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BULLETIN@RICE UTeM

Research, Innovation, Commercialisation and Entrepreneurship

THE LATEST NEWS

RESEARCH ICON:
Professor Dr. Ghazali Omar:
The Man who Bridges the Gap
Between UTeM & Industries

WILD IDEAS
The Potent Combination
of Experienced
Wisdom & Young Spirit

RESEARCH & INNOVATION ACTIVITIES
Experience from the
4th JENESYS (Japan-East Asia
Network of Exchange for
Students & Youths) Programme

RESEARCH & INNOVATION ACHIEVEMENTS
29th International Invention
& Innovation Exhibition
(ITEX) 2018

RESEARCH HIGHLIGHTS
Autonomous
Underwater
Vehicle (AUV)

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Editor's Note

Assalammualaikum and Greetings,

Welcome to the first edition of 2018 RICE bulletin of UTeM. We hope that this issue of RICE will provide valuable insights of our current research and innovation activities to further promote the expertise and products of UTeM.

In the beginning of 2018, we have witnessed several achievements, particularly in research and innovation activities. The early glory as for now is we have won four golds and achieved 100% success rate in ITEX 2018. Researchers have also started to collaborate and participate in few research activities at the national and international level. These trends show that our researchers from all faculties and CoEs have been actively working on variety of interdisciplinary researches to promote UTeM's research and innovation to the next level.

In this edition, we introduce one of the research icons who is very successful in linking the university with the industries. It is hope that all the distinctive achievements will motivate researchers to be more focus and take the challenge to perform better in the year of 2018.

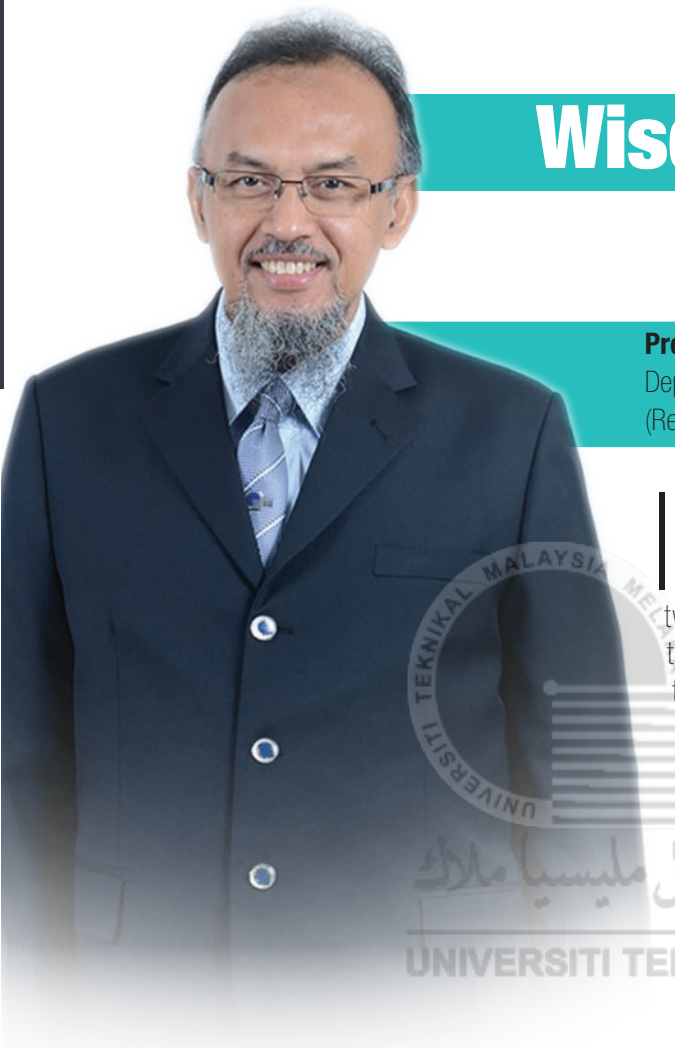
Last but not least, on behalf the editorial board, I would like to wish all researchers "Selamat Hari Raya Aidilfitri" and "Maaf Zahir dan Batin".

Enjoy reading

Assoc. Prof. Dr. Massila Kamalrudin
Chief Editor

WILD IDEAS

The Potent Combination *of Experienced* Wisdom and Young Spirit



Prof. Datuk Ir. Dr. Mohd Jailani Mohd Nor
Deputy Vice-Chancellor
(Research and Innovation) UTeM

In this edition, I would like to draw your attention and relate my wild ideas to the new spirit of Malaysians – the New Malaysia. We have just witnessed the combined hard work and commitment of two different generations, the seniors and the younger generation, that leads to impactful change in Malaysia. It shows if we work together harmoniously regardless of our differences and age gap, we would be able to achieve our goal.

Now, let me relate the spirit of new Malaysia to our research scenario in UTeM. The combination of the experience and wisdom of the senior researchers, particularly the managers and coordinators of the Centre of Excellence and the enthusiasms and skills of the new researchers has the power to achieve success beyond expectations. In this case, both groups need to have the important soft skills to ensure that they can blend together. The seniors should have the arts of listening to the voices of the young researchers, while the young and energetic researchers should acknowledge the advice and wisdom of the seniors. The harmonious blend between the two groups will eventually lead to understanding, respect and togetherness as they work and complement with each other for one particular goal, that is to strive for excellence in research. I end my wild ideas with a popular Malay pantun:

The Straits of Melaka is broad and blue,
Together we make our dream come true

"We would like to **congratulate YB. Dr. Maszlee Malik** as the new **Minister of Education Malaysia.**"

RESEARCH ICON

By: Dr. Siti Hajar Sheikh Md. Fadzullah

Professor Dr. Ghazali Omar: The Man who Bridges the Gap Between UTeM and Industries

Professor Dr. Ghazali bin Omar is currently a Professor at UTeM. His specialisation is in Advanced Material Characterisation. He is also overseeing all R&D activities at the Faculty of Mechanical Engineering. Prior to joining UTeM, he was the Principle Consultant of EFGO Scientific Sdn. Bhd. located in Kulim Hi-Tech, Kedah. Prof. Dr. Ghazali is also the former Head and Senior Manager in Failure Analysis Lab at Infineon Technologies back in 2012. Prof. Dr. Ghazali has achieved a distinguished career in the industry, with over 21 years of experience and has established himself as a Principle Consultant in semiconductor and microelectronics industries with extensive experiences in teaching, research and development, as well as technology breakthrough in collaboration with universities. To date, he has established 51 technology-based R&D, professionally served 73 companies on 39 series of technical training and 61 technical consultations.

One of his major accomplishment while serving the industry, is that he has led a joint collaborative research grant application, and based on a total of 11 proposed projects, he has secured more than RM27,000,000.00 in 2005 and successfully driven the project to completion. In addition to that, he has also received the Prime Minister Award for Malaysian Best Employee of the Year for 2002 for his outstanding achievement and accomplishments in the industry. Although he has only entered the academic profession for less than three years, with his great passion for research, he has published more than 54 journals, book chapters and academic papers. With his keen interest and competencies as a strong researcher, he is now supervising five PhD and two Master students.

To-date, since joining UTeM in June 2015, with the notion to mentoring young researchers and academicians, Prof. Dr. Ghazali and his team have initiated an integrated demand-driven lab, called the Advanced Materials Characterisation Lab (AMCHAL), signed three MoAs with Jabil Circuit Sdn. Bhd., which is a multinational company headquartered in USA as well as another MoA with MIMOS Semiconductor (M) Sdn. Bhd. on shared services and facilities, secured industrial grants close to RM1,000,000.00 from varying field including electronics, aerospace, automotive and civil engineering, such as CTRM Aero Composites Sdn. Bhd., Petronas Research Sdn. Bhd. (PRSB), Malaysia Palm Oil Board (MPOB) as well as appointed as the Principle Consultants on various consultation projects to the industries. One of the key elements to the great success in these efforts and more, is believing in strong team spirit and teamwork.

Recently, he has been appointed as an Associate Researcher to Gebze Technical University (GTU), Turkey under Mevlana Exchange Programme 2017/2018, where he received an International Travel Grant from the Turkish government. He was also invited by the Rector of GTU to give a special talk on Bridging the Gap Between Academic Research and Industry: A Case Study on Research and Development Activities in Malaysian Industries to the scientific and academic community during his recent 14-day visit to Turkey, between 22nd April till 6th May 2018 with Dr. Siti Hajar Sheikh Md. Fadzullah and Dr. Muhd Ridzuan Mansor from the Faculty of Mechanical Engineering, UTeM and CARe. It is believed that such activity and program can help to improve UTeM's visibility at the international level and will significantly contribute to UTeM MyRA ranking.

Prof Dr. Ghazali bin Omar
Research Interest:
Industry Based Advanced Material

Assoc. Prof. Dr. Noreffendy bin Tamaldin
Research Interest:
Emission & System Design

Dr. Siti Hajar binti Sheikh Md Fadzullah
Research Interest:
Conductive Polymer Composites; Biocomposites & Impact Engineering

Dr. Nor Azmmi bin Masripan
Research Interest:
Tribology & Thin Hard Nanocoating

Ts. Dr. Muhd Ridzuan bin Mansor
Research Interest:
Concurrent Eng. & Composites

Ts. Dr. Mohd Azli bin Salim
Research Interest:
Modeling and Simulation & Vibration

Dr. Mizah binti Ramli
Research Interest:
Adhesive Bonding & Adv. Materials

Dr. Mohd Nur Azmi bin Nordin
Research Interest:
Composites & Reliability Study

Dr. Nadlene binti Razali
Research Interest:
Material Characterization & Polymer

Mrs. Anita Akmar binti Kamarolzaman
Research Interest:
Adv. Materials Characterization

Dr. Nurfaizey bin Abdul Hamid
Research Interest:
Electrospinning & Nanofibre

Dr. Mohd Zaid bin Akop
Research Interest:
Diesel Spray, Thermal & Solar

List of Expertise

AMCHAL
Demand Driven Lab

CARe
CENTRE FOR ADVANCED RESEARCH ON ENERGY
Universiti Teknikal Malaysia Melaka

Experience from the 4th JENESYS (Japan-East Asia Network of Exchange for Students and Youths) Programme

By: Dr. Nadlene Razali, CARe

A group of young researchers from Malaysian public universities, namely UTeM, Universiti Putra Malaysia (UPM), Universiti Tun Hussein Onn Malaysia (UTHM), Universiti Sains Islam Malaysia (USIM), Universiti Kebangsaan Malaysia (UKM), Universiti Sultan Zainal Abidin (UniSZA), Universiti Pendidikan Sultan Idris (UPSI), Universiti Malaysia Kelantan (UMK), Universiti Malaysia Pahang (UMP), Universiti Malaysia Perlis (UniMAP) and Universiti Utara Malaysia (UUM) have been chosen to represent Malaysia to participate in the Japan-East Asia Network of Exchange for Students and Youths (JENESYS) programme in Japan. UTeM was represented by Dr. Nadlene binti Razali from the Faculty of Mechanical Engineering. The program, organised by the Japan government, is a seven-day program which started from 31st January until 6th February 2018.

The JENESYS program is organised by the Japanese government to provide a sound foundation for strong solidarity within Asia through large-scale youth exchange. JENESYS is an exchange program which invites approximately 6,000 youths from overseas to Japan every year with a view towards promoting mutual understanding and friendship with Japanese youths and citizens.

JENESYS

At the beginning of the program, participants spent two days in Tokyo. They were given exposure on the development and advancement of science and technology pioneered by this great country through lectures and classes.

Next, the participants travelled to Osaka by 'Shinkansen' - bullet train that is famous for its high speed and efficiency. It is a physical symbol of pride and modernization of Japanese people. In Osaka, participants were given the chance to visit the Disaster Reduction and Human Renovation Institution. From this beneficial session, a lot of positive culture and innovative solutions can be adopted by other countries in managing emergencies during disasters. Despite several catastrophic natural disasters that occurred in the country, the Japanese citizens are highly spirited and very determined to face such natural disaster with a systematic approach that they have developed over time.

The final visit was to Hyogo, wherein participants were given the chance to understand and witness Japanese rich culture and history. The participants experienced the Japanese tea ceremony, which is known as 'Chanoyu', 'Sado' or simply 'Ocha' in Japanese. It is a choreographic ritual of preparing and serving Japanese green tea, called Matcha, together with traditional Japanese sweets to balance with the bitter taste of the tea. The whole process is not about drinking tea, but is about aesthetics, preparing a bowl of tea from one's heart. The host of the ceremony always considers the guests with every movement and gesture. Even the placement of the tea utensils is considered from the guest's view point (angle), especially the main guests called the 'Shokyaku'. Besides that, participants visited Himeji Castle - a hilltop Japanese castle complex situated in the city of Himeji. The castle is regarded as the finest surviving example of prototypical Japanese castle architecture, comprising a network of 83 buildings with advanced defensive systems from the feudal period. The castle is frequently known as 'White Egret Castle' or 'White Heron Castle' because of its brilliant white exterior and supposed resemblance to a bird taking flight.

As a conclusion, the program was an eye-opening and breathtaking experience for all. Participants were exposed to the consistently polite and civilized Japanese people, a healthy culture of creativity and innovation, which is obvious in their daily life and manifested in their advancement in science and technology. It is hoped that all the positive values and culture can be inculcated to the Malaysian society so that one day Malaysia will be at par with this great country of Japan!

NURTURING WRITING CULTURE among Researcher in FTMK

By: Dr. Sabrina Ahmad

The importance of writing stems from the fact that writing is the primary basis upon which communication, history, record keeping, and art begin. Writing is especially important in academic as it serves as a communication tool for conveying acquired knowledge in a specific field of study. Academic writing, however faces many hindrances. The complexity of the writing process often demands serious thinking and may lead to frustration as academics sometimes unconsciously drift the passion to write aside. This is especially true when the academics are overwhelmed with multiple tasks on top of their academic responsibilities.

In a nutshell, academic writing holds great significance, and therefore needs much attention and support from the academic fraternity. Recently, the Centre for Advanced Computing Technology (C-ACT), in conjunction with the Faculty of Information and Communication Technology hosted a Bundle Publication Workshop as a platform to cultivate the writing culture and to boost the energy to write as much as possible. The workshop was held on April 18 at the faculty Seminar Hall and attended by 50 researchers from all research groups in C-ACT, namely CIT Lab, OPTIMAS, INSFORNET, PET, BIOCORE, IS3 and HCC-ISL. The main agenda of the one-day workshop was to provide peer review and to improve the writing quality to increase chances to be accepted for publication.

At the end of the workshop, a total of 64 manuscripts were written and peer reviewed by the researchers. The manuscripts were then sent for proofreading, and subsequently submitted to the respected journals. Several journals were identified and among others are JAMT, JESTEC, IJCISIM, JICT, MIJL. It is hoped that the journal evaluation process will not take too long and the manuscripts will be published within this year to support the university's achievement in MyRA assessment. Due to the success of the workshop and the positive vibes among researchers to write more, the organiser plan to hold the second Bundle Publication Workshop that will take place sometime in July 2018.

UTeM Commercialisation Center (UCC) has organised the 2nd series of Seminar Pemantapan Ilmu (SPI): "The Importance of IP for Researchers" on the 14th March 2018 at the Dewan Jamuan Auditorium Canselori. The seminar aimed at providing exposure to UTeM's researchers on the importance of intellectual property protection to innovation. The seminar was attended by 32 researchers, including researchers who will be participating in the International Invention, Innovation & Technology Exhibition (ITEX) 2018, which will take place from the 10th until the 12th May 2018. The invited speaker was Mr. Ramakrishna Damodharan, the Managing Director from ADIPVEN (M) Sdn. Bhd.

Seminar Pemantapan Ilmu (SPI) UCC 2/2018

"The Importance of IP for Researchers"

The topics of discussion were mainly related to the types of protection that are appropriate for researchers' innovations and the methods and protection requirements practiced abroad. During the seminar, he also shared his experience as a patent agent and experience attending overseas conferences.

The clear description and explanation together with the many examples given by Mr. Ramakrishna during the seminar have helped the researchers to have a clear understanding of the different types of protection. They also managed to have a clear picture of the direction and types of protection suitable for their innovations.

Seminar Pemantapan Ilmu (SPI) UCC 3/2018

"Thinking Without the Box and the Dumb Approach to Innovations" by Mr. Robest Yong, The Innopreneur

UTeM Commercialisation Center (UCC) has organised the 3rd series of Seminar Pemantapan Ilmu (SPI): "Thinking Without the Box and The Dumb Approach to Innovations" by Mr. Robest Yong, The Innopreneur. The seminar was held on 18th April 2018 at Samsung IOT, Technology Campus. This seminar was attended by 22 researchers, including students interested in enhancing knowledge-related value-added innovation and entrepreneurship culture as well as sharing experiences as inventors, exhibitors and judges in innovation competition.

According to Mr. Robest, great innovation starts with a simple idea and will grow into a creation that will make it easy for users. He emphasized that, **"there are four things to consider when producing innovative products that will make it easier and profitable."**

Relating to his claim, he highlighted several innovations received by the public, such as the POLYCLONE Instant Rubber Stamp Machine; MOBIHEAT Portable Water Heater; KAMIKAZE Mosquito glue, TIME-LOCK Remote Control and some other products.

He further explained that the four factors, which are Imagination, Creativity, Invention and Innovation, were the foundation of every innovation that he has created. For Robest, everyone can create something if one's creative talents are sharpened and most importantly, we should always try to realize the ideas.

During the seminar, he shared his opinions and gave suggestions to other researchers on how to become innovative. Having a vast experience in the field of innovation, he has successfully helped the participants to gain a clear understanding of how to become innovator. The sharing session of his accomplishment and achievement with the audience has greatly helped UTeM researchers to improve their innovative skills. This seminar has a great impact to the researches as they are provided with valuable strategies on how to think 'without the box' and ignore any restrictions and limitations for the sake of becoming innovative. By practicing this new approach, researchers are expected to be more creative and innovative.

RESEARCH AND INNOVATION ACHIEVEMENTS

29th International Invention & Innovation Exhibition

ITEX'18

The 29th International Invention & Innovation Exhibition (ITEX) 2018 organised by MINDS was held from 10th to 12th May 2018, at the Kuala Lumpur Covention Centre (KLCC). This exhibition is a platform to promote research findings, innovation and new invention ideas that have a significant contribution towards research and innovation development. UTeM sent a total of 22 products to be contested and exhibited throughout ITEX 2018. During the exhibition, UTeM won four (4) gold medals, fourteen (14) silver medals and four (4) bronze medals with the sucess rate of 100% for the participation. The results are as follows:

NO.	PRODUCT NAME	MAIN RESEARCHER	FACULTY	RESULT
1.	LOW COST HHO GAS FLOW METER	ASSOC. PROF. DR. NOREFFENDY BIN TAMALDIN	FKM	Gold
2.	SMART ASSISTED NAVIGATION SYSTEM FOR THE BLIND	DR. KHAIRUDDIN BIN OSMAN	FKEKK	Gold
3.	LIGHT WEIGHT LOWER CONTROL ARM FOR C-SEGMENT PASSENGER CAR	DR. MOHD SHUKOR BIN SALLEH	FKP	Gold
4.	MULTISPECTRAL REMOTE SENSING SYSTEM FOR OIL AND GAS EXPLORATION	ASSOC. PROF. GS. DR. ASMALA BIN AHMAD	FTMK	Gold
5.	HEALTH SCREENING DIAGNOSTIC SYSTEM	DR. SYAFEEZA BINTI AHMAD RADZI	FKEKK	Silver
6.	HIGH SECURITY ACCESS CONTROL USING FINGER-VEIN BIOMETRIC	DR. SYAFEEZA BINTI AHMAD RADZI	FKEKK	Silver
7.	BATTERY POWERED VERTICAL LIFTER FOR DOMESTIC USAGE	MOHD FIRDAUS BIN MOHD AB HALIM	FTK	Silver
8.	ATD-EZSEDUT: SMALL AND LIGHT DEBRIS COLLECTOR CUM BLOWER WITH EASY PACKAGING FOR DISPOSAL	ASSOC. PROF. DR. IR. ABDUL TALIB BIN DIN	FKM	Silver
9.	PULLEY SIZING APPS FOR AIR HANDLING UNIT	AMIR ABDULLAH BIN MUHAMAD DAMANHURI	FTK	Silver
10.	ROBUST PROTOTYPE OF GRAPHENE/ MOS2 SUPERCAPACITOR	ASSOC. PROF. IR. DR. MOHD ASYADI 'AZAM BIN MOHD ABID	FKP	Silver
11.	CROWDVOLUNTEER	ASSOC. PROF. DR. MASSILA BINTI KAMALRUDIN	FTMK	Silver
12.	ONLINE PROJECT BASED COLLABORATIVE LEARNING (OPBCL)	PROF. DR. FAAIZAH BINTI SHAHBODIN	FTMK	Silver
13.	MYLEXICS 2.0	SHAHRIL BIN PARUMO	FTMK	Silver
14.	SISTEM SARINGAN DISLEKSIA BAHASA MELAYU (DIME)	DR. MOHD HAFIZ BIN ZAKARIA	FTMK	Silver
15.	VIDAC - VIRTUAL INTELLIGENT DYNAMIC DATA CLOUD CENTER	DR. MOHD SANUSI BIN AZMI	FTMK	Silver

NO.	PRODUCT NAME	MAIN RESEARCHER	FACULTY	RESULT
16.	IMPROVING AGRICULTURE MANAGEMENT SERVICE SMART AGRICULTURE MOBILE APPLICATION	ASSOC. PROF. DR. SHARIFAH SAKINAH BINTI SYED AHMAD	FTMK	Silver
17.	INNOVATIVE ONLINE FOOD ORDERING ACCEPTANCE MODEL	DR. YUSRI BIN ARSHAD	FPTT	Silver
18.	SMART BREAST MILK INCUBATOR (SMILIN)	ZUL HASRIZAL BIN BOHARI	FTK	Silver
19.	INTERACTIVE MEDICAL HOLOGRAM: OPHTHALMOLOGY	DR. SARNI SUHAILA BINTI RAHIM	FTMK	Bronze
20.	INTERACTIVE PING PONG TRAINER – BOT (i-BOT)	MADIHA BINTI ZAHARI	FTK	Bronze
21.	KENAF FILLED ASPHALT BASED DAMPING MATERIAL FOR AUTOMOTIVE BODY	PROF. DR. QUMRUL AHSAN	FKP	Bronze
22.	SMART TROLLEY FOR CLINICAL AND HEALTHCARE INDUSTRIES	DR. NORHASHIMAH BINTI MOHD SAAD	FKEKK	Bronze

Here is a summary of **UTeM's** achievement in comparison to other universities of **MTUN**:

MTUN	PARTICIPATION	TOTAL WON	% SUCCESS	GOLD MEDAL	% GOLD
UTeM	22	22	100%	4	18%
UMP	30	30	100%	18	60%
UTHM	15	15	100%	3	20%
UniMAP	16	16	100%	10	63%

Congratulations to UTeM's researchers for the achievement and recognition. Hopefully, these achievement can ignite our research and innovation culture and uphold UTeM's name in the international arena.


ITEX18
29TH INTERNATIONAL INVENTION, INNOVATION & TECHNOLOGY EXHIBITION, MALAYSIA
MALAM BUDAYA CIPTA
A Celebration of Creativity


ITEX'18
AWARDS
SMART BREAST MILK INCUBATOR
(SMILIN)

Singapore Autonomous Underwater Vehicle Challenge **(SAUVC 2018)**

SAUVC 2018 is a distinguished competition and discussion platform among underwater robotics teams worldwide. The event is organised by the IEEE Oceanic Engineering Society of Singapore Chapter with the support from Singapore Polytechnic. This event started from 9th March until 12th March, 2018. This year, SAUVC has 46 teams around the world, such as Russia, Singapore, Hong Kong, Thailand, Sri Lanka, China, India, Pakistan, Bangladesh and Indonesia. The goal of the event is for each team to develop an Autonomous Underwater Vehicle (AUV) that can negotiate the tasks put forth under a prescribed time. The event also provides platform for the team to learn and have fun in the process. The speed and accuracy at which the AUV performs the tasks will be used to decide the winner of the competition. The tasks involve four widely faced underwater challenges, which are the AUV navigation, visual identification, acoustic localization and robotic manipulation.

During the challenge, UTeM was represented by two teams, Team AUV Panther and Tuah. As a sign of support to the teams for being the sole representative of Malaysia, these teams were supported by the HEP, the faculties and the Centre for Robotics and Industrial Automation (CeRIA).

A total of 16 students and nine staffs were involved in the SAUVC 2018 directly and indirectly. The students were from the Faculty of Electrical Engineering, Faculty of Mechanical Engineering and Faculty of Technology Engineering, while the staff were Dr. Mohd Shahrieel Mohd Aras, Dr. Ahmad Anas Yusof, Dr. Mohd Khairi Mohamed Nor, Dr. Shamsul Anuar Shamsudin, Mr. Mohd Bazli Bahar, Mr. Mohd Zaidi Tumari and Ir. Mohamad 'Afif Kasno, who is an Advisor for this team and also members of Robotics and Industrial Automation (RIA) research group.

In the challenge, team AUV Panther has won the second fastest AUV in the qualification rounds, finishing the 10-meter qualifying range in 10.3 seconds. Having completed the first task in the final round, the team was ranked 7th place from 46 competitors around the globe. Unfortunately, Team Tuah did not have a chance to participate in the first task as the team had a technical error in the qualification round.

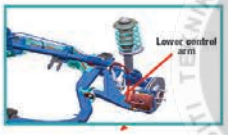
This platform can promote research related to underwater projects, such AUV system and provide platform for students to participate in extra activities. It also provides students an opportunity to experience the challenges of AUV system engineering and develop skills in the associated technologies.

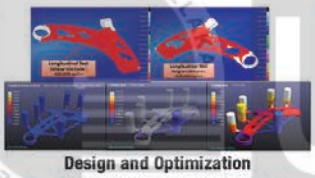
ITEX'18 Gold Medalist Products

LIGHT WEIGHT LOWER CONTROL ARM FOR C-SEGMENT PASSENGER CAR

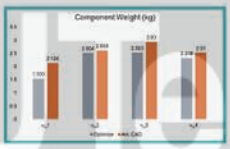
Abstract/ Product Description

In this work, the new design concept of front lower control arm is employed. CATIA software was employed in this work to design the front lower control arm. After that, Hyperworks software is used to analyse the structural strength and optimized the weight of the part. The target of the new design is 20% reduction of the overall weight of the commercial front lower control arm which fabricated using steel material. In this project, aluminium lightweight front lower control arm (FLCA) for Proton C-segment car has successfully developed using casting processing route and its performance is investigated to determine the mechanical properties of the parts. Investment casting process is selected based on the lightweight optimized design of FLCA to produce a prototype of the parts. Samples thus produced from the investment casting process underwent the mechanical testing and microstructural characterization. The obtained results shows a significant reduction of the overall weight as high as 30% with a fatigue life cycle 396,000 cycles. This finding proved that the new design of front lower arm has fulfil the criteria of fatigue life cycle and suitable to be used in a C-segment passenger car.





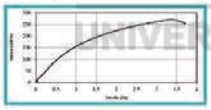
Design and Optimization



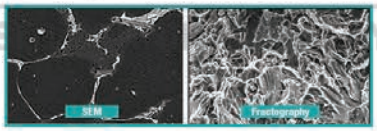
Manufacturing Process

Prototype

Microstructural characterization

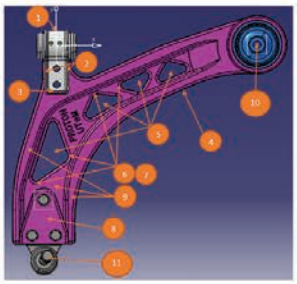


Mechanical Properties



Novelty/Inventiveness

1. Lightweight lower control arm for a vehicle suspension system comprises of front bush mounting, rear bush mounting and ball joint mounting which connected to the upright assembly. The rear bush mounting has a 2.6mm SAPH 440 High Strength Steel metal sleeve formed by metal stamping process to hold the rear bush to the lower arm.
2. The metal sleeve have bends on both side of the edges (R2.6 inner and R5.2 outer radius with 57 degree angle) to increase structural integrity of the metal sleeve.
3. The body part of lower control arm is made of aluminum casting process, a 2.6mm depth pocket milling feature is design to accommodate the metal sleeve.
4. It has 4 degree draft angle at parting lines surrounding the body.
5. Four unique triangular shape holes are design to minimize weight, which design is interpret from topology optimized design.
6. Each corners of triangular shape holes have R4 fillets and rounded corners to improve structural integrity and molten metal flow during casting process.
7. Each holes of triangular shape have 4 degree draft angle.
8. The body part of lower control arm, it has 10.3 mm thick pocket milling feature at ball joint mounting to reduce the weight and maximize the stiffness.
9. The cross section of lower control arm has I-shaped beam characteristic. Due to its shape, the body part has high moment of inertia and stiffness which makes it resistant to bending moments, meanwhile the web provides resistance against shear forces.
10. The quasi-static loading are applied at all 3 point mounting for lower control arm based on 7 loadcases such as porthole corner, porthole brake, oblique kerb, etc to determine the strength performance of lower control arm
11. The fatigue loading applied at outer ball joint with 9kN load applied at longitudinal and lateral direction in order to determine the durability performance of lower control arm



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Commercialization Potential

Suitable to be used in C-Segment passenger car (i.e proton cars, Honda and Toyota)

Industrial Collaboration

Proton Holdings Berhad

Publication

Mohd Hafizi Abdul Rahman, Mohd Shukor Salleh, Mohd Suffian Ab. Razak, Mohamad Ridzuan Mohamad Kamal, Zolkarnain Marjom, Liza Anuar and Nur Adzly Mohamad Saad, (2018). Design and Optimization of front Lower Control Arm (FLCA) for C-Segment Passenger Car, *International Journal of Engineering & Technology*, 7(28), pp.21-35.

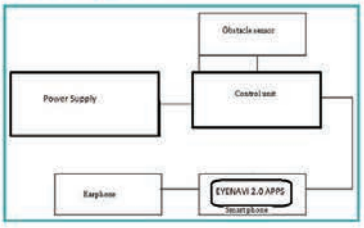
M.H.A. Rahman, M.S. Salleh, M.S.A. Razak, M.R.M. Kamal, Z. Marjom, L.Anuar, N.A.M Saad. A New Design Concept Of Leight Weight Front Lower Control Arm For C-Segment Passenger Car, *Journal of Advanced Manufacturing Technology 2018.*

Always A Pioneer, Always Ahead

ITEX'18
29TH INTERNATIONAL INVENTION, INNOVATION & TECHNOLOGY EXHIBITION, MALAYSIA

SMARTLY ASSISTED NAVIGATION SYSTEM FOR THE BLIND

Abstract/ Product Description



According to WHO [1], 285 million people are visually impaired (VI) worldwide. 34.1% of the total of the VI comes from South East Asia. Approximately, 200,000 in MALAYSIA are VI/blind but only 8000 persons registered as blind. To answered I.R 4.0 challenge, this smart assistive navigation system is invented with integration between smartphones and the navigation system embedded on stick. The proposed invention is to provide an electronic walking stick for the blind which can detect an approaching obstacle and notify of the approaching obstacle using a computing means in form of a smart phone, such as generating vibration and sound from the phone through our very own apps.

Methodology

Prototype Pictures

APPS:EYENAVI 2.0

The application needed to be downloaded from the PLAYSTORE for the system to be used. The Apps are build where it connected to the Bluetooth module on control circuit and now the text-to-speech are given through this Apps on smartphone

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Co-Researchers
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Professor Ir. Dr. Sivarao Subramonian,
Mr. Mahasan bin Mat Ali,
Prof Dr. Eng. Takashi Yasuno,
Prof. Ir. Dr. Ramesh Singh,
Assoc. Prof. Dr. N. M. N. Hisyamudin

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Patent Pending PI 2017700546

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Novelty/Inventiveness

1. Plug-and-Play
2. Friendly user. No lenghty training period
3. One of kind system for visually impaired people.

Commercialization Potential

Equipped in every hospital in Malaysia and Malaysia Blind Society

Industrial Collaboration

Persatuan Orang Cacat Penglihatan Melaka

Publication

Smart Phone Assisted Blind Stick, Sivaraos, T. Yasuno, K .N. Khamil, Khairuddin Osman, M. A. Mahasan, K.C. Lam, 5th UTokushimaUTeM Academic Centre (TMAC) Symposium 2018, 26th February 2018, Auditorium PPS, UTeM.

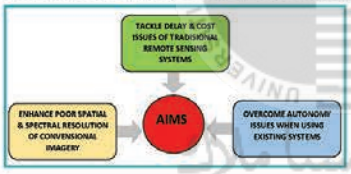
Always A Pioneer, Always Ahead

KEMENTERIAN PENDIDIKAN TINGGI
UTeM
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
ITEX'18
29TH INTERNATIONAL INVENTION, INNOVATION & TECHNOLOGY EXHIBITION, MALAYSIA

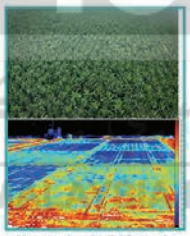
MULTISPECTRAL REMOTE SENSING SYSTEM FOR OIL AND GAS EXPLORATION

Abstract/ Product Description

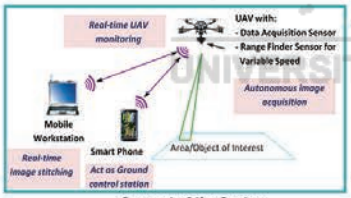
Hydrocarbon in the form of oil and gas have long been the source of raw material in producing useful things for human daily activities besides fuelling our vehicles and machines. Seismic, gravity, magnetic and resistivity surveys are among the conventional methods used in detecting subsurface oil and gas. However, these methods are very expensive particularly for large and remote areas. Satellite remote sensing offers a better alternative over these conventional methods due to its ability to monitor large-scale areas continuously and with a cheaper cost. Nevertheless, satellite remote sensing suffers from shortcomings in terms of low spatial resolution (meter level), low revisit frequency (revisit time more than 10 days) and limited autonomy (mostly owned and managed by agencies from developed countries due to the expensive infrastructures). To overcome these issues, we developed a novel drone-based multispectral remote sensing system with very high spectral resolution (millimetre level), high revisit frequency (depending user's need) and user's full autonomy (the system can be operated by one person, from anywhere and at any time). The system is mounted with a multispectral remote sensing sensor that operates in 0.5-0.8 micrometre wavelengths involving green, red, red edge and infrared spectral bands. It is able to navigate autonomously and can be tracked in real-time. Oil detection is carried out by making used of embedded Normalised Difference Vegetation Index (NDVI) algorithm to detect oil microleakage which leads to abnormality of vegetation health condition. This is due to the migration and gathering of oil and gas microleakage in soil, replacing the original air and change the soil environment of the plant roots. The chlorophyll content of plants tend to reduce, and the red edge position of plant tend to shift toward the shorter wavelengths and consequently affecting the plant health, eventually indicating the present of hydrocarbon. This shall help oil and gas companies in carrying out oil and gas exploration tasks more effectively and cost-efficiently.



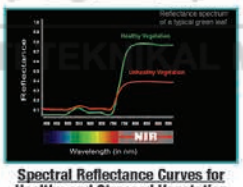
Close-up of the System



Vegetation in RGB (top) and NDVI (bottom)



Concept of the System



Spectral Reflectance Curves for Healthy and Stressed Vegetation

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Dr. Asmala bin Ahmad

Co-Researchers
Mohd Yazid Abu Sari
Nasruddin Abu Sari
Shahrin Sahib

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Commercialization Potential

For use by organisations dealing with oil and gas exploration businesses.

Novelty/Inventiveness

- Provide ready-to-use NDVI images for oil and gas exploration
- Autonomous speed variability based on object-to-sensor range to avoid image non-overlapping issue during stitching process
- Provide full-autonomy to users – It can be operated by one person operator, anyone, from anywhere and at any time

Industrial Collaboration

Anjung Technology Sdn Bhd
27 Jalan TU 41,
Taman Tasik Utama,
Ayer Keroh, 75450 Melaka

Publication

1. Nasruddin Abu Sari, Asmala Ahmad, MY Abu Sari, S Sahib, AW Rasib (2015) Development Of Rapid Low-Cost LARS Platform For Oil Palm Plantation. Jurnal Teknologi, 77 (20), 99-105 EISSN 2180-3722.

2. Nasruddin Abu Sari, Mohd Yazid Abu Sari, Asmala Ahmad, Shahrin Sahib, Fauzi Othman (2018) Using LAPER Quadcopter Imagery for Precision Oil Palm Geospatial Intelligence (OP GeoInt), Journal of Telecommunication, Electronic and Computer Engineering (JTEC), 10 (1), 25-33, ISSN: 2180 – 1843 E-ISSN: 2289-8131

MTUS SOARING UPWARDS

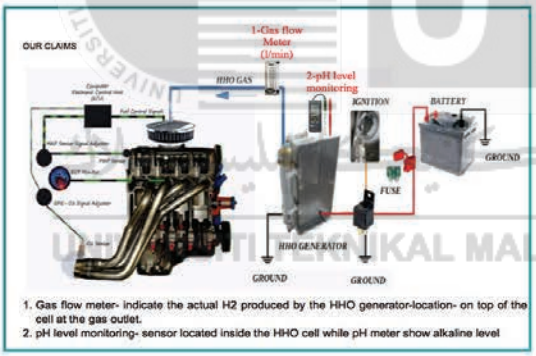
Always A Pioneer, Always Ahead

KEMENTERIAN PENDIDIKAN TINGGI | UTeM UNIVERSITI TEKNIKAL MALAYSIA MELAKA | ITEX'18 29TH INTERNATIONAL INVENTION, INNOVATION & TECHNOLOGY EXHIBITION, MALAYSIA

HHO CELL FOR IMPROVED ENGINE PERFORMANCE AND EMISSION

Abstract/ Product Description

Depleting fossil fuel and environmental concern over pollution have triggered the effort for sustainable energy. Hydrogen energy have been identified as one of the potential of replacing fossil fuel due to its abundant availability and high energy content. Many researchers have explored the possibility of extracting H2 from electrolysis process from water. However, many design concepts have been explored including dry cell, wet cell and hybrid dry and wet concept. All designs have their own advantages and disadvantages such as, overheating, inconsistent supply of H2, corrosion and voltage and gas leakages. The typical perception of the public is that one HHO can fit into any engine irrespective of its size and capacity. This is a misleading understanding, therefore would be corrected in this design In this design, all the problem from various design have been considered and overcome. The proposed design has the advantages of fast H2 production and continuous H2 supply without the need for PWM in the power supply unit. The integrated flow meter and pH level monitoring allow the reactant and catalyst in the system to be constantly monitored to ensure smooth operations and prediction of hours of operations the HHO cell is capable to be running. The correct alkaline and water level would provide optimum H2 production rate and matching the suitable engine sizes to be utilized for any specific HHO cell unit.



1. Gas flow meter- indicate the actual H2 produced by the HHO generator-location- on top of the cell at the gas outlet.
2. pH level monitoring- sensor located inside the HHO cell while pH meter show alkaline level

Principal Researcher
Noreffendy Tamaldin

Co-Researchers
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Ahmad Kamal Mat Yamin
Mohd Fadzli Abdollah
Hilmi Amiruddin
Mohd Idain Fahmy Rosley

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Mobile : 016 634 1481
Email : ucc@utem.edu.my

Industrial Collaboration

- Payneham Energy, UNAS, Jakarta

Novelty/Inventiveness

- Combination of wet and dry cell concept with high H2 output
- Naturally air cooled cell allow long continuous operation
- Directly plug and play without the need of modification to existing engine/PWM
- Can achieve up to 30% fuel saving and 50% emission Reduction

Commercialization Potential

- Potential for Plantation diesel engine, marine engine and power plant using diesel generator
- Proposed to Melaka River Cruise for cost saving up to RM600 daily
- Few potential partner seeking for right to manufacture in high volume

MTUS SOARING UPWARDS

Always A Pioneer, Always Ahead

Design and Development *of HMI and PLC Training Kit*

By: Dr. Fariz Ali @ Ibrahim

Omron PLC & TOUCHWIN HMI TRAINING KIT is a basic trainer with a complete manual. It was developed by Dr. Fariz bin Ali during his industrial attachment from 1st November 2016 to 20th December 2017 at Acis Technology Sdn. Bhd. This training kit gives a clear and concise knowledge of programmable controller for different control and machine process. The system uses OMRON PLC CP1E-N40 and TOUCHWIN HMI TG465-MT to control the inputs and outputs, such as Push-Button, Emergency Switch, Inductive Sensor, Capacitive Sensor, Photo-electric Sensor, Pilot Lights and Buzzer. With this system, students will be able to program the PLC for certain process, which mimic the real process in the industry. The table-top size of this system makes it portable and it can easily fit into any lab to bring the concept of process control to the students.

Components

The front panel comprises of the following main components:

1. **HMI TG 465-MT**
2. **OMRON PLC CP1E-N40**
3. **Push-Button (PB) Start and Stop**
4. **Pilot Light (PL) – Green, Amber and Red**
5. **Emergency stop button**
6. **Buzzer**
7. **Proximity sensor – Inductive and capacitive**
8. **Photo Electric sensor with reflector**
9. **24 Vdc sources**
10. **240 Vac sources**

Objectives of Project

The objectives of this project are to:

- **Design the 3D mechanical drawings using AUTOCAD and SOLIDWORKS software for the front, rear, top, bottom, left and right panels,**
- **Integrate between PLC to HMI and all other inputs and outputs, and**
- **Design and develop the instructor, student and user manuals.**

Scope of Project

This project has been developed for the Faculty of Engineering Technology, UTeM and Kolej Vokasional Labuan, Sabah. The power source for the training kit is 240 Vac, which is intended to be used in Malaysia. The training kit is needed to be placed on the lab workbench. Therefore, it must neither be too big and nor too small for usage. The dimension has been finalised to be 600mm x 580mm, as shown in Figure 1.

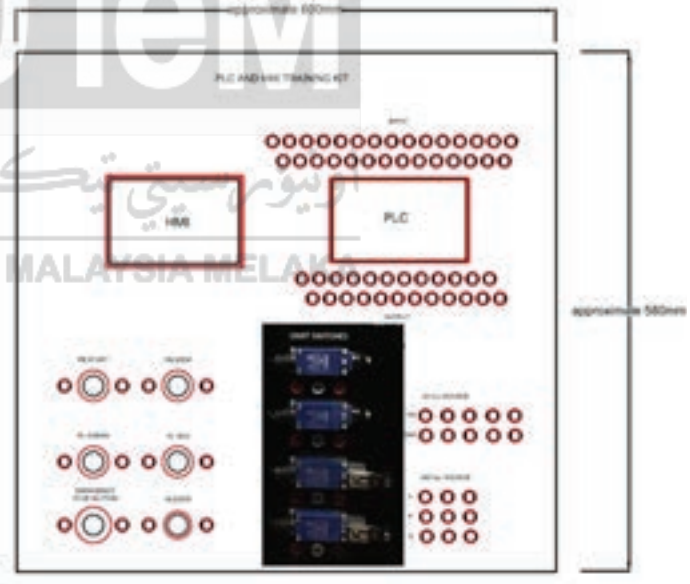

Figure 1 Dimension of PLC and HMI Training Kit Developed for Kolej Vokasional Labuan

CAD Design

There are two software that have been used for the hardware design, which are the Solidwork and Auto-CAD. Firstly, there is a need to design the aluminum profile. The aluminum profile used is 20mm x 20mm in size and the cross sectional shape of the aluminum is developed in 2 dimensions. Then, the extruded function is used to make it into 3 dimensions. The final product of the aluminum is developed in Solidwork with front, top and side views, as shown in Figure 2.

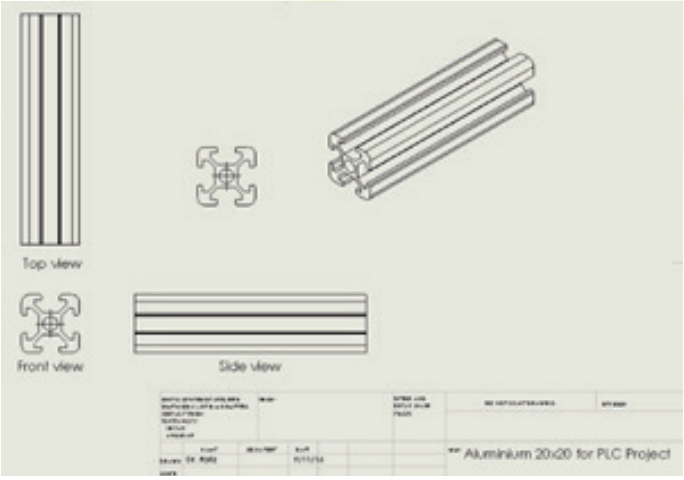

Figure 2 20mm x 20mm Aluminium Profile Sketched in Solidwork

There are three different objects of aluminum developed in Solidwork with three different length, which are 570mm, 550mm and 200mm. After all the aluminum with different length are created, the "assembly" workspace is selected in order to combine the different parts to make the platform frame of the PLC training kit. "Mate" function has been used to combine one part to another. L-bracket and C-bracket have been designed in Solidwork for the reflector of the photoelectric sensor and DIN rail, respectively. "Sheet metal technique" and "simple hole" have been used in order to design the L-bracket for the reflector. The platform frame is used to attach several panels made from acrylic. There are six panels, which are top, bottom, front, rear, left and right panels. Each panel is designed with interlock in order to attach one panel to another firmly. Therefore, there are aluminum bars underneath the acrylic panels. The aluminum bars are connected to each other by using triangle shape aluminum connectors. At the beginning, each side of panels are designed separately in Solidwork as parts. Then, all the parts are assembled in order to ensure that every dimension can be fitted well, as shown in Figure 3.

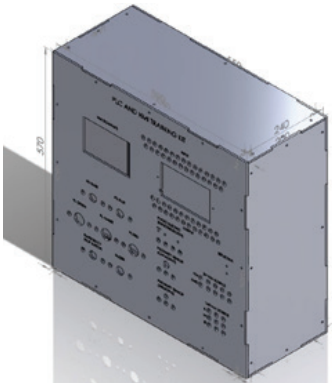

Figure 3 The Completed 3-D of HMI and PLC Training Kit

After the drawings have been drawn in Solidwork, it needs to be converted to Autocad format for the process of cutting by the laser cutting machine. The material for the panels are made of acrylic. The size of one-piece acrylic is 1220mm x 2440mm. This acrylic is cut into several pieces representing the front, rear, top, bottom, right and left panels. These panels are then combined and attached to the aluminum frame and the wiring connections are done. Connections between all ports need to be done carefully and precisely. After all the cables have been terminated, the continuity test is done for each connection. If errors occurred, troubleshooting needs to be done, as shown in Figure 4.

Figure 4 Opening the Rear Panel for Troubleshooting

Conclusion

This project has been accomplished in three months. The complete package includes the user manual, instructor and student manuals. The picture of the front panel of the complete product is shown in Figure 5.

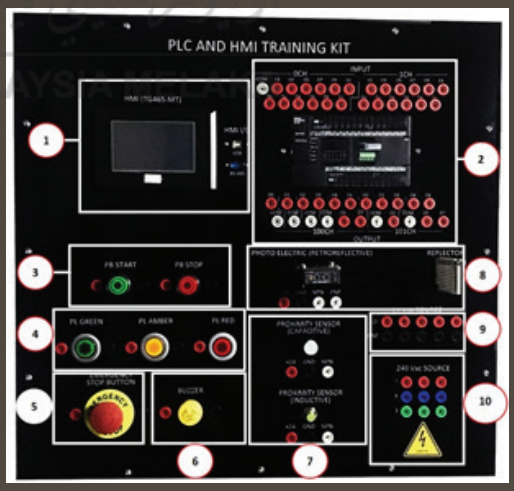

Figure 5 Front Panel Overview

Acknowledgement

The author would like to express his thanks to the management at the faculty and UTeM for giving an opportunity to the author to gain valuable experience during the industrial attachment scheme. The author is currently at the final stage of reporting the preparation to apply for professional engineer (Ir.).

e-Beca

By: Dr. Nursabillilah Mohd Ali

info

Penyelidik UTeM cipta beca elektrik bertenaga solar

Oleh Zuraidi Mansor
bhwarisit@bh.com.my

Melaka

Penyelidik Universiti Teknikal Malaysia Melaka (UTeM) berjaya menghasilkan beca elektrik bertenaga solar dikenali sebagai e-beca yang mampu menyumbang ke arah pembangunan sektor pelancongan dan kebudayaan negara, khususnya di negeri ini.

Bagi memperkenalkannya kepada komuniti setempat dan pelancong, kumpulan penyelidik bernama Ketua Pusat Kecemerlangan (CoE) UTeM, Prof Datuk Dr Abu Abdullah, menampilkan e-beca menyusuri sekitar Bandaraya Melaka.

Menurut kenyataan media dikeluarkan UTeM, baru-baru ini, program itu turut dihadiri wakil pegawai Kementerian Pelancongan dan Kebudayaan serta pengusaha beca di negeri ini.

Prof Abu berkata, inisiatif menaik taraf beca sedia ada diluncurkan Timbalan Naib Canselor (Penyelidikan dan Inovasi), Prof Datuk Ir Dr Mohd Jailani Mohd Nor, bagi memartabatkan pengangkutan awam itu yang banyak membantu sektor pelancongan Melaka.

"Melalui penghasilan e-beca yang dibangunkan kumpulan penyelidik diketuai Prof Madya Ir Dr Abdul Rahim Abdullah, objektif utama memberi nilai tambah teknologi baharu pada beca konvensional sedia ada di Melaka, dapat dilaksanakan," katanya dalam kenyataan media itu.

Beliau berkata, e-beca turut mengetengahkan inovasi pencipta muda UTeM menggunakan sistem lebih efektif berkuasa solar dan elektrik, sekali gus menyokong hasrat kerajaan negeri menjadikan Melaka bandar raya hijau.

Memiliki kelebihan

Memiliki kelebihan utama dari aspek struktur, kawalan, teknologi dan sistem sokongan serta penyelenggaraan, e-beca dibina di makmal penyelidikan UTeM menggunakan teknologi kerangka lebih ringan tetapi kukuh dengan kandungan utama keluli dan aluminium komposit.

Dari segi kawalan pula, kelebihan e-beca terletak pada sistem solar yang berupaya menukar kuasa solar kepada kuasa motor elektrik.

Pelbagai penambahbaikan sentiasa dilakukan bagi pengkomersialan e-beca, termasuk penawaran skrin paparan LED yang berfungsi sebagai medium penyampaian maklumat, pemasaran dan pengiklanan dibangunkan Prof Madya Dr Hasliza Musa, serta peranan melalui sistem aplikasi bagi penggunaan e-beca yang akan dilancarkan tidak lama lagi.

Prof Abu (tiudak) bersama kumpulan penyelidik UTeM yang membangunkan e-beca.

Solar Powered Electric Trishaw (e-Beca) was first launched by our Honourable Tuan Yang Terutama Tun Datuk Seri Utama Mohd Khalil Yaakob (the Governor of Melaka) during the 12th convocation ceremony of the university back in 2016. The idea to upgrade the traditional trishaws into solar-powered electric trishaws was triggered by the university's Deputy Vice-Chancellor (Research and Innovation) in the effort to uplift the trishaws to local communities and tourists. Our e-Beca team of experts consists of senior lecturers, research officers, technical staff and students from various faculties.

To paddle up the rickshaw (conventional trishaw), a maximum amount of effort is highly required and it is surely very tiring, especially for elderly drivers. Currently, there are 319 registered drivers under the Association of Trishaw Drivers in Melaka State. Surprisingly, some of them are in their late 70s or single mothers. They have to endeavour resiliently to assure their life's sustainability.

Taking these issues into account, our e-BECA team came to the rescue with the ultimate goal to help reduce the burden held by this faction by offering them the solar-powered trishaw. This solar aided system applies an automated system which can generate a motor that helps to move the bike, hence aids to store the human power up to 85%!

The electrical "beca" or e-Beca has some of the key advantages that lie in the structure, control, technology and also a support system, where it is built in the UTeM research laboratory using lighter but solid frame technology. The main components of the body structure frame consist of composite steel and aluminium. In terms of control, the advantage of e-Beca lies in the solar system that is capable of converting solar power to electric motor power.

The e-Beca is upgraded from a conventional trishaw to a modern and attractive solar-powered "beca" and retaining the conventional and traditional value of Malacca trishaws. Hence, the paddling process which requires extensive human force can be reduced as it is replaced with the automated motor system power by solar energy. Therefore, cycling over hills is no longer a prominent problem.

However, to build e-Beca, it requires a huge amount of seed money. Hence, we are humbly welcoming sincere contributions from communities to fund this project. Your contribution will be used to construct the technology needed to upgrade the conventional trishaw into a brand new sophisticated e-Beca. Let's contribute for continuing our national heritage. Your contribution can change the life of the trishaw puller community.

Hasil penyelidikan UTeM

E-beca tingkatkan taraf hidup pengayuh beca seluruh negara

Oleh ROSLAN MOHAMAD

DURIAN TUNGGAL 18 April - Kumpulan Penyelidik Beca Elektrik (e-beca) Universiti Teknikal Malaysia Melaka (UTeM) melebar sayap penyelidikannya di Terengganu, baru-baru ini.

Ianya menerusi kerjasama Kementerian Pelancongan dan Kebudayaan Terengganu (MOTAC).

Ia sebagai inisiatif untuk meningkatkan taraf hidup masyarakat dan golongan yang memerlukan.

Antara inisiatif itu ialah membuat penyerahan sebuah beca elektrik yang telah digubah suai dengan teknologi terkini dari beca tradisional melalui transformasi dan inovasi sentuhan penyelidik UTeM.

Ketua Kumpulan Penyelidik e- beca UTeM, Prof. Madya Ir. Dr. Abdul Rahim Abdullah berkata, e-beca mampu membuka lebih banyak pilihan pengangkutan bagi pelancongan.

Selain memudahkan operasi mengayuh beca dan memberi banyak peluang pekerjaan buat pengusaha-pengusaha beca dalam negara ini.

Jelasnya, e-beca menjanjikan nilai tambah teknologi baharu kepada beca konvensional sedia ada.

Ianya dengan mengetengahkan inovasi pencipta muda dari UTeM dengan pengaplikasian sistem yang lebih efektif dengan kuasa solar dan elektrik.

Katanya, kelebihan e-beca terletak pada sistem solar yang berupaya menukarkan tenaga kuasa solar kepada kuasa motor elektrik dan teknologi ini memudahkan para pengayuh beca, sekali gus meningkatkan produktiviti mereka dan menambahkan pendapatan harian.

Ujarnya, di samping merubah taraf hidup menjadi lebih baik lagi berbanding dengan sebelum ini.

Majlis penyerahan e-beca itu disempahkan kepada salah seorang pengayuh beca iaitu Abdullah Muhamad, 63, dikenali sebagai Pok Leh yang telah lama berkecimpung sebagai pengayuh beca di sekitar Kuala Terengganu.

Majlis penyerahan e-beca itu telah disampaikan oleh Ketua Pusat Kecemerlangan Penyelidikan UTeM (CoE), Prof. Datuk Dr. Abu Abdullah yang turut dihadiri Ketua Unit Pengkomersilan e-beca, Prof. Madya Dr. Hasliinda Musa.

Sementara itu, Hasliinda berkata, pengkomersilan e-beca termasuk penawaran pesanan melalui sistem aplikasi Tunggan e-beca yang akan dilancarkan tidak lama lagi.

Jelasnya, pengkomersilan e-beca juga memulakan program crowdfunding untuk mendapatkan sejumlah besar derma atau dana dari komuniti setempat dibuat secara 'online' menggunakan platform berdaftar.

"Kutipan derma ini akan digunakan oleh penyelidik UTeM bagi membantu lebih ramai golongan pengayuh beca yang daif di seluruh negara yang mengalami masalah kesihatan dan kewangan.

"Sekali gus memaksa mereka terus mengayuh beca secara tradisional, justeru dengan bantuan ini, UTeM mampu hasilkan lebih banyak lagi bilangan e-beca kepada mereka," katanya.

Kepada mereka atau organisasi yang berminat membantu golongan pengayuh beca daif memiliki e-beca ini bolehlah menyumbang menerusi Tabung e-beca Bank Islam Malaysia Berhad 0404-2010-0008-33.

Sumbangan juga boleh digunakan untuk pengecualian cukai Lembaga Hasil Dalam Negeri (LHDN).

MAJLIS penyerahan e-beca di Terengganu diserahkan oleh Abu kepada Abdullah (empat kiri).

Bantuan Anda Amatlah Diperlukan

TABUNG AMANAH Pembangunan e-BECA

KEMENTERIAN PENDIDIKAN TINGGI

UTeM
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Salurkan sumbangan anda kepada: BANK ISLAM

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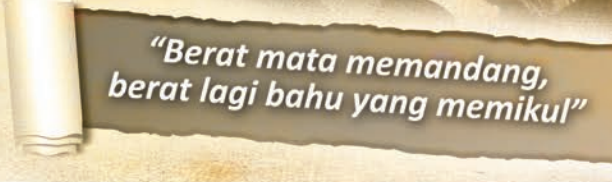
BENDAHARI UNIVERSITI TEKNIKAL MALAYSIA MELAKA



** **Sila kemukakan bukti pembayaran** bagi tujuan merekod penerimaan sumbangan dan pengeluaran resit rasmi UTeM melalui:

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SOARING UPWARDS

*** Sumbangan ini juga boleh digunakan bagi tujuan pengecualian cukai LHDN*

Autonomous Underwater Vehicle (AUV)

Autonomous Underwater Vehicle (AUV) is commonly known as Unmanned Underwater Vehicle (UUV). An AUV is a robot that travels underwater without requiring input from an operator. AUVs constitute part of a larger group of undersea systems, a classification that includes underwater non-autonomous Remotely Operated Vehicles (ROVs) – controlled and powered from the surface by an operator/pilot via an umbilical or using the remote control. AUV is basically an extension of the ROV's technology. AUVs can be used for underwater survey missions such as detecting and mapping submerged wrecks, rocks, and obstructions that can be a hazard to navigation for commercial and recreational vessels without operator intervention. When a mission is complete, the AUV will return to a pre-programmed location, where the data can be processed and downloaded. Underwater Technology Research Group (UTeRG) from the Center for Robotics and Industrial Automation (CeRIA) has developed the first AUV called "AUV-FKEUTeM" as shown in Figure 1. This is then followed by 'TUAH', as shown in Figure 2. The AUV is measured with the dimensions of 70cm x 50cm x 30cm and 18kg of weight. It is equipped with electronic components, which include a microcontroller (Arduino Mega 2560), ESC (Electronic Speed Control) 30 A, depth sensor MPX 5700AP, 10 DOF IMU (Inertial Measurement Unit) sensor, thrusters T200, 9V battery and 12V lead-acid battery. The 12V battery supply power for ESC was used to control the thrusters, while 9V battery supplies power were for the microcontroller. ESC is the electronic speed controller for thrusters. Depth sensor is used to measure AUV's depth when AUV travels in the z-axis and IMU for rotation and navigation of the AUV.

The IEEE OES Malaysia Chapter has organised the Malaysia Autonomous Underwater Challenge (MAUVC) 2017 for the first time on the 17th - 18th December 2017 at the International Islamic University Malaysia. The three teams (Team TUAH, Team Panther and Team Panther Jr) representing UTeM were from different faculties as shown in Figure 3. They were from the Faculty of Electrical Engineering, the Faculty of Mechanical Engineering and the Faculty of Technology Engineering. This year Team TUAH and Team Panther join Singapore AUV Challenge (SAUVC 2018) and there were 48 teams around the world participated in this challenge. The competing teams came from Russia, Singapore, Hong Kong, Thailand, Sri Lanka, China, India, Pakistan, Bangladesh and Indonesia. By participating in this challenge, UTeRG has shown the fast-growing involvement from all faculties in UTeM and it will become one of well-known research groups in the world.

Figure 1 The AUV-FKEUTeM

Figure 2 'TUAH' AUV

Figure 3 Team Tuah, Team Panther and Team Panther Jr.

International Journal of Electrical Engineering and Applied Sciences (IJEEAS)

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IJEEAS is a collaboration between the Center for Robotics and Industrial Automation (CeRIA) and the Faculty of Electrical Engineering. The first IJEEAS was published on April 2018 and published twice per year in April and October. IJEEAS is an Open Access Journal and free publication fees with the aim of publishing various kind of research articles in Electrical Engineering and Applied Sciences, focusing mainly in the fields of Sustainable Energy, Control System and Industrial Automation. Our publication will contribute towards new exploration of knowledge and state-of-the-art technology for the scholars and industrial professionals in these fields. Prospective authors are invited to submit their original contributions with topics of interest that include (not limited to):

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The Symposium of Electrical, Mechatronics and Applied Science (SEMA) 2018 will be jointly organised by the Faculty of Electrical Engineering (FKE) and the Center for Robotics and Industrial Automation (CeRIA) on the 8th November 2018 in UTeM. This inaugural SEMA 2018 symposium will be a recurring event for FKE. The main objective of SEMA 2018 is to provide postgraduate students with platform and opportunities to explore and share their research and scientific findings with fellow researchers of various background.

Farewell RICE Meeting with

Prof. Datuk Ir. Dr. Mohd Jailani Mohd Nor

Deputy Vice-Chancellor (Research and Innovation) UTeM

Nasi lemak buah bidara,
Sayang selasih ***hamba lurutkan;***
Buang emak buang saudara,
Budi dan kasih ***hamba kenangkan.***

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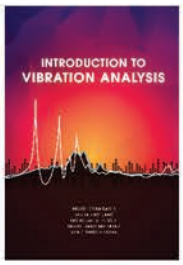

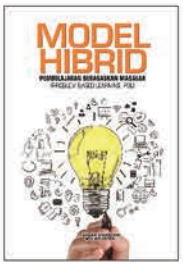

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