents and the general public. To conclude, the combination of RFID technology and craftsmanship could help add the conveniences for customers to buy an ideal safety box to store their belongings.

Keywords: Safety, budget, RFID, custom-made, conveniences

Power Exercycle

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ABSTRACT

Most people usually do indoor fitness activities while using a smartphone. When their smartphone battery is running out, they have to find a charger and a plug that may be far from their exercise equipment and they can no longer use the smartphone in order to charge the smartphone battery. As such, we designed exercise equipment, a stationary exercise bicycle named Power Exercycle with its own uniqueness. This product's specialty is that it can generate electricity to recharge smartphone batteries by converting mechanical energy from pedalling into electrical energy. Hence, people can save electricity and use their smartphones while exercising despite a low smartphone battery. The special features of this product are it has a phone holder and a cable to recharge the smartphone beside a digital display screen. This product can have a high commercial potential as people, especially adults that are busy exercising will enjoy and get benefit from this 2 in 1 product. Therefore, the Power Exercycle can provide a lot of benefits for the users in order to maintain body fitness and at the same time save electricity.

Keywords: Power exercycle; smartphone battery; converting energy; generate electricity; save electricity

Multiple Sclerosis: An Autoimmune Disorder

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ABSTRACT

Multiple sclerosis (MS) is an idiopathic inflammatory demyelinating disorder, a rare disease that affects 1 out of 1000 individuals. Advancement of technology in MS diagnosis through neuroimaging accessibility, and new biomarkers substantially benefited the MS patients. The objective of this study is to create an awareness program of MS towards Malaysians. TikTok Video of MS has been developed to provide the public a more holistic understanding of MS and to promote the MS Society Malaysia. A MS TikTok account has been developed which highlights the variety of MS information such as its symptoms, causes diagnosis and treatment management option. The platform used to not just reach the engagement of Malaysians but also people around the world. The outcome from a survey of 20 viewers and 115 viewers from TikTok using google form showed that more than half respondents are not aware especially of the symptom and the factor of the disease. This is the shortcoming of high risk MS patients who should be diagnosed and get an appropriate treatment strategy immediately. This innovative social strategy further contributes to increasing the awareness of MS among society. In conclusion, the social media campaign of Multiple sclerosis successfully creates awareness among Malaysians.

Keywords: Multiple sclerosis; diagnosis; awareness

Eureka Ball

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ABSTRACT

Energy generating soccer ball is a product that is used to generate electric energy from kinetic energy. Generally, this product is mainly focusing on those who live in the area that have a problem that is related to electricity. However, we have found some problems with the existing product and that was the starting point of our product, eureka ball. We have made an upgrade to the product by adding gyroscopic motion on it as it can keep the motor spinning to generate electricity when force exerted on it. Also, we have changed the brushes motor to the brushless motor. This is because a brushless motor can reduce the heat production from the ball and it can prevent the ball from overheating when we use it.

Keywords: Generating soccer ball; generate electric; eureka ball; gyroscopic motion; brushes motor

Sparkle Aplenty

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ABSTRACT

One of the most crucial jobs is cleaning the toilet so that the area where we clean ourselves is constantly free of any pollutants. However, it is really challenging because it takes a lot of effort and time. Due to a lack of time and exhaustion from a demanding class schedule, many students do not clean their toilets. So, we decided to develop a toilet cleaning equipment innovation that would benefit the market. Our product uses an extremely rough and abrasive brush where it will support the entire weight of the body while standing if it is positioned beneath the slippers. Consequently, the body's weight can be utilized to wash the toilet floor with little effort. These sandals' bottom surface can be taken off since Velcro strap holds the brush to the bottom of the footwear. Therefore, a different surface type, such as microfiber, can be used to wipe the floor, allowing it to dry more quickly. Our products use high quality microfiber cloth that can swiftly absorb significant amounts of water. All these ideas were also applied to gloves. Thus, the issue of exhaustion and a lack of time when cleaning the toilet may be solved with Sparkle Aplenty.

Keywords: Exhaustion; microfibre; footwear

Rechauffer

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ABSTRACT

Rechauffer is an established innovation with an excellent heat insulator that applies the physics concepts such as Specific Heat Capacity and thermal contact. As we know, most of the food containers in the market are not great heat insulators. This causes the food that we put into the food container is not warm and it can't really maintain the temperature of the food for a long period. So, people lose interest in bringing the homemade food because of that issue and prefer to buy the food at the restaurant. We create the Rechauffer tiered. Thus, it can provide a lot of space for the users to bring a variety of food. Other features that were applied include, the materials and the weight of the Rechauffer. Rechauffer has a high potential to encourage people to bring the food from their home. Rechauffer comes with specifications that focus on helping the customer pack their food in the proper way possible and keep the temperature of the food whether it is cold or hot. Rechauffer has some integral improvements that can make our lives better as we can enjoy the food while at its desired temperature and have the best high-quality meal.

Keywords: Insulator; temperature; homemade food; thermal contact

i-DRY

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ABSTRACT

The Smart Dry Hanger is suitable for various types of clothing, allowing users to utilize it with a variety of garments. It also includes a tubular hanger for drying all types of shoes, including boots. These features provide various advantages to consumers in their daily lives. This product is environmentally friendly because it reduces the unnecessary use of external energy. The need for dry hangers has increased because of the difficulties that every student and worker face while doing laundry. According to our survey, students spend money on dryer machines at least twice a week when doing laundry, or they hang their clothes out to dry on a clothesline to save a little money and need to stand in a long queue due to the lack of dryer machines. Each of these methods has one ultimate problem which is energy and time-consuming for drying machines and hanging clothes respectively. When using a drying machine, the user must be punctual and not be late to avoid creases on the clothes if they are taken out of the dryer later than the required time. Thus, providing an excellent dry hanger stand would extend our consumer base and increase revenue in our economy.

Keywords: Hanger; dry; drying machines; garments

Dietary Intake Program for Anaemia Patients: A Social Innovation Project

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ABSTRACT

A common disease, called anaemia, has always been neglected by society. Most people are not aware of how bad this situation can be, especially about the suitable food for anaemic patients. In fact, there are roughly a million deaths per year of anaemia patients worldwide. Lack of awareness regarding this issue among people nowadays should cease to bring more attention to anaemia patients. Thus, it has led to the implementation of the video project titled "Dietary Intake for Anaemic Patients". The objective of this program is to create a campaign to increase awareness among people in having a wise management of diet for anaemia patients. A production of an informative video was used for this project. This video discusses the objective of this program, the potential of this video, causes of anaemia, symptoms, and the healthy diet that is good for anaemic patients. Five students of Centre of Foundation Studies, UiTM, have been interviewed to ask them regarding the effectiveness of the video. Also, the main target audiences are children, pregnant women and people who suffer from chronic diseases as they are most likely to get anaemia. In conclusion, suffering from anaemia is not an issue that can be taken lightly by everyone in this world, instead, people should be concerned about this matter.

Keywords: Management of diet; iron-deficiency anaemia; iron-rich food

Tourette Syndrome: Perception and Adaptation within Society

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ABSTRACT

Tourette syndrome, TS is a neurological disorder that causes people to have sudden involuntary and unwanted movements or rapid vocal sounds which are known as tics.[1] TS exact cause is still yet to be known however scientists state that maybe genetic and environmental factors could be the cause. The disorders could occur to all people but men are more likely to have them than females.[1] The objective of this study is to conduct a campaign that helps to create awareness of tourette syndrome in our society by introducing them with what is tourette syndrome. This is because most people are not aware of this disease and some people with tourette syndrome do not receive appropriate care in the society. Thus, it could increase the public's knowledge about this disorder. This campaign was designed using a five minutes informative video which contains tourette syndrome information; causes of Tourette syndrome, symptoms, treatment and how to prevent it from getting worse. As a platform to share this video to the society, Youtube platform was used. Besides, a google form also was attached together in Youtube to see the viewers responses about TS. From the survey, out of 19 people from 25 are aware about Tourette syndrome even before watching the video, however most of them do not know what the causes, symptoms, treatment and way to prevent it. To conclude, the Tourette syndrome information has successfully been proposed to the society via this campaign therefore people will be more aware and concerned about this disease in the future.

Keywords: TS; neurological disorder; awareness

Lost Voices of Palestine: Amplifying the Call of Freedom

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ABSTRACT

The Israel-Palestine conflict has been ongoing for decades, resulting in countless human rights violations and loss of lives. The general public, however, is unaware of the situation and has little knowledge of it, which prevents them from taking any action to address it. To address this issue, the Lost Voices of Palestine project was created as a social innovation platform with the goal of promoting understanding and raising awareness, particularly among pre-university students. One of the major goals of the Lost Voices of Palestine project is to serve as a platform for educating society about the ongoing war crimes between Palestine and Israel and encourage people to take action to help solve the issue. This will be achieved by organising various awareness-raising activities or exhibitions and using social media and multimedia platforms. Additionally, the project aims to provide accurate and reliable information to help people better understand the issue, its history and its current state, for people to take action and contribute to resolving the conflict. Despite the project's lack of a commercial focus, it has the potential to attract support and funding from those who care deeply about social justice and human rights. The project may also open up chances for collaboration and partnerships that could result in other projects and initiatives by cultivating a robust and active community. Overall, the Lost Voices of Palestine project is a social innovation platform that seeks to increase knowledge about the Israel-Palestine conflict and inspire individuals, particularly pre-university students, to take action and contribute to its resolution.

Keywords: Israel-Palestine conflict; social innovation; awareness; platform

Plants bASed highlighTER peN (PASTERN)

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ABSTRACT

Highlighter pens serve as vital tools for office and education to mark important information and concepts for memory. Most highlighter kinds use liquid ink and function similarly to felt-tip pens or markers. However, conventional highlighters may be harmful to contend with because they consist of artificial colours created chemically such as fluorescein, pyranine, triphenylmethane, rhodamine, xanthene, and coumarin. The main objective of Plants bASed highlighTER peN (PASTERN) is to create non-toxic highlighter using natural colouring that has been extracted from plant base. For the innovation development of the product: turmeric, butterfly pea flower, and coffee powder have been used as colouring agents and become excellent replacements for the toxic substances found within conventional highlighter pens. Each plant base extract's components have been identified using the retention factor (Rf) in chromatography. While butterfly pea flowers had a higher Rf value and less polarity, turmeric extract had a lower Rf value and was more polar. Moreover, caffeine exhibited a more polar, concentrated solution behaviour, and lower Rf value. Plant base extract can be utilized as a natural colouring agent in highlighter pens by employing each aspect that was examined. By doing so, hope PASTERN will establish itself as a non-toxic, environmentally friendly stationery option in the future.

Keywords: Plants based; highlighter pen; eco-friendly; non-toxic

Anti-Mess Baby Bib

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ABSTRACT

In this fast-paced era, parents still face many challenges in caring for children. To foster innovation for a global community, the Anti-Mess Baby Bib product was created based on high demand by parents who still have small children between 4 months and three years old. This innovation aims to facilitate children's learning process by using material improvements such as synthetic fabric, plates, and bowls made of bamboo with various shapes in one product. This design suits flat surfaces such as cement, plastic, walls and even tiles. With the help of a suction system under the surface of the plate in the bowl, no movement will cause action on the product. After using it once, parents rinse the bowl or plate with the 1-meter cloth. With just one lift, everything is easy without taking a long time to clean up. Along with the growing trend of 'baby-led weaning' (BLW), where young children are taught to be independent while eating, parents demand an easier way to practice this method. With this innovation, parents can practice BLW without worrying about food waste. Through BLW, small children gain the confidence to be independent at the dining table while strengthening muscles and improving psychomotor skills.

Keywords: Baby bib; baby-led weaning; children; innovation; psychomotor

Fostering Grammar through Board Game: A Global Innovation

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ABSTRACT

The English language has been widely used. However, grammar poses the main problem for English as a Second Language (ESL) students due to its complexity and traditional teaching and learning method. Thus, this innovation aims to innovate the Grammar Board Game to equip students with fun learning for grammar. With the Grammar Board Game, students are no longer bored with learning. This board game is a 21st-century learning technique where students can learn while having fun. This innovation uses a combination of technology tools already existing in the local and global markets. Among the features of this Grammar Board Game is that it is equipped with a colourful game board map, sets of questions, and a set of "special power" cards, which are used to defeat other players. In the end, students can gain knowledge in a fun learning environment. This innovation certainly has a high commercial value, especially in the education industry, because it is built to help students achieve more effective and excellent academic sessions.

Keywords: 21st century learning; education; English as Second Language (ESL); game; grammar

Effect of Different Primary Light Colours on Growth of Betelvine (*Piper Betle*)

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ABSTRACT

This study aimed to investigate the effect of different primary light colors on the growth of betlevine (Piper betle). Betlevine plants were grown under four different primary light colors which are red, blue, and green, as well as white light. The growth parameters will be leaf area, fresh weight, and dry weight, which were measured after three weeks of growth under different light conditions. The results showed that plants grown under red and blue light had significantly higher plant height, leaf area, fresh weight, and dry weight compared to those grown under green. The plants grown under white light had intermediate growth characteristics between those grown under red/blue and green light. The study suggests that red and blue light may have a positive effect on the growth of betlevine, while green light may have a negative effect. The findings may have practical implications for the cultivation of betlevine and other crops that require specific light conditions for optimal growth and development. Further research is needed to elucidate the underlying mechanisms of the observed effects and to optimize the light conditions for betlevine cultivation.

Keywords: Betlevine; light colours; growth

Lumi Lamp

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ABSTRACT

The Lumi Lamp is a multifunctional night lamp that allows users to enjoy soft luminous lighting. The Lumi Lamp is a versatile product as it may function as a night lamp, a reading lamp, and even a simple decoration or toy for children. For instance, students often need to read their textbooks or articles, complete their assignments, and prepare for major exams. While some prefer studying during the daytime, many have no choice but to study at night due to work or personal obligations and this can lead to excessive electricity usage. To address this issue, Lumi Light is a product created that uses strontium aluminate which requires natural or specifically, UV light instead. This product saves energy and is an ideal choice for those who share a room with others as it provides lighting that is rather calming, hence, causing zero disturbance to fellow roommates who are trying to get their beauty sleep. Lumi Light aims to become the go-to product for parents, children, and students across Malaysia, in protecting the environment as well as for the convenience of its users.

Keywords: Night lamp; strontium aluminate; UV light; environment

Gas Explosion Prevention System (Gepres)

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ABSTRACT

The gas Explosion Prevention System (GEPRES) is a prototype to prevent gas explosions and focuses on the kitchen area, where common gas leakage happened. With Internet of Things (IoT) technology, this prototype provides a wireless device to assist users to control gas leakage. Using a gas sensor or MQ9 sensor Arduino component, this prototype will detect gas leaks. Once it detects up to 30% of the gas, the prototype will send alert notifications to the user's phone. The user can cut off electricity to the whole house to prevent fire by just using the click button on the phone. The users can control the flow of gas trapped in the house by opening windows using button controls from the phone to reduce the gas. Using the MQ9 gas sensor, this prototype can help to reduce or stop the gas explosion. In conclusion, GEPRES can reduce the rate of gas explosions, can save many people from losing their homes, and prevent deaths. In the future, the system can be improved by adding more safety features to reduce the number of gas leakage accidents to a smaller percentage, thereby increasing the safety of the house even more.

Keywords: Gas; gas leakage; gas explosion; sensor

MasterLaw

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ABSTRACT

Legal studies or law is an interdisciplinary liberal arts major. The study of law is certified as one of the most difficult studies in the world with a low rate of graduates with honors as compared to other fields. This is because the study of law is a difficult learning journey requiring high intellectual skills, perseverance, and adequate technology-handling knowledge to obtain information related to the study. Most foundation of law students experience difficulties in learning this field of expertise because apart from the mind-challenging study quarters, reference materials and documentation related to law are difficult to find on the internet and scattered everywhere. The existing reference material is expensive, not user-friendly or systematic with an outdated operating system that is time-consuming. An innovative take to solve these very problems in legal study is vital and this is the ultimate motivation for the establishment of the MasterLaw educational application. We are optimistic that the MasterLaw will be a learning channel of choice among law students especially at the foundation level. MasterLaw is a technological innovation that is technologically advanced yet maintains user-friendly essence apt to assist all students of law to master this field.

Keywords: Foundation of law students; innovation in learning; law students

BuzzAcademia

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ABSTRACT

BuzzAcademia is an educational game introduced by a group of law students. It is created for law students as an alternative to the fun learning concept. This game is related to a basic principle of Islamic law. In general, most law students are having a hard time focusing on this subject because they are spending too much time on other law subjects, which are also considered tough and challenging. However, the main reasons for the creation of this game were to promote and enjoy learning about this subject. Therefore, BuzzAcademia is an innovation that is made to increase the interest of students and also help them increase their knowledge. Students can enjoy playing this game while answering the questions. Besides, this game can only be played on a laptop. In conclusion, this innovation is a helpful medium for law students because they can find joy in their revision, and at the same time, it is also an alternative for last-minute revision.

Keywords: Educational game; Islamic law; innovation in learning

SInD: Self-Iron and Dryer

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ABSTRACT

The Self Iron and Dryer is a cutting-edge household gadget that combines drying, steam disinfection, and intelligent ironing features. This invention attempts to alleviate the problem of time-consuming and labor-intensive drying of clothing as well as improve human life by offering them automated products. The dryer makes clever adjustments to the drying time and temperature based on the moisture level of the garments, providing effective and gentle drying. This product's innovative invention involves the incorporation of steam disinfection and intelligent ironing features, considerably decreasing laundry burden and time. The dryer is also collapsible, which can shorten its height to almost half its original height, making it easy to store and save room. This product has great commercial potential since it targets busy homes and individuals that value time savings and convenience, besides lowering the cost of energy usage. Overall, the Self Iron and Dryer (SInD) is a novel invention that streamlines the laundry process by merging two tasks into a single machine, which is our specialty. For those searching for effective and convenient ironing and dying solutions, this gadget has the potential to become a must-have home item.

Keywords: Clothes dryer; steam disinfection; intelligent ironing; cutting-edge household gadgets; timesaving

Bleed Bright: Overcoming Period Poverty with Menstrual Education

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ABSTRACT

Bleed Bright is a social innovation project addressing period poverty, which affects many women and girls worldwide. Period poverty refers to the lack of access to menstrual hygiene products, education, and facilities, which can lead to poor menstrual health, social exclusion, and economic disadvantages. Bleed Bright was launched for the first time on March 11, 2023, at the Contemporary Global and Legal Issues Exhibition 2023, targeting pre-university students at Universiti Teknologi Mara, Kampus Dengkil. The project's objective is to empower women and girls to manage their menstrual health effectively and overcome period poverty through menstrual health education and awareness. Bleed Bright collaborates with Libresse, a leading global menstrual care and hygiene company, to provide education and awareness through various channels. Furthermore, Bleed Bright aims to increase legal awareness of women's and girls' rights concerning menstrual health and hygiene. As the demand for sustainable solutions to address period poverty grows, Bleed Bright's focus on education and awareness aligns with the increasing importance of menstrual health and hygiene in society. The project's ability to provide sustainable solutions to this global issue creates significant market potential. In conclusion, Bleed Bright aims to equip women and girls with the knowledge and resources necessary to manage their menstrual health effectively and provide sustainable solutions to period poverty.

Keywords: Bleed bright; social innovation; menstrual education; period poverty; awareness

Tale of Candyman: Organ Harvesting Prevention Kit

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ABSTRACT

Organ harvesting is a serious and growing issue that affects many people around the world, including children. Organ trafficking and illegal harvesting of organs can lead to significant health risks and even death. Many children are not aware of the dangers of organ harvesting which make them vulnerable to organ harvesting. The Tale of Candyman: Organ Harvesting Prevention Kit is designed to raise awareness about the dangers of organ harvesting particularly among children. The word ‘candy’ is used because it is a common and alluring method used by traffickers towards children to start organ trafficking. The kit includes educational materials, such as infographics, flashcards, posters, a jar of organs, and an awareness pin. These materials cover a range of topics related to organ donation, the human body, and the dangers of organ trafficking. The kit uses fun and engaging activities to create awareness among children and encourage them to take steps to prevent organ harvesting. It is developed specifically for kids to inform them about the risks associated with child organ harvesting based on the materials provided. The Tale of Candyman was first launched on March 11, 2023, at the Contemporary Global and Legal Issues Exhibition 2023 (CoGLIEx), targeting pre-university students at Universiti Teknologi Mara, Kampus Dengkil. The kit has significant commercial potential and can be marketed to parents, educators, and organizations that work with children, such as schools. Therefore, the Tale of Candyman: Organ Harvesting Prevention Kit is an innovative and engaging educational tool that can help raise awareness and highlight the dangers of organ harvesting. It has the potential to make a positive impact on children's lives by educating them about the risks associated with organ trafficking and encouraging them to take action to prevent it.

Keywords: Tale of Candyman; organ harvesting prevention kit; child organ harvesting; awareness

Stretchy Duster

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ABSTRACT

Stretchy Duster is one of the technologies that is made to overcome the flaws of the current eraser. The objective of this innovation is to reduce the time taken by the user to erase the whole whiteboard and to ease the user when holding the eraser. The current eraser that is small in size will increase the time to clear the whole whiteboard. Therefore, we created this innovation that can clear the whiteboard in half the time taken than a normal eraser to clear the whiteboard by increasing the size of the eraser. Other than that, the handle on the stretchy duster eases the users to use the erasers rather than the current erasers that have almost zero comfortability while using it. We plan on selling Stretchy Duster at RM45/each and plan to introduce it to huge stationery companies for mass production and commercial use. Stretchy Duster differs from normal whiteboard erasers in terms of size, durability, quality, and mechanicalistic. Our stretchy duster has user-friendly characteristics such as the length that can be adjusted according to the size of the whiteboard since it has retractable rods where it can go back to its initial position after using it. Moreover, the stretchy duster is created using high-quality materials where it can withstand daily wear and tear, are easy to be washed, and can be reused after washing.

Keywords: Stretchy Duster; eraser; stationery

Gotta Go Heater

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ABSTRACT

An electric kettle is a home appliance that is commonly used nowadays to prepare hot water in a short time. However, most of it is only available in large sizes, has a separate power base, and requires to be plugged into a socket for a power supply. On the other hand, the existing portable kettle still has a wire. All of the criteria mentioned make these kettles unportable and not really travel-friendly. Thus, we came up with the idea to innovate the kettle to go cordless by using rechargeable lithium batteries and also in the thermos. This will make our Gotta Go Heater portable and travel friendly. The target market is students, working people, travelers, and parents with babies. As our product is rechargeable and affordable, it will be convenient for the users to own and use them anywhere at any time. Hence, we believe our Gotta Go Heater will receive high demand from all users worldwide.

Keywords: Kettle; portable; cordless; lithium batteries; thermos

Hirose Face Scrub Powder

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ABSTRACT

Nowadays, we can see that there are various new products introduced to facilitate human affairs in daily life, especially in beauty products. However, there are many beauty products on the market that contain chemicals that cause harm to consumers. Therefore, we created an innovation called Hirose Face Scrub Powder that can take care of consumers' facial skin more easily, safely, and efficiently. Hirose Facial Scrub Powder is an organic scrub that consists of organic ingredients such as Rosella flower powder or its scientific name Hibiscus sabdariffa, rose petal powder, and Manuka honey powder. This product is a two-in-one product because it can be used on the face and body and is specifically created for individuals with sensitive skin or pregnant women. This product can be applied to all levels of society regardless of age and gender as it can treat facial skin problems naturally. Additionally, Hirose Facial Scrub Powder comes with an attractive and unique design packaging inspired by the shape of a rose and can attract users to buy it.

Keywords: Face scrub; hibiscus Sabdariffa; organic; natural; beauty product

Hanging Pump Station

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The hanging pump station is an innovation that should be easy and practical to use for users of all ages. It is designed according to the design of every type of vehicle in this era. The main function of this design is to make it easier for users to fill up with fuel more quickly, easily, and comfortably because everything is only at the tips of our fingers. The methods that we are using to build this hanging pump station are the hydraulic system, electronic system, and development system. The hydraulic system is the system that will make sure that the oil at the bottom of the platform can be channeled to the customer car tank while the electronic system is the system that will show the customer the quantity of oil that has been channeled to the car tank. Furthermore, the development system needs to be made carefully so that customers can use the hanging pump station without any problems in the future. Hanging Pump Stations can easier the driver's affair and shorten their time to refuel their vehicles. It also would indirectly faster the time to queue and prevent congestion and MyPump apps can be used everywhere and every time because it can be functioning although there is no internet connection.

Keywords: Pump station; hydraulic system; electronic system

SalahSnooz

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ABSTRACT

Introducing SalahSnooz, a ground-breaking solution that addresses two significant issues: the challenge of maintaining a regular sleep schedule and mistakenly skipping prayers as a result of oversleeping. This product's objective is to improve customers' ability to concentrate while praying, leading to a more satisfying spiritual encounter. Although maintaining a regular sleep pattern is important for overall health and wellbeing, many people find it difficult, which makes them tired all day. SalahSnooz provides a cosy pillow that gently awakens customers with an integrated alarm clock or vibration motor. It not only fixes the oversleeping issue, but also gets rid of the bad sentiments and spiritual restlessness brought on by skipping prayers. SalahSnooz is a cheap, easy-to-use tool that is perfect for people of all ages, from young children to the elderly. It distinguishes out from other alarm clocks and sleep aids on the market because to its distinctive characteristics, making it a desirable choice for anyone looking for a practical and efficient remedy to their sleep issues. SalahSnooz has a significant economic potential due to its unique design and potential market appeal. People can live more happy lives, get better sleep, and strengthen their spiritual practices with the aid of this revolutionary tool.

Keywords: Maintaining regular sleep; cosy pillow; sleep issue

Hajj Board Game

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ABSTRACT

The learning process becomes more challenging day after day. As for the children, early-stage learning can be a hustle with lots of words to be read and understood. When it comes to learning about Ibadah in Islam, especially about Hajj can be very difficult for the children and the students as there are a lot of processes and steps to be understood and remembered. Apart from that, learning the Hajj can be quite boring with the old-school methods of learning as we are dealing with the children and the students who would pay attention to something for only a short time. Hence, we came up with a great solution with the creation of this Hajj Board Game. The objectives of this game are to attract children and students to learn about Hajj, also making it simpler for teachers to explain the topic to students and provide youngsters another way to fill in their free time with something beneficial like playing our board game. The process of making this project started with some library research on how the youngsters' learning can be super effective. The rough model was sketched, then we printed out the sketch and started to build our board game model. Our Hajj board game is very affordable. It can be bought not only by the students but also teachers and parents as a teaching tool. Therefore, the Hajj Board Game can be a gamechanger on how the Ibadah could be taught as it is not only fun to play but also informative.

Keywords: Hajj; board game; education; students; parents

Fun Vector Learning Kit

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ABSTRACT

As time goes by, the youth keep avoiding pure subjects, especially Physics. The complexity and highly meticulous working solutions involved causes it difficult to understand. This project's main focus is to enhance the understanding of vector concepts among students and pique their interest in studying physics. When getting ourselves used to the fundamental concepts of physics such as forces and motion, understanding the basic concept of vectors play an extremely important role. Being able to solve vector-related problems will assist them in scoring physics, since about half of the syllabus requires vector solving skills. Because of this, innovating a simple, low-cost but mind-training game will get students to be invested in learning physics. Fun Vector Learning Kit, consisting of vector board, rubber lines, question cards which is guaranteed to allow students to enjoy learning vectors. It is played among 3-4 members. This innovation is also believed to change the way students see physics as they would go through the learning process independently without guidance from educators. This is a good step to reel in more Science and Technology students, especially those who take physics subjects and ensure a good commercial success in the market as it is suitable for students from secondary school to pre-university and STPM students.

Keywords: Physics; vector; Fun Vector Learning Kit; students; innovation

Scrabble Jawi

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ABSTRACT

Seperti yang kita sedia maklum, penggunaan tulisan jawi telah lama digunakan sejak zaman dahulu kala lagi dan telah menjadi identiti masyarakat bangsa Melayu di Tanah Melayu. Pada zaman dahulu, tulisan Jawi kerap digunakan dalam pelbagai bidang terutamanya dokumen-dokumen rasmi seperti Hukum Kanun Melaka dan pengisytiharan kemerdekaan Tanah Melayu 1957. Ini menunjukkan betapa hebatnya tulisan Jawi suatu ketika dahulu. Akan tetapi, tulisan Jawi pada masa kini tidak banyak digunakan dan boleh dikatakan tulisan Jawi kini sedang mengalami kepupusan/semakin pudar. Sehubungan dengan itu, kami telah mendapat idea cara untuk menyemarakkan penggunaan tulisan Jawi dalam generasi kini. Tujuan produk ini, 'Scrabble Jawi' dicipta adalah kerana terdapat segelintir pelajar yang masih kurang menguasai Jawi. Hal ini disebabkan oleh penggunaan tulisan Jawi dalam buku teks Pendidikan Islam pada masa kini membuatkan para pelajar yang masih kurang mahir mengalami keciciran kerana susah untuk membaca dan memahaminya dengan baik. Antara objektif kajian 'Scrabble Jawi' ini adalah bagi membantu para pelajar menguasai Jawi dengan lebih mendalam dan memberi galakan kepada pelajar untuk bersama-sama memelihara tulisan Jawi sehingga ke generasi seterusnya. Di samping itu, meningkatkan kecerdasan minda serta melatih kemahiran para pelajar dalam membaca dan menulis menggunakan Jawi terutamanya dalam subjek Pendidikan Islam. Tambahan lagi, mengaplikasikan dan memartabatkan penggunaan tulisan Jawi dalam kehidupan seharian. Produk ini hanya menggunakan bahan-bahan yang senang untuk diperoleh seperti papan dan kertas warna. Kos harga jualan yang murah dan berpatutan turut membuktikan produk ini terbuka dan sesuai pada setiap lapisan masyarakat. Secara ringkas, produk ini mempunyai pelbagai kelebihan seperti menarik minat pelajar untuk mempelajari Jawi, menggalakkan interaksi dua hala antara guru dan pelajar serta membantu meningkatkan tahap penguasaan Jawi yang kian membimbangkan pada zaman kini. Menuntut ilmu itu merupakan salah satu jihad di jalan Allah SWT. Oleh itu, dengan wujudnya produk ini, para pelajar dapat menunjukkan minat mereka terhadap tulisan Jawi.

Keywords: Tulisan Jawi; Scrabble Jawi; interaksi dua hala

Vector Hunt'S Game App

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ABSTRACT

This is a compilation of Vector Hunt Game's invention and introduction. This will help us understand an easier manner to comprehend vector-related things. Briefly, this effort was started at a time when it was evident that students, lecturers, and their grading had issues due to the pandemic. There is no other way to put it, but students find the subject of vectors to be very perplexing, especially those who have lost interest in the course material. The creation of graphics, range of solutions, and various levels might be able to ignite the target group's attention. Before we can successfully declare our prototype to be an app that can be utilized globally, there are a lot of ideas that we need to underline. We examined and talked about the innovation's commercial possibilities before we settled on the design of this prototype. We chose students and educators as our target audience to succeed in this project, and it goes without saying that we had to employ some expensive techniques. After the debate, we took this issue seriously in the hopes of catching the attention of individuals and organizations that could assist us in furthering the development of our project.

Keywords: Vector Hunt Game; vector; invention

Little Helper

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ABSTRACT

Little helper is an application, the function of this application is to help all Muslim around the world. This is because as time goes by the percentage of Muslim all over the world increases but the problem that the Muslim society faces is the lack of faith among the followers itself. To resolve this problem that we will be facing, Little Helper is created. In this application users can access the information needed to improve their faith, because the information that will be provided are, location of halal foods, the direction of qibla, everything about the Syariah laws, the call of prayer and more. With this information taken from a verified institution such as Majlis Agama Islam Malaysia the Syariah laws will be accurate. This will surely provide the foundation to build a united Muslim society, and have a solid faith in Allah SWT.

Keywords: Direction of qibla; halal food; prayer

Automated Dish Sorter Using Arduino

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ABSTRACT

Commonly, the food court has a few stalls. Each stall uses a different set of colors for its plates. The customer usually places the plate in one place such as the basin provided. All the plates in the basin are unsorted. Sorting a pile of plates manually according to the stall's plate takes a long time for the worker. To overcome this problem, this study proposes an automated dish sorter using a microcontroller by applying the fuzzy logic method. An Arduino Uno microcontroller was used to control the process and a TCS3200 color sensor was used to detect the color of the plates. The fuzzy logic helps in the sorting process of the plate for each stall automatically. The result of this prototype is being able to sort the plates according to their color correctly into the respective bins.

Keywords: Arduino Uno; Fuzzy Logic; TCS3200 Color Sensor

EPROS 2024

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ABSTRACT

Since the beginning, speaking in the English language has been a challenge for most of the Malaysian students. Lack of confidence and afraid of being judged, are among the reasons behind the insecurities of the students to use English language in their daily life. As a result, this predicament has hindered their English language learning as they are too scared to ask questions when they do not understand certain topics in class. Therefore, proper initiative must be carried out to help Malaysian students to improve their speaking skills either in ESL classrooms or outside of the classroom. This paper aims to shed a light on one of the ways to enhance students' speaking skills, which is through a program named EPROS. EPROS is a conference-like program which consists of 7 booths that will cover 7 components which are divided into 2 aspects. The first aspect is the internal factors of an individual which are inhibition, nothing to say, low participation and mother tongue use (Ur, 1996). The second aspect is the components of English speaking skills which are vocabulary, pronunciation and grammar (Brown, 2004; Fitriani, 2015; Syakur, 2007). This program will be involving the students of Pusat Asasi, UiTM Kampus Dengkil, both as the mediators and participants, and it will be opened to the public who are interested in improving their English speaking skills. The objective of this program is built under the foundation of a need analysis where majority of the respondents (90 out of 120 respondents) chose speaking skills as the most challenging skills in learning English language. Hence, it is hoped that this program can be one of the significant factors in enhancing and improving Malaysian students' English speaking skills.

Keywords: EPROS, English speaking skills, ESL learners

MyTabung: An Automatic Counting Machine for Money

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ABSTRACT

Saving money is a wise thing to do in life. Children have been taught to save money and give '*sadaqah'* till it comes naturally to them from an early age. Normally people will keep their cash in a variety of sized and shaped money boxes. The market has a wide variety of money boxes, some people even make their own money box from recycled materials and as it fills up, the money inside must be counted before depositing in the bank. Most people have struggled with money counting, especially when handling big sums of cash. Currently man must count the money manually and it is time-consuming, tedious and higher tendency of error due to many reasons. Money counting machines do exist, but exclusively used in banks, and only count the number of notes, not the total amount of money. To address this issue, alternative money-counting methods can appear to be crucial because accurate money-counting is able to provide quantitative output and time saving. This will be the main purpose of this innovation. This innovation consists of Arduino Uno and various components such as colour sensor, servo motors, RFID and LCD display. A colour sensor is used to develop the automated gadget known as MyTabung, which counts the total amount after determining the colour of the notes and displays it on the LCD screen. MyTabung uses RFID technology to provide high levels of security, and only authorised users are allowed to access. The management of the mosque, individuals, and those in charged for financial management are believed to profit from MyTabung's distinctive qualities. MyTabung able to save time and money while increasing accuracy and security. It provides faster processing time, higher accuracy, reduced labour costs and potential theft. Therefore, allowing more efficient and precise information acquisition.

Keywords: Automated device; Arduino; time saving; accuracy; less costs

Designated Parking for *OKU* with RFID Access

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ABSTRACT

Most structures, public spaces, and even public transportation in Malaysia have offered disabled-friendly infrastructure to those in need as awareness of the need of services for individuals with disabilities grows. Even an exclusive area for parking cars has been created. To make everything easier for those with impairments, this space is typically placed close to the entrance. However, not everyone is aware of this group of people with disabilities, even being selfish. Even though it is obvious that this parking space is designated for the disabled, they unilaterally leave their cars parked there. The reason for this is that the entrance is not far from this area. They blatantly park their cars there even they don't have any disabled person decals. For individuals who are in extreme need, this attitude of selfishness is especially challenging. To address this issue, something needs to be done so that people are not misused and being selfish. Designated Parking for *OKU* with RFID Access is an innovative solution that addresses the problem of unauthorized usage of disabled parking spaces. The use of RFID by *OKU* to obtain parking space authorization was highlighted by this invention. Unauthorised vehicles may have to pay for the compound before they are allowed to leave if the space is filled with them. These were the key goals in mind when this innovation was created. This innovation utilizes ultrasonic sensors to detect incoming vehicles and RFID readers to determine if the vehicles are authorized to park in the designated area. Unauthorised vehicles are prevented from leaving the parking lot by the system's boom gate, which is operated by a servo motor, allowing management to respond to the offender. Conversely, authorized users can enter and exit the parking lot without any issue. The uniqueness of Designated Parking for *OKU* with RFID Access gives it a significant advantage in the market. This innovation could potentially address the issue of unauthorized vehicles occupying designated spaces, leading to a decrease in conflicts between users of parking lots. Overall, this innovation is a revolutionary innovation that offers a reliable and efficient way of controlling access to disabled parking spaces.

Keywords: *OKU*; authorized person; RFID; parking space; disable

AUTOMATIC LAUNDRY FOLDING MACHINE (A.L.F.M)

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ABSTRACT

One of the household chores that all housewives, regardless of whether they work or not, must perform daily is folding clothes. When there are many clothes to fold and need to fold them correctly based on the type of clothing, folding clothes takes a lot of time, and elderly people find it difficult to do this. Finding the appropriate garments will be challenging when more and more clothing is not folded. Folding clothes can be hectic and tiring for some people as it involves physical work and skills. Saving time and lest effort in folding clothes are the main goals of this innovation which lead to creation of Automatic Laundry Folder Machine (A.L.F.M). The Automatic Laundry Folder Machine (A.L.F.M.) was designed to work as intended, with servo motors, Arduino Nano, and Uno serving as the major technological foundation. By pressing the correct button for the right type of clothing to fold, this invention helps the user while they wait for the machine to finish. In other words, user can simply press the corresponding button on the panel to fold a specific type of fabric. The primary focus would be on the elderly because some of them might not have the energy to complete physical tasks around the house. They would be able to work more effectively because of the additional time and energy saved. The device that will offer a neat one-way fold for clothes may be used by busy employees at the clothing department location. Starting at RM200, the pricing is within reach. All in all, the A.L.F.M. wants to help everyone fold their garments more quickly and easily.

Keywords: Folding clothes; less effort; conveniences; custom-made; time-saver

VIRTUAL HAJJ AND UMRAH

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ABSTRACT

“Virtual Haji” is an app to attract the attention of younger generations in the way of performing Hajj and umrah. This idea was prompted when we looked at the difficulty and lack of interest of the young generation in studying the science of Hajj and Umrah. As a solution, we created exciting applications using technology to upgrade the learning methods of Hajj and Umrah to attract attention and be easier to understand and more effective than reading books. “Virtual” which means virtual or something that seems to exist but actually does not exist and “Haji” is the fifth rule of Islam. The main objective of the creation of this application is to provide new learning methods for the younger generation in the implementation of Hajj. Within this app, the user can choose whether to execute Hajj in full or execute separately. This app is suitable for children aged 12 and above. Next, the price to create this application requires only a low cost. The target buyers for this app are parents and educators. We hope with this application, it can give pleasure and make learning more effective for the generation now to master the science of Hajj and Umrah.

Keywords: Hajj; virtual; effective

EcoE

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ABSTRACT

EcoE is a comprehensive mobile application that simplifies and enhances users' daily routines while promoting environmental responsibility. This all-in-one app combines scheduling, e-wallet, messaging, and eco-friendly features, making it the only app users need for their daily usage. With the scheduling feature, users can stay organized and up-to-date with upcoming events and even set reminders. The e-wallet feature allows for quick and convenient payments while keeping track of expenditures in one place. The messaging feature enables users to catch up with friends, plan trips, and send money effortlessly. EcoE also includes eco-friendly features that make it easier for users to reduce their carbon footprint. The recycling feature helps users locate nearby recycling centers and learn about proper waste disposal. The e-hailing feature encourages ride-sharing, reducing emissions and traffic congestion. In summary, the Eco E mobile application is a sustainable and practical solution to enhance users' daily lives while promoting environmental responsibility.

Keywords: Eco E, eco-friendly, mobile application, carbon footprint.

CATEGORY D
School

D-BOX

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ABSTRACT

Problem faced by the people of Malaysia when no one is home. This will however impact towards delivery man and receiver. The absence of parcel recipients at the delivery address during the delivery process can cause many difficulties. Moreover, due to current global pandemic, people are advised to practice social distancing and avoid human contact. This situation will bring some trouble in delivery process. To overcome these problems, we had come out with an idea of enabling a smart, safe, and secured delivery process.

Keywords: D-Box; parcel; delivery

Papan Pelangi

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ABSTRACT

Dalam menghadapi kemajuan revolusi industri 4.0 tidak ketinggalan sektor pendidikan, Program Pendidikan Khas Integrasi SK Taman Tun Aminah mengambil inisiatif mencipta "Papan Pelangi" yang mempunyai ciri tarikan emosi MBK yang menarik disamping merangsang daya intelektual (murid berkeperluan khas) dalam membanding beza huruf jawi yang seolah-olah sama bentuk. Terdapat 3 masalah utama iaitu masalah kecelaruan dengan huruf yang seakan sama; masalah lambat untuk memberi respon kerana keraguan dengan huruf yang seakan sama; Masalah Afektif iaitu keadaan mood yang lemah kerana bosan. Kajian ini menggunakan kaedah kualitatif berbentuk deskriptif. Data dikumpul melalui pemerhatian. Sampel dilakukan pada 10 orang pelajar. Pelajar di pantau melalui penilaian bilik darjah berfokus pada pemahaman selapas belajar dan keberkesanan produk yang dilakukan ketika subjek Pend Islam. Hasil mendapati 10/10 murid dapat mengusai huruf yang sama bentuk berlaianan bunyi dan meningkatkan fokus pelajar. Sementara itu, "Papan Pelangi" dapat mengoptimakan keupayaan murid khususnya MBK dalam subjek pendidikan Islam dengan keberhasilan pencapaian melalui penilaian bilik darjah yang dilakukan guru. Dalam pada itu, "Papan Pelangi" direka dengan kompenan teknologi terkini dalam bentuk bahan bantu mengajar yang sesuai dengan peredaran zaman juga mampu menarik minat MBK serta mencapai objektif kajian. Selain itu juga, "Papan Pelangi" direka dengan alatan yang murah dan mudah didapati disampiang kaualiti yang mampu tahan lasak sesuai dengan murid berkeperluan khas.

Keywords: PPKI (Program Pendidikan Khas Integrasi), Papan Pelangi, MBK (murid berkeperluan khas)

TREHAFE (TREAT BEAUTY HEALTHY SAFE)

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ABSTRACT

The TreHafe Eczema Cream Product (Treat,Beauty,Healthy,Safe) is believed to be safe from alcohol. The hypothesis of this project is that the Eczema Cream can moisturize dry skin. Ingredient A, put beeswax and shea butter and heat it until it melts. Remove and let it cool to 40 degrees centigrade. Ingredient B, put 1 drop of vitamin E, 3 drops of geranium, 5 drops of lavender, 2 drops of chamomile/calendula and stir until well mixed. Ingredient C add sunflower 22 g, hemp seed 10 g calendula/camomile 5 g (ingredient A enter in part C). A (can change ring for ringworm and ringworm). B (You can also change the smell of neem oil) Can be changed.

Keywords: Eczema; vitamins; moisturize

FACEMIST SPEUROS (SPECIAL NATURE ROSE)

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ABSTRACT

Facemist Speuros (Special-Nature-Rose) products made from rose flowers, believed to be safe from alcohol. The hypothesis of this product is that roses have vitamins A, C and E and have calcium. The first step is to prepare 2 rose flowers, 100 ml distilled water, liquid germal plus (preservative) 1% (20 drops = 1g) and a bottle spray 100 ml. The second step, pick a single rose flower and the rose until it is believed to be clean. The third step, dry the flower and then dissolve the flower petals that are then inserted into an empty jar. The fourth step, put distilled water in a different jar but make sure, the distilled water is 100 ml. The fifth step, boil the distilled water using the distillation process and pour it into the jar containing the flower patel. The sixth step, set it until the color of the patel is produced then let the water cool for a few minutes. The seventh step, filter the distilled water and separate the contents. The eighth step, put 10 drops of germal plus liquid. Last step, put it in an empty bottle.

Keywords: Facemist; vitamins; rose

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