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School of Mechanical Engineering INDUSTRY/ COMMUNITY **ENGAGEMENT**

SU PUSAT PENGAJIAN KEJURUTERAAN

MEKANIK

Industry collaborations are essential for developing practical research providing practical solutions and technology advancement. It is also detrimental for the School to produce qualified and industry ready graduates. Collaboration spans research and exploration of new technology, training, internships, staff attachment and experts input. The interactions with industry has brought opportunity for student and staff to enhance specialized skills and updated knowledge.

Community engagements seek to empower the less fortunate or B40 population through quick win an impactful projects working collaboratively with the government sector and the targeted community. Community engagements give opportunity for people of diverse backgrounds to achieve their goal to elevate themselves via interactions, information sharing and coordination of activities. Social innovation seeks to transform the livelihood of the people with newly developed technology. The School of Mechanical engineering has played active role in social innovation via collaboration with various government agencies. I hope this publication will spur more interactions and impactful collaborations with industry and the community.

> Best Regards, Associate Professor Dr. Jamaluddin bin Abdullah Dean

> > School of Mechanical Engineering





Associate Professor Dr. Jamaluddin bin Abdullah Dean School of Mechanical Engineering

Greeting from the School of Mechanical Engineering

Congratulations to the Office of the Deputy Dean and the School of Mechanical Engineering Research for this publication. This publication features industry collaboration, community engagement and social innovation projects implemented over the past 3 years, by the School of Mechanical Engineering, University of Science Malaysia.

OUR PARTNERSHIPS WITH INDUSTRIAL ENTITIES, GOVERNMENT AGENCIES & INTERNATIONAL UNIVERSITIES

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MEET the EXPERTS































MEET THE EXPERTS



ΔP Ir Dr Δh























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Dr. Muhammad Iftishah Bin Ramdan







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OUR RESEARCH GROUPS

0 ADVANCED PACKAGING & SURFACE MOUNT TECHNOLOGY



Web : http://apsmt.eng.usm.my

NANOFABRICATION AND FUNCTIONAL MATERIALS RESEARCH 02



Web : http://nfm.eng.usm.my

SMART MANUFACTURING COMPETENCE CENTER 03



Web : http://smcc.eng.usm.my

14 TheVibrationLab



Web : http://thevibrationlab.eng. usm.my

NANOFABRICATION AND 05 FUNCTIONAL MATERIALS RESEARCH



Web : http://metalforming.eng. usm.my

SMART MANUFACTURING 06 COMPETENCE CENTER

- Web : http://ieom.eng.usm.my
- STRESS, DAMAGE AND FAILURE MECHANISMS **N7**

Web : https://mechanical.eng. usm.my/sdfm

8 AI & ML GROUP

09 ROBOTICS & AUTOMATION GROUP

- NEUROREHABILITATION ENGINEERING AND ASSISTANCE SYSTEMS RESEARCH (NEAR) 10
 - RENEWABLE & SUSTAINABLE ENERGY GROUP (RSEG)

 - BIOMASS TREATMENT
 - GASIFIERS
 - ENERGY SYSTEM
 - ENERGY EFFICIENT SYSTEM

RESEARCH **GROUPS**



INDUSTRY/ COMMUNITY ENGAGEMENT

OUR LATEST PROJECTS

USM - FLEXTRONICS SYSTEMS (PENANG) SDN. BHD. (PROGRAM DEVELOPMENT COLLABORATION)

Lean Six Sigma is a manufacturing management concept that is widely used in many different industries. The essence is to systematic and continuous improvements at all organizational levels through alignment to customer-defined value and elimination of waste. The partnership with Flextronics Systems guarantees the continuation and advancement of the Lean Six Sigma training program, enabling our undergraduate students in manufacturing engineering to acquire the necessary knowledge and expertise. The outcomes of the collaboration include ten waves of Yellow Belt certified students, fully established Yellow Belt and Advanced Lean Practitioner programs, and problem-solving-based internships. The collaboration involves Associate Professor Ir. Dr. Chin Jeng Feng, Ir. Dr. Nur Amalina binti Muhammad, Dr. Hasnida binti Ab Samat, Ir. Ts. Dr. Muhammad Hafiz Bin Hassan, and Associate Professor Dr. Khairudin Bin Mohamed.







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USM – DYSON MANUFACTURING SDN BHD – CREST COLLABORATION

In the realm of sound absorber technology, addressing the noise levels generated by consumer products stands as a paramount concern for manufacturers. Incorporating noise control strategies into product design not only caters to this concern but also contributes to fostering a healthier living environment for the public. This initiative embarks on a collaboration with Dyson Malaysia to pioneer a cutting-edge sound absorber named the cascaded cylindrical micro-perforated panel (CMPP). The innovative CMPP design boasts tunability across various parameters within each cascaded section, precisely tailored to meet noise control prerequisites at the target operating frequency of the product under development. Leveraging additive manufacturing techniques, this project seamlessly integrates the CMPP prototype into the existing product design, ensuring optimal performance without disruption.









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USM BJIM INNO4C - TERAJU - Sabah

TERAJU projects in Sabah focused on upscaling the economic activities that located at a few places. Kampung Lompios, in Kota Belud and Kampung Puhus in Tamparuli are locations for pepper upscale projects. These smallholder pepper growers are new in this field and need assistances in driving their production with good manufacturing practice (GMP). A few solutions such as solar drying house complete with tray and trolleys, threshing machine, retting machine and sieve shaker machine have been implemented to enhance their output with hygenic environment. Kampung Laut, in Papar is where the belacan upscale project initiated. A solar drying house complete with trays and trolleys has been built together with few machines such as extruder and mixer to achieve hygenic production environment and GMP. Kampong Tinura in Tenom is where the upscaling project for ambatu kelarai waving process. A number of machines such as, bamboo cutter, splitter, slicing and layering have been built to improve these highly labour and skill intensive processes. These solutions have assisted them in improving the quality and productivity of their products. The socio-economic of the peoples will benefited from this work. With the new upscaled production method, their products have a potential to penetrate international , market.







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USM - SAS INSTITUTE SDN. BHD. - CREST COLLABORATION

Many stroke survivors struggle with partial paralysis or decreased motor ability in specific body parts as a result of brain injury. As a result, these individuals face daily challenges, such as bathing, dressing, and eating without assistance. Rehabilitation becomes critical in assisting patients to quickly achieve optimal motor function. The goal of this research is to develop a video game-based rehabilitation device (NEAR3) to help stroke patients strengthen their core muscles. The creation of this device could supplement present treatments by providing additional practise sessions and repetitions for stroke patients. The team is working closely with physiotherapy team from Institut Perubatan & Pergigian Termaju, Universiti Sains Malaysia, Hospital Universiti Sains Malaysia and General Hospital Penang in order to improve the design and functionality of the rehabilitation device. Additionally, SAS Institute Sdn. Bhd. provided its cloud server for the data storage and cloud computing purposes.





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USM BJIM INNO4C - TERAJU - SARAWAK

For a long time, Malaysian pepper growers especially in Northern Borneo (Sabah and Sarawak) have been using traditional methods in producing white pepper. The process of producing white pepper using traditional method takes between 21 - 28 days after it is harvested from the tree. One of the longest processes is removing the skin by immersing it in water (retting) t akes about 12 to 14 days. Usually green peppers are packed up in 50 kg sacks and soaked in shallow water like in rivers. After 14 days, the sack is then stomped on by human feet to remove the skin. It is then washed with flowing river water. After washing, it is then placed on the mat and left outside on the ground for the sun drying process of about 3 days to 5 days This process exposes the pepper to natural (microbial) organisms such as bacteria. This makes white pepper processing using traditional methods are unhygienic. With the sharp drop in white pepper prices and rising prices of fertilizer, the pepper growers' community and industry becomes vulnerable. The 28-day long production process makes the industry uneconomical. A solution to shorten the processing time of white pepper and produce a hygienic white pepper product is sought after. In this project a number of solutions have been implemented in Sarawak which located at few areas such as Kampung Stass in Bau, Kampung Karu and Kampung Garung in Padawan, and Melabu Bair long house in Ulu Layar, Betong. These in-house built systems are an electrical threshing machine, an enzymatic retting process, and a solar drying house as the solution. Using these up-scaled systems, white pepper processing time could be shrinking from 28 days to less than 5 days. This research project leads to the solution of traditional production method problems. The socio-economic of pepper growers will benefited from this work. With the new white pepper production method, white pepper products have a potential to penetrate international market.



A post stroke patient playing trunk-based video games during

rehabilitation in IPPT, USM







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USM – MALAYSIA AIRLINE GROUP Flight Operations Safety Audit system

The industry-wide project collaboratively built, over two years, a Flight Operations Safety Audit (FOSA) system with the goal of automatically analyzing and mining data into line operations as part of the Threat & Error Management program. The FOSA collected comprehensive flight observations and converted them into insights that aid in the improvement of all phases of line operations. Being the first in South East Asia, the system is adaptable to different service sectors that place a high value on operational safety. The research was led by Associate Professor Ir. Dr. Chin Jeng Feng and his teams (Prof Dr. Farzad bin Ismail, Dr. Hasnida binti Ab Samat, Associate Professor Dr. Jamaluddin bin Abdullah, Associate Professor Dr. Loh Wei Ping and Dr. Nur Amalina binti Muhammad).







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MODULAR HOUSING AFFORDABLE HOUSING REDEFINED: COMPOSITE MODULAR HOMES EMPOWER THE B40 COMMUNITY

The collaboration between Universiti Sains Malaysia (USM) and DK Composite Sdn Bhd aims to develop affordable modular housing solutions using composite materials and advanced analysis techniques. These composite modular houses offer significant advantages over traditional concrete structures. They are more affordable due to cost reduction in production and construction. The speed of construction is improved through off-site manufacturing and efficient assembly. Composite materials provide exceptional structural strength, ensuring the resilience of the houses against seismic forces. Additionally, composite modular housing is energy-efficient and environmentally sustainable, with insulation properties reducing energy consumption and carbon footprint. The versatility in design allows homeowners to customize their living spaces, fostering a sense of ownership and pride. By embracing composite modular construction, the B40 community can have access to safe, sustainable, and affordable homes, empowering them and inspiring others to embrace this innovative construction method.







MEMORANDUM OF UNDERSTANDING BETWEEN UNIVERSITI SAINS MALAYSIA AND NATIONAL YANG MING CHIAO TUNG UNIVERSITY

The aim of this memorandum of understanding between Universiti Sains Malaysia (USM) and National Yang Ming Chiao Tung University (NYCU) is to enhance academic and research collaboration between both universities. This MOU also promote the staffs and students exchange between both universities. Representatives from both universities had participated in academic visit and had joint organized international conference, i.e., International Conference on Recent Advances in Sustainable Energy Research 2021 (RAISER 2021). The USM-NYCU Technical Workshop on Mechanical Engineering had been held to discuss the potential research collaboration.





International Summer Course 2023 held by Universitas Sumatera Utara in Medan, Indonesia

This program is themed "Agroindustry Innovation to Increase Production and Support Sustainable Agricultural Development in the Era of Disruption," and is a collaborative initiative held by USU, in collaboration with four leading institutions, namely Universiti Sains Malaysia (USM), REVA University from India, University Prince of Songkla (PSU) from Thailand, and Perkebunan Nusantara Indonesia. This program provides an extraordinary opportunity for participants to be involved in the advancement of agro-industry innovation in line with the achievement of the 'Sustainable Development Goals' (SDGs). In this program, several interesting activities were carried out, including:

- A hybrid lecture session which was also attended by students from PSU and REVA University. The
 participants had the opportunity to listen to lectures from experts from various universities.
- Visit to the Palm Oil Processing Factory, PTPN IV KEBUN ADOLINA in Serdang Bedagai District. Participants
 had the opportunity to directly see the production process at the oil palm fruit processing factory and
 understand the importance of inventory management in this industry.
- Visit to Palm Oil Processing Factory, PT. SUSTAINABLE PLANT INDUSTRY in Simalungun District. Participants
 had the opportunity to gain a deeper understanding of supply chain management and technology
 management in palm oil production.
- Visit to Lake Toba. In addition to the educational aspect, participants also enjoyed the natural beauty of Indonesia by visiting Lake Toba, one of the famous natural attractions in North Sumatra, together with students from USU.

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VOLTAKE ENERGY SERVICES

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UNIVERSITI SAINS MALAYSIA - VOLTAKE ENERGY SERVICES SDN. BHD

Voltake Energy Sdn Bhd is mainly involved with service operation & maintenance of renewable energy generation system (solar panels and dam) in Malaysia. Voltake Energy is in charge of cleaning of the solar panels to ensure high efficiency of lighting gathered. With the solar panel farm increasing in number in Malaysia, more cleaning services and faster services would be required. The aim of this project is to develop an automated solar cleaning robot that could be controlled via IoT system.

Semi-automated IoT Controlled Solar Cleaning Robot

- Research Institution : Universiti Sains Malaysia
- Company name : Voltake Energy Services Sdn. Bhd.
- Project Duration : 15 month (8/11/2021 7/2/2023)
- Project leader : Associate Professor Mohamad Aizat bin Abas
 (aizatabas@usm.my)
- Project Member : Dr Mohamaed Fauzi Packeer Mohamed
- Approved Amount : RM 60,000 (70% PPRN, 30% Company)





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USM - TERAS TEGAP AGROTECH SDN BHD COLLABORATION

Musculoskeletal injuries are a significant occupational health problem in the oil palm industry. These injuries are caused by physically demanding tasks that require repetitive movements, awkward postures, and heavy loads, such as harvesting, pruning, and loading fresh fruit bunches that are often associated with manual labor. These injuries can lead to long-term pain, discomfort, and even disability, impacting the health and well-being of workers and affecting productivity and profitability in the oil palm industry. Moreover, the cost of treatment and lost productivity due to musculoskeletal disorders (MSDs) can have significant economic consequences, particularly for smallholder farmers who make up a large proportion of the workforce in the industry. The collaboration aims to advance research and development (R&D) in the field of oil palm harvesting tools, ergonomics of the users and overall enhancement of performance and efficiency in the oil palm harvesting process.





i-Clever Smart Hand-controlled for Disabled Driver

iClever Smart Hand Controller won the Silver Medal at the National Research Council Of Thailand competition.

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USM SCHOOL OF MECHANICAL ENGINEERING – UNIVERSITY OF WOLLONGONG – KDU SCHOOL OF ENGINEERING, COMPUTING & BUILT ENVIRONMENT, LANGUR PROJECT PENANG HUB

Langur Project Penang is a pioneering initiative studying and conserving Dusky Langurs in Penang since 2016. With a citizen science-based approach, it focuses on behavioural ecology research and innovative conservation efforts. Notably, it has built Malaysia's first road canopy bridge to aid Langurs, Macagues, and squirrels in crossing roads safely. The project's collaboration with the School of Mechanical Engineering at Universiti Sains Malaysia and the School of Engineering, Computing & Built Environment at the University of Wollongong – KDU is titled "Exploring Temperature and Humidity-Driven Data Mining of Monkey Behaviors for Fundamental Environmental Insights." This interdisciplinary research aims to understand the impact of environmental factors on Dusky Langurs in urban settings using data mining techniques. Envisioning joint fieldwork and resource-sharing, this collaboration is poised to significantly contribute to scientific understanding and conservation efforts for Dusky Langurs. The Langur Project Penang's approach, blending research and community engagement, sets a model for effective interdisciplinary conservation practices with global implications.



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USM – EASTERN AGRO SDN. BHD.

The collaboration between Universiti Sains Malaysia (USM) and Eastern Agriculture and Farming Sdn Bhd (EAFSB) represents a strategic partnership in advancing agricultural research. USM's premier status and multidisciplinary expertise, combined with EAFSB's commitment to innovative livestock practices, promise a dynamic collaboration aimed at enhancing productivity and reshaping agricultural technology.









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ITPLN-USM RESEARCH COLLABORATION AT SURALAYA COAL FIRED POWER PLANT

Suralaya (SLA) is the largest coal-fired power plant (CFPP) in Indonesia. Before 2020, the SLA CFPP used coal with 4,800-5,200 kca/kg. SLA has implemented the use of lower coal rank since 2020. The coal caloric values dropped to 4,400-4,800 kcal/kg. Since the fuel represents 60-80% of a power plant's operating costs, significant savings might be made by firing cheaper coals. These coals are usually outside the fuel specification that would normally be used. The cheapest coal does not necessarily produce the cheapest electricity. We were asked to perform a study to quantify the negative impacts of coal quality and the net savings on the power plant cost. The result of the the study could help SLA CFPP to make a strategic decision.





UNIVERSITI SAINS MALAYSIA & PROTON HOLDINGS BERHAD COLLABORATION

The noise and vibration of heating and ventilating air conditional (HVAC) system is a common problem for most of the automotive manufacturers. In this project, the HVAC noise and vibration problem is investigated for one of Proton vehicle. Structural dynamic modification (SDM) method is applied as a design solution and countermeasure for this problem and will be used as guideline for Proton in designing and improving the performance of HVAC system in terms of noise and vibration.





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USM - FREEDOM MED INTERNATIONAL SDN BHD - CREST COLLABORATION

The healthcare industry is one of the largest and fastest-growing industries, employing millions of workers worldwide. One of a major safety concern in today's healthcare environment is workrelated musculoskeletal disorders (WMSDs) due to the manual lifting of patients with higher acuity levels and obesity. This project aims to understand the extent of the issue related to patient carerelated by directly engaging with nurses and caregivers who are most affected by duties related to patient handling and transfer. With extensive knowledge or access to information on emerging technologies, researchers will identify opportunities to apply new technologies to fulfill or aid key functions of patient handling and transfer.





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UNIVERSITI SAINS MALAYSIA, RISDA & MOSTI COLLABORATION

The portable petrol driven grass trimmer is widely used in Malaysia for maintenance of grass and weeds areas which includes the RISDA smallholders rubber tapping plantation. This grass trimmer has been identified as a type of machine whose operator can be subjected to large magnitude of hand-arm vibration due to high vibration from the grass trimmer handle. This vibration can cause the complex vascular, neurological, and musculoskeletal disorder, collectively named hand-arm vibration syndrome (HAVs). In this project, a new suspended handle adaptor is proposed in reducing the vibration total level to 2.69 m/s2, which resulting of 76 % of vibration reduction. The handle adaptor allows the whole handle of the grass trimmer to be suspended and it can be used for any design of the handle of petrol engine driven grass trimmer.







MEMORANDUM OF UNDERSTANDING (MoU) BETWEEN e-CAMPUS UNIVERSITY – ITALY AND USM

The purpose of the agreement is to create favorable conditions for creating opportunities for networking and carrying out joint innovation projects, research and exchange academic and activities of interest to both Parties. Parties will take part in joint innovation projects, contribute to the advancement of innovation projects in the countries of the Parties, inform each other about opportunities to participate in innovation projects of the third party and carry out joint researches on scientific issues of interest to both Parties, facilitate the publication of research results in appropriate scientific journals of both countries, and exchange scientific and academic literature. The 8th meeting to continue Erasmus Plus Project, funded by the Education, Audiovisual and Culture Executive Agency of European Commission was succussfully held on 13 to 16 June 2022, in Rome, Italy.





MEMORANDUM OF UNDERSTANDING (MoU) BETWEEN e-CAMPUS UNIVERSITY – ITALY AND USM

The joint venture involves collaborative efforts in technical advisory services, specialized training, and expertise, focusing services, specialized training, and expertise, focusing on the latest advancements in microelectronics engineering. The objective is to enhance the quality of training, skills, and technology application across various levels, benefiting lecturers, instructors, graduates, and students. This will be achieved through a range of structured programs, including supervision, study visits, and other relevant initiatives.



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Activities :

- FRGS: Experiment and Site Supervisors

- EPE441: Micro & Nano-Manufacturing Technology (Training)

- EPE442: Advanced Semiconductor Manufacturing Technology (Training)







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UNIVERSITI SAINS MALAYSIA - WESTERN DIGITAL MEDIA (M) SDN. BHD.

Under USM-WD CiA lab, we embark in design, development and testing of solder joints inspection software. The aim of this project is to minimize error during laser soldering process and depicted in Figure 1A. The current software will entail both automated CNN based void detection and parameter settings prediction using machine learning algorithm.





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USM - HALIM AND SONS FARM - COMMUNITY ENGAGEMENT

The collaboration between Universiti Sains Malaysia (USM) and Halim and Sons Farm a strategic alliance in advancing agricultural research for a community project. USM's premier status and multidisciplinary expertise, combined with Halim and Sons Farm's dedication to innovative livestock practices, form a dynamic partnership aimed at enhancing community productivity and reshaping agricultural technology for the benefit of all stakeholders. The collaborative project is poised to bring significant benefits to the farming community in the southern Seberang Perak region. Through







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USM – DWI MAKMUR SDN. BHD- INDUSTRIAL COLLABORATION

Universiti Sains Malaysia (USM) is set to revolutionize agricultural drying practices as the technology provider in collaboration with Dwi Makmur Sdn. Bhd. USM's innovative IoTequipped drying house solution aims to enhance efficiency, minimize environmental risks, and propel Dwi Makmur towards a digitized, optimized production process for their agricultural dried products.







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USM SCHOOL OF MECHANICAL ENGINEERING – WESTERN DIGITAL – BATU KAWAN, MALAYSIA

Western Digital Batu Kawan Malaysia, formerly known as Sandisk Malaysia, occupies a prominent position as a global industry leader, lauded for its relentless pursuit of innovation in the realm of data storage solutions. The company's diverse product lineup, encompassing hard disk drives (HDDs), NAND flash-based storage devices, solid-state drives (SSDs), and enterprise storage platforms under renowned brands like Western Digital, SanDisk, G-Technology, and WD, attests to its commitment to delivering cutting-edge technology. Employing sophisticated manufacturing techniques such as surface mount technology (SMT), Western Digital ensures the fabrication of electronic devices with printed circuit boards (PCBs) that adhere to the highest standards of quality. In addressing challenges inherent in the intricate PCB assembly process, where defects like solder bridging significantly contribute to overall product issues, USM's collaborative project with Western Digital has strategically implemented advanced process control (APC), designed to finely tune machine performance during the solder paste printing phase, minimizing defects and elevating the overall reliability of the end products. The focus is on establishing a robust correlation between critical-to-quality signal profiles, obtained through sensors, and solder paste volume. The overarching aim is to develop a sophisticated model for effective anomaly detection and classification, showcasing the company's dedication to continuous improvement and unwavering commitment to delivering high-caliber storage solutions to a discerning global market.









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USM - SELIATEK SDN. BHD. PID PROJECT

Healthcare workers (HCW) are known to be at a high risk of being viral infections because they are required to interact with their patients at a distance two meters, for more than ten minutes at a time. Due to limited resources, most inadequately protected. On the other hand, an immunocompromised patient need full-body be transferred in a positive pressure environment. This study develops a dual-mode full-body isolation pod that is designed to protect the HCW in negative pressure mode and protect immunocompromised patients in positive pressure mode. With these two modes, the isolation pod can serve immunocompromised patients that suffer from burning injury, diabetes, and cancer as well as protecting the HCW. The isopod structure consists of composite side panels and aluminium strips. A clear tarpaulin sheet is used to seal its structure. Two identical a high-efficiency particulate air (HEPA) filters are used to filter the air that goes through the isopad while the pressure inside it is maintained within the range described by the Airborne Infection Isolation (AII) room of the United Stated of America Centers for Disease Control and Prevention (CDC). This isolation pad could be the solution for hospitals in developing countries to enhance the protection among HCW and immunocompromised patients from the deadly virus since it is attainable and satisfies the CDC requirements.







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USM - PUSAT JAGAAN DARUL HANAN, PONGSU SERIBU, PENANG

Pusat Jagaan Darul Hanan, located in Pongsu Seribu, Kepala Batas, Penang, is a care facility that provides protection and care services for elderly persons. On average, one caregiver is responsible for looking after approximately four elderly residents. Some of these individuals are unable to care for themselves due to their physical weakness, requiring assistance from caregivers. The tasks involve lifting and transferring residents from bed to wheelchair for activities such as bathing twice a day, attending to toilet needs, and going to doctor appointments at nearby hospitals and healthcare centers. The frequent transfer process can have negative effects on caregivers, potentially leading to back, shoulder, and neck pain. This situation can worsen if the individuals under their care are overweight or obese. To address this challenge, a motorized lifting and transfer device named 'NEAR-1' (copyright number: LY2022P06026) has been designed to help alleviate tasks such as lifting and transferring elderly individuals or patients from beds to wheelchairs, toilets, sofas, chairs, and vehicles like cars and vans safely. This device can be operated by a single worker.







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MEMORANDUM OF UNDERSTANDING (MoU) BETWEEN CUKUROVA UNIVERSITY AND USM

The purpose of the agreement is to enhance the cooperation in education and science, to use effectively the opportunities of both sides in humanitarian, scientific, and technical cooperation, experience in training specialists, entered into this Agreement relying on friendly relations between the two countries. It is also to create favorable conditions for creating opportunities for networking and carrying out joint innovation projects, research and exchange academic and activities of interest to both Parties. It is also

The 14th project meeting to continue Erasmus Plus Project "Enhancement of Engineering Skills of Students of All Levels for Application of Evidence Based Sustainable Renewable Energy Solutions in the Built Environment/SKYBELT", funded by the Education, Audiovisual and Culture Executive Agency of European Commission was succussfully held on 6 – 9 November 2023 in Adana, Turkey.





MEMORANDUM OF UNDERSTANDING (MoU) BETWEEN CUKUROVA UNIVERSITY AND USM

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MEMORANDUM OF UNDERSTANDING BETWEEN UNIVERSITI SAINS MALAYSIA AND NATIONAL TAIWAN UNIVERSITY OF SCIENCE AND TECHNOLOGY

The aim of this memorandum of understanding between Universiti Sains Malaysia (USM) and National Taiwan University of Science and Technology (NTUST) is to enhance academic and research collaboration between both universities. This MOU also promote the staffs and students exchange between both universities. Representatives from both universities had participated in academic visit and had joint organized international conference, i.e., International Conference on Recent Advances in Sustainable Energy Research 2021 (RAISER 2021).



Notes

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