

enginitium

The official bulletin of the Research Office, Faculty of Engineering, Universiti Malaysia

Welcome to the latest edition of our newsletter, your go-to source for updates, insights, and advancements in artificial intelligence and smart technology. The TDR Office is committed to delivering the latest research updates, ensuring you stay informed about cutting-edge innovations shaping the future.

ARTIFICIAL INTELLIGENCE & SMART TECHNOLOGY

AT A GLANCE AI AND SMART TECHNOLOGY IN MALAYSIA

Malaysia is rapidly advancing in artificial intelligence and smart technology, driven by government initiatives and industry collaboration. Key policies, such as the National AI Roadmap (2021-2025) and Malaysia Digital Economy Blueprint (MyDIGITAL), are shaping the country's AI ecosystem by promoting innovation, digital transformation, and sustainable growth. Recent developments include investments in AI-driven automation, smart city projects, and the expansion of AI research in sectors like healthcare, manufacturing, and agriculture.



FOREWORD

The fast-paced evolution of research and innovation presents ongoing challenges in addressing global needs. This edition explores the transformative impact of Artificial Intelligence (AI) and Smart Technology—two powerful forces reshaping engineering, research, and society. Malaysia has embraced AI and smart technology with a forward-thinking vision, supported by progressive policies and initiatives aimed at positioning the nation at the forefront of technological advancement. These emerging technologies unlock vast opportunities across industries, from smart manufacturing and next-generation healthcare to sustainable urban development and intelligent systems. However, fully harnessing their potential requires strong collaboration between academia, industry, engineers, researchers, and policymakers.

At the Faculty of Engineering, we remain steadfast in our commitment to innovation, interdisciplinary research, and industry partnerships. In 2024, the faculty secured nearly RM17 million in research funding, published close to 700 journal articles, and filed 14 new intellectual properties, reinforcing our strong research capabilities and global impact.

Additionally, we continue to strengthen collaborations with local and international companies, including Samsung, Nexperia, Keysight, and BBraun, fostering industry-driven research and real-world applications. Our goal is to equip future engineers and researchers with the knowledge and skills to thrive in this rapidly evolving landscape. This issue of Enginitium highlights our collective efforts, featuring groundbreaking research, success stories, and expert insights that exemplify our role in shaping the future of engineering and technological innovation.

Before concluding, I would like to extend my warmest Ramadhan Mubarak and Salam Aidilfitri wishes to all our Muslim colleagues, students, and partners. May this blessed season bring peace, joy, and prosperity to you and your loved ones

Prof. Ir. Dr. Mohd Faizul Mohd Sabri
Deputy Dean (Research & Innovation)
Faculty of Engineering, Universiti Malaya

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RESEARCH HIGHLIGHT

SMART AQUAEZ: REVOLUTIONIZING WATER PURIFICATION WITH IR 4.0

by Prof. Emeritus Dr. Ir. Mohd Azlan Hussain, Dr. Mohd Usman Mohd Junaidi, Dr. Mohamad Fairus Rabuni, Dr. Zulhelmi Amir and Dr. Faidzul Hakim Adnan

IR 4.0: Transforming Water Purification

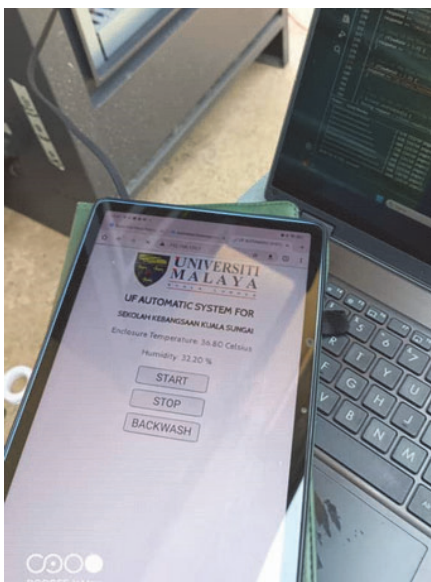
The Fourth Industrial Revolution (IR 4.0) is reshaping industries worldwide, and the SMART AQUAEZ system integrates IoT, and automation to redefine water filtration. This system can self-monitor, self-clean, and optimize performance in real-time, ensuring minimal maintenance and maximum efficiency.



1. Automated Self-Cleaning System

One of the most groundbreaking features of SMART AQUAEZ is its self-cleaning ultrafiltration mechanism. Unlike conventional filters that require frequent replacements and chemical-based cleaning, this system:

- Uses automatic backwash technology to remove accumulated contaminants.
- Prevents membrane clogging and performance degradation.
- Reduces the need for human intervention, lowering maintenance costs.



2. IoT-Enabled Remote Access and Automation

Through Internet of Things (IoT) integration, SMART AQUAEZ can be remotely monitored and controlled via mobile or cloud-based applications. This feature provides several advantages:

- Real-time data analytics for predictive maintenance.
- Automated alerts and diagnostics, reducing downtime.
- Remote operation capabilities, making it ideal for deployment in rural areas where manual maintenance is challenging.

These features make SMART AQUAEZ a true embodiment of IR 4.0 in water treatment, providing a cost-effective, energy-efficient, and scalable solution for water purification.

Nurturing Green Sustainability and Environmental Impact

SMART AQUAEZ supports SDG 6: Clean Water and Sanitation, addressing both humanitarian and environmental needs by delivering safe drinking water to underserved communities.

Its deployment in Gua Musang, Ulu Tual, Pos Piah, and Ulu Balingian has successfully provided clean, reliable water to thousands.



Awards & Recognition

- Gold Medal Award and the Outstanding Innovation Award, Malaysia Technology Expo 2024
- IChemE Global Award (United Kingdom) – Water Category (2018)
- Mohammed bin Rashid Al-Maktoum Global Water Award (UAE) – 2023
- Selangor R&D and Innovation Expo – Food & Beverages Cluster Award (2019)
- MTSF Science and Technology Award (2024)



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AI will be the best or worst thing ever for humanity

”

Elon Musk



RESEARCH HIGHLIGHT

PULIH : A SMART WEARABLE DEVICE FOR MONITORING LOW BACK PAIN REHABILITATION

by Prof. Ir. Dr. Fatimah Ibrahim, Assoc. Prof. Dr. Anwar Suhaimi

AI-Powered Low Back Pain Rehabilitation



Currently, assessment and evaluation of low back pain (LBP) are based on questionnaires on patients' levels of pain and discomfort. This qualitative assessment can be highly subjective with limited accuracy in accessing the progress of rehabilitation. Thus, a smart wireless Electromyography (EMG) device integrated with a smartphone-based application is developed to monitor the progression of low back pain rehabilitation. The evaluation algorithm implemented on an Android smartphone application determines improvement in muscle performance.



The system consists of EMG acquisition hardware in conjunction with signal processing and analysis software applications on Android smartphones. The device acquires EMG signals from erector spinae (ES) muscles at L4 and L5 lumbar regions. The signals are then processed, amplified, and sent to the microcontroller for analog-digital conversion. Real-time EMG signals are sent wirelessly to smartphone-based clinical applications.

The integration of Artificial Intelligence (AI) into the LBP rehabilitation system enhances its effectiveness by:

- Reducing unnecessary hospital visits through remote monitoring and AI-driven assessments.
- Improving diagnostic accuracy by identifying subtle muscle activity patterns beyond human interpretation.
- Optimizing rehabilitation procedures with personalized, data-driven recommendations.

By combining AI with EMG technology, this system offers a more precise, efficient, and cost-effective solution for LBP management, ultimately improving patient outcomes and reducing the burden on healthcare facilities.



Innovation Commercialization

This innovation has been patented (PI2020003417) and licensed to Nonivasi Care Sdn Bhd, marking a significant step toward bringing cutting-edge technology to the healthcare market. Through a strategic collaboration between UM and Nonivasi Care, the project secured a Cradle grant, accelerating its development. The device is SIRIM-certified and registered with the Medical Device Authority (MDA)(GB9423323-151101).

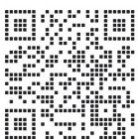
The device is complemented by a mobile application, PULIH, which enhances real-time muscle assessment, AI-powered monitoring, and personalized rehabilitation programs. PULIH is now available for download on Google Play and the Apple App Store.



Awards & Recognition

- Gold Medal Award and the Special Innovation Award, Malaysia Technology Expo 2024
- Gold Medal, PEIPTA 2022
- 2nd Place, Selangor R&D And Innovation Expo (SRIE) 2022

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The future of AI is not about man versus machine, but rather man with machine

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Bill Gates



RESEARCH HIGHLIGHT

HARVEST-MATE: REVOLUTIONIZING PALM OIL HARVESTING THROUGH ROBOTICS AND AUTOMATION

by Assoc Prof. Ir. Dr Anis Salwa binti Mohd Khairuddin, Prof. Ir. Dr. Chuah Joon Huang, Prof. Ir. Dr. Yap Hwa Jen

Harvest-Mate is built to navigate complex plantation terrains autonomously using a tracked robotic base and an advanced sensor suite comprising LiDAR, an IMU, GPS, and a depth camera. It employs machine learning-based YOLOv8 technology to detect and segment Fresh Fruit Bunches (FFB) with high accuracy. The robotic arm, which is articulated and equipped with a motorized jigsaw blade, enables precise and efficient cutting. Additionally, the system operates on the Robot Operating System (ROS), ensuring seamless communication between mechanical, electronic, and software components. Extensive testing has been conducted to analyze factors such as cutting angles, leaf interference, and sensor precision, making Harvest-Mate a robust and adaptable solution for oil palm harvesting.

A key advantage of Harvest-Mate lies in its remarkable efficiency. While manual labourers typically harvest 103 FFB in an eight-hour workday, Harvest-Mate can autonomously harvest 230 FFB in 16 hours, representing an impressive 123.3% increase in productivity. The system is powered by sixteen 6 Ampere-hour 12V LiPo batteries, which sustain its operation over a daily cycle involving 3 km of maneuvering and 1093.44 Watt-hours of total power consumption. This level of automation and energy efficiency is a game-changer for the palm oil industry, addressing labour shortages and improving overall operational effectiveness.

This project was led by a talented team of students, each specializing in different aspects of the system's development. Khaw Thong Xiang served as the Mechanical Lead, Soong Peng Xiang led the Software Development, Cheah Yih Xiang contributed to software implementation, and Sherrie Goh Xun Yi was the Electronics Lead. The team worked under the guidance of Assoc. Prof. Ir. Dr. Anis Salwa Mohd Khairuddin, Prof. Ir. Dr. Chuah Joon Huang, and Prof. Ir. Dr. Yap Hwa Jen, whose expertise and mentorship played a crucial role in refining the project's technical and practical implementation.





Awards & Recognition

- Engenius Day UM : Outstanding Project Award
- Malaysia Technology Expo (MTE) : Bronze Award
- Integrated Design Project Short Video Competition 2024 by IEM - 1st Runner up in category of Best Real-World Relevance and Sustainability
- Putrajaya Festival of Ideas (PICC) : Selected as one of the five pavilion booth exhibit in category of Agriculture and Food Security

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Our future is a race between the growing power of
technology and the wisdom with which we use it

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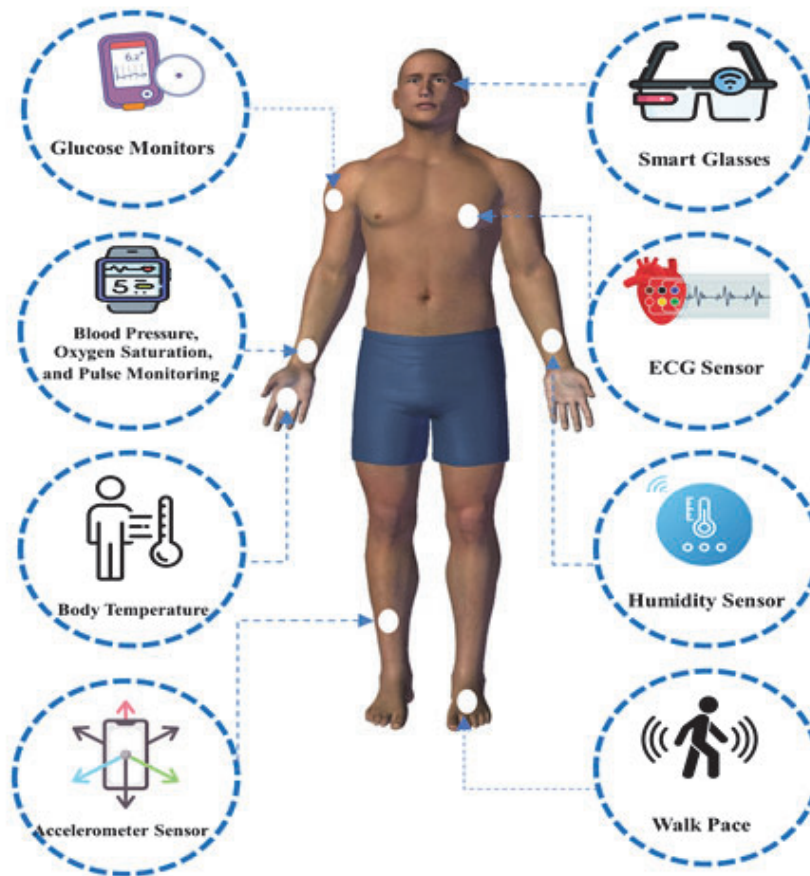
Stephen Hawking



RESEARCH HIGHLIGHT

FLEXIBLE META-PATCH RECTENNA ARRAY: REVOLUTIONIZING POWERING SOLUTIONS FOR WEARABLE MEDICAL SENSORS

by Mohd Yazed Ahmad, Hussein Yahya Alkhalaf, Harikrishnan Ramiah, A. K. M. Zakir Hossain, S. M. Kayser Azam, Aung Thiha



IR 4.0: Transforming Wearable Healthcare Technologies

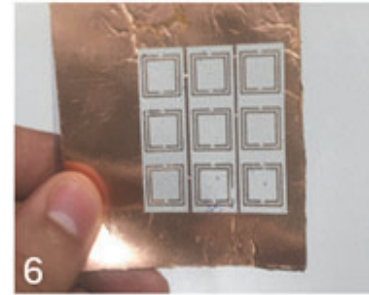
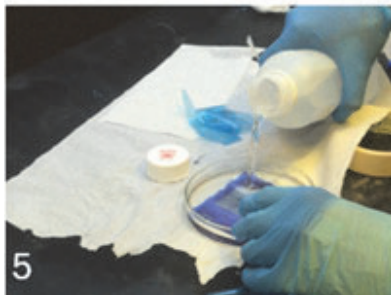
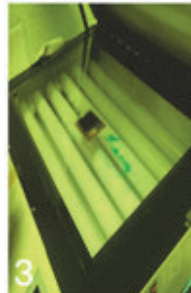
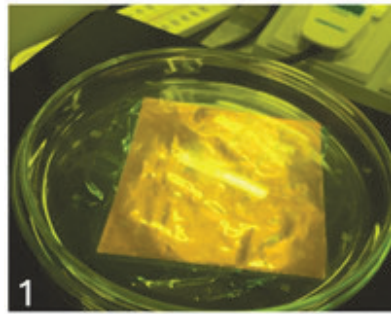
The Fourth Industrial Revolution (IR 4.0) is reshaping various industries, including biomedical engineering, by integrating Internet of Things (IoT), wireless energy transfer, and advanced sensor technologies. The Flexible Meta-Patch Rectenna Array introduces an innovative approach to powering low-power wearable medical sensors (WMS), eliminating the need for frequent battery replacements and enhancing continuous health monitoring.

This state-of-the-art system is designed to harvest ambient RF energy efficiently and convert it into usable power for wearable devices. Through metasurface-based antenna design and compact rectifier technology, the system ensures high energy conversion efficiency and seamless operation for biomedical applications.

1. Advanced Metasurface-Based Rectenna for RF Energy Harvesting

One of the groundbreaking innovations of the Flexible Meta-Patch Rectenna Array is its integration of a textile-based metasurface interlayer patch antenna, which significantly enhances the system's gain, bandwidth, and energy efficiency. Unlike conventional wearable antennas, this system:

- Utilizes a 2×2 metasurface antenna array, achieving high efficiency (77%) and increased bandwidth (120 MHz).
- Employs a seven-stage Cockcroft-Walton Voltage Multiplier (CWVM) rectifier, optimizing power conversion efficiency (PCE) up to 56%.
- Enhances RF energy capture through a single excitation port design, simplifying fabrication while improving overall performance.
- The 2×2 meta-patch rectenna array achieved a PCE of 56% and a DC output power of $450 \mu\text{W}$ at -1 dBm input power.



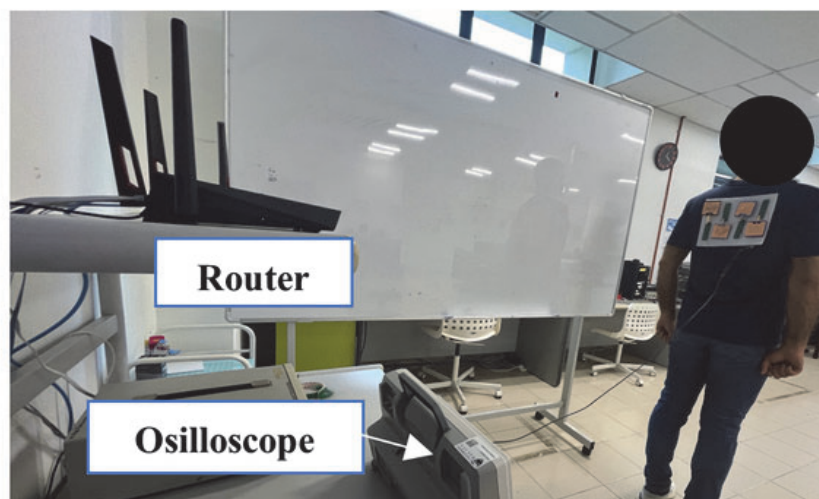
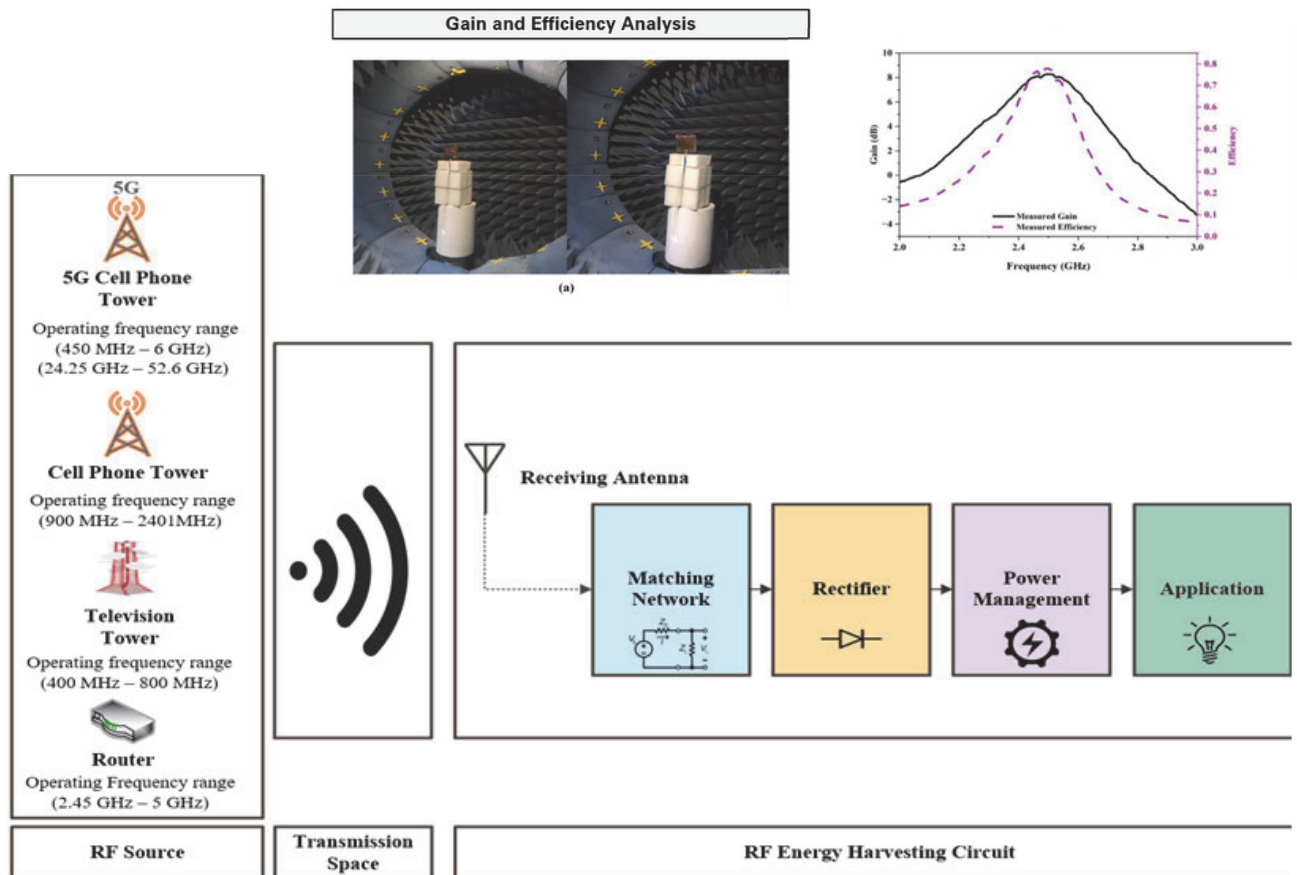
Predicting the future isn't magic,
it's artificial intelligence

” Professor Dave Waters

2. Next-Gen Power for Wearable Medical Sensors

The proposed meta-patch rectenna array offers an efficient and sustainable solution for powering WMS, supporting the advancement of next-generation healthcare technologies.

- Powers a wide range of low-power WMS (e.g., ECG, temperature, glucose monitoring sensors).
- Provides a sustainable energy source, enhancing device performance and improving patient care.
- Reduces battery dependence, enabling compact, lightweight, and maintenance-free wearables



Driving Green Innovation in Healthcare

- The meta-patch rectenna array supports Sustainable Development Goal (SDG) 3: Good Health and Well-being by providing a clean, renewable energy source for WMS. By eliminating battery waste and minimizing environmental impact, it promotes a greener, more sustainable, and efficient healthcare system.

Awards & Recognition

- Best Paper Award, IEEE Malaysia AP/MTT/EMC Joint Chapter

Publication

- Alkhalaf, H. Y., Ahmad, M. Y., Ramiah, H., Hossain, A. Z., Azam, S. K., & Thiha, A. (2024). Flexible Meta-Patch Rectenna Array for Energizing Low-Power Wearable Medical Sensors. IEEE Access.

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You can have data without information,
cannot have information without data

”

Daniel Keys Moran

RESEARCH HIGHLIGHT

ADVANCING QUALITATIVE DATA CLASSIFICATION THROUGH MACHINE LEARNING: APPLICATIONS IN OCCUPATIONAL FRAMEWORK DEVELOPMENT AND NATIONAL OCCUPATIONAL SKILLS STANDARDS (NOSS)

by Assoc. Prof. Ir. Dr. Mohd Sayuti

Machine learning (ML), a transformative subset of artificial intelligence (AI), has emerged as a powerful tool for analyzing and interpreting complex datasets, particularly in the realm of qualitative research. By leveraging advanced algorithms and computational models, ML enables researchers to classify, analyze, and extract meaningful insights from unstructured data, such as interview transcripts, survey responses, and case studies. This capability is revolutionizing traditional qualitative research methodologies, offering unprecedented efficiency, accuracy, and scalability. In academia and industry alike, machine learning is increasingly being adopted to address challenges in data classification, pattern recognition, and knowledge extraction, paving the way for innovative solutions in fields such as occupational framework development and skills standardization.



In a significant step toward enhancing the capabilities of facilitators involved in the development of Occupational Frameworks (OF) and National Occupational Skills Standards (NOSS), a comprehensive training program titled Program Peningkatan Kualiti Pembangunan Fasilitator Kerangka Pekerjaan (OF) dan NOSS di Dalam Negara was recently organized by UM Consult Sdn. Bhd. The program, led by Prof. Dr. Norlidah Alias from the Faculty of Education, Universiti Malaya, aimed to equip officers from the Jabatan Pembangunan Kemahiran with advanced skills in qualitative research methodologies. Assoc. Prof. Ir. Dr. Mohd Sayuti Ab Karim from the Faculty of Engineering, Universiti Malaya, served as the trainer for the machine learning segment of the program, introducing participants to cutting-edge techniques for qualitative data classification and analysis.



A key highlight of the training was the introduction of new machine learning techniques for classifying qualitative data. Participants explored the application of AI for Data Mining, learning how knowledge can be mined from databases and comparing AI-driven searches with conventional methods. The session on Data Mining for OF provided insights into applying these techniques specifically for Occupational Frameworks.

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**DID YOU
KNOW?**

- ♦ Malaysia's National Artificial Intelligence Roadmap (AI-RMAP) 2021-2025 was officially launched in 2022 to drive AI innovation and digital transformation.
- ♦ Malaysia's Government AI Readiness Index ranking improved significantly from 29th in 2022 to 23rd in 2023, reflecting the nation's progress in AI adoption and governance.
- ♦ As of 2024, Malaysia has achieved 63% completion of its AI-RMAP initiatives, marking a strong commitment to advancing artificial intelligence in key sectors.

RESEARCH HIGHLIGHT

SMART PROSTHETICS FOOT: CUSTOMIZED DESIGN AND REMOTE CARE

by Kwong Jia Er, Zaki Al-Hashimi, Mouaz Al Kouzbary, Hanie Nadia Shasmin, Juliana Usman, Noor Azuan Abu Osman

INTRODUCTION

The smart foot prosthesis plays a crucial role in effective rehabilitation and informed clinical decision-making. Monitoring the device is especially important for elderly prosthetic users, who are at a higher risk of falling. By detecting instability or irregular movement patterns, potential fall risks can be identified, allowing clinicians to intervene promptly with preventive measures. Additionally, monitoring the prosthesis helps determine the patient's level of activity, which is essential in rehabilitation settings where maintaining physical mobility is crucial. In this study, an Inertial Measurement Unit (IMU) sensor is employed to track angular position and capture kinematic data, providing valuable insights into the patient's activity levels.

However, most existing prosthetic devices lack communication capabilities and do not incorporate sensors for real-time monitoring. To address this limitation, an integrated system will be incorporated into the prosthetic foot, enabling continuous data collection and transmission to an online database. This system will facilitate offline data processing to assess gait quality, identify potential fall risks, and generate emergency reports in the event of a fall.

METHODOLOGY

The integration of IoT into smart foot prostheses enhances kinematic data acquisition, communication, and real-time monitoring. This system comprises sensing, processing, and communication units. A 9-degree-of-freedom IMU sensor (accelerometer, gyroscope, magnetometer) collects kinematic data, which is processed using three data fusion algorithms. A low-energy Bluetooth module transmits data to a mobile app.

The embedded system includes an MCU, IMU sensor, and Bluetooth module. The MCU processes and stores data before transmission, ensuring integrity, while the IMU captures kinematics for real-time monitoring. Data is processed using two conventional approaches (EKF, CF) and an AI-based method

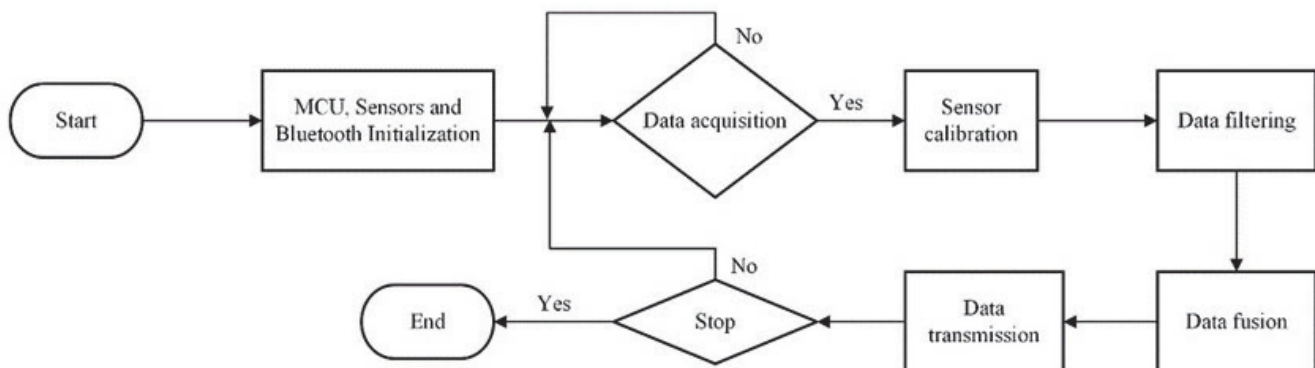


Fig.1 Flow Chart of the Data Acquisition System

RESULT

The foot angular position in the sagittal plane obtained using EKF, CF and NARX models was plotted. Each of the mean values was bounded with its corresponding standard deviation. The algorithms were implemented using C-code on AVR64EA microcontroller. The program has three functions SPI communication with IMU, data fusion/ processing, and UART communication with low energy Bluetooth module.

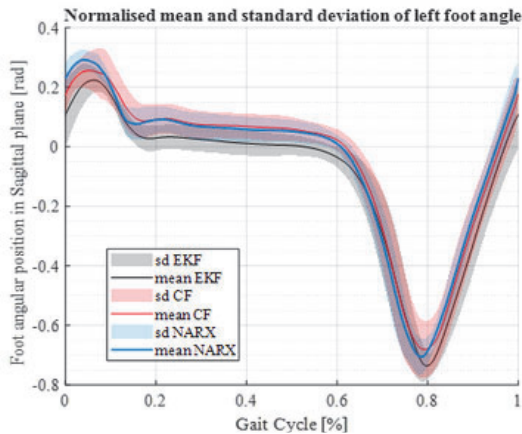


Fig.2 Reference Normalised Foot Angle for three data fusion algorithms

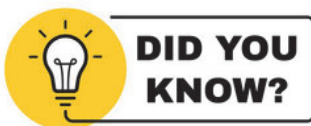


Fig.3 PCB design and customized foot with PCB

CONCLUSION

This innovation presents a prototype of a prosthetic foot with an embedded system featuring a low-energy Bluetooth module for transmitting kinematic data to a mobile application and an online server. This system enables certified prosthetists and rehabilitation centers to monitor the user's gait cycle, daily step count, and other critical metrics, allowing for timely interventions to prevent complications while promoting mobility and activity.

Furthermore, integrating artificial intelligence (AI) in rehabilitation can significantly enhance the quality of life for prosthetic users by enabling adaptive gait analysis, predictive analytics for fall prevention, and personalized rehabilitation plans. AI-driven insights can help optimize prosthetic performance, ensuring a more natural and comfortable user experience. By leveraging AI, rehabilitation efforts can become more accessible and efficient, promoting greater inclusivity and equality for individuals with mobility impairments.



**DID YOU
KNOW?**

5 MIND-BLOWING AI STATISTICS

- ♥ **34 million** AI-Generated Images Created Daily
- ♥ **71%** Of Social Media Images Now AI-Generated
- ♥ Tech Giants Investing **\$320 Billion** In AI Development For 2025
- ♥ Healthcare AI Market Valued At **\$38.7 Billion**, Doubling Since 2023
- ♥ Adoption Gap: **81%** Of Workers Still Not Using AI Tools



15 Mind-Blowing AI Statistics Everyone Must Know About Now

AI investment is skyrocketing, with tech giants pouring billions into development while 97% of business leaders report positive ROI from their AI initiatives.

MEET OUR RESEARCHER

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Dr. Muhammad Imran Ramli is a Senior Lecturer at the Department of Biomedical Engineering, Universiti Malaya. He earned both his PhD and BEng in Biomedical Engineering from Universiti Malaya. His research focuses on neurorehabilitation engineering, particularly in tissue mechanics, pulmonary rehabilitation, and medical diagnosis using wearable technologies. His current work explores breathing and singing therapy for individuals with spinal cord injuries.



Publications

- Ramli, M. I., Hamzaid, N. A., & Engkasan, J. P. (2020). Monitoring breathing muscle performance during singing noninvasively using mechanomyography and electromyography. *Journal of Voice*, 34(6), 862–869. [DOI](#)
- Ramli, M. I., Hamzaid, N. A., Engkasan, J. P., & Usman, J. (2023). Respiratory muscle training: A bibliometric analysis of 60 years' multidisciplinary journey. *BioMedical Engineering Online*, 22(1). [DOI](#)
- Ramli, M. I., et al. (2024). Accessory respiratory muscles performance among people with spinal cord injury while singing songs with different musical parameters. *PLoS ONE*, 19(7), e0305940. [DOI](#)

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Publications

- Tham, Lai Kuan; Al Kouzbary, Mouaz; Al Kouzbary, Hamza; Liu, Jingjing; Abu Osman, Noor Azuan (2023). Estimation of body segmental orientation for prosthetic gait using a nonlinear autoregressive neural network with exogenous inputs, PHYSICAL AND ENGINEERING SCIENCES IN MEDICINE. 46(4), 1723-1739. doi:10.1007/s13246-023-01332-6
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- Chandrasekhar, Annapoorna; Abu Osman, Noor Azuan; Tham, Lai Kuan; Lim, Kheng Seang; Abas, Wan Abu Bakar Wan (2013). Influence of Age on Patellar Tendon Reflex Response, PLOS ONE. 8(11). doi:10.1371/journal.pone.0080799

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RECENT SUCCESS STORY

UNIVERSITI MALAYA RESEARCHERS SHINE AT MTE 2025 WITH AWARD-WINNING INNOVATIONS

The Faculty of Engineering, Universiti Malaya, continues to make strides in research and innovation, with its teams securing multiple prestigious awards at the Malaysia Technology Expo (MTE) 2025, held from 20-22 February 2025 at the World Trade Centre Kuala Lumpur.

The annual expo, renowned for showcasing cutting-edge innovations, recognized the outstanding contributions of our researchers in healthcare, environmental sustainability, and waste management.

Award-Winning Innovations:

🏆 Gold Medal & Outstanding Innovation Award (Healthcare, Personal Care Technology, Biotechnology & Life Sciences)

🧬 MULTISep – A Multiplex Electrochemical Biosensor for Sepsis Diagnosis

Developed by Prof. Ir. Dr. Fatimah Ibrahim & Team from the Department of Biomedical Engineering, this innovation offers a rapid, efficient, and accurate method for sepsis diagnosis, potentially revolutionizing early detection and treatment.



🏆 Gold Medal & Outstanding Innovation Award (Protection of the Environment: Water, Wastewater, Sanitation)

💧 SMART AQUAEZ: A Game-Changer for Rural Clean Water Access

Led by Prof. Emeritus Ir. Dr. Mohd Azlan Hussain, Dr. Mohd Usman Mohd Junaidi, Dr. Mohamad Fairus Rabuni, Dr. Zulhelmi Amir, and Dr. Faizul Hakim Adnan, this innovative system provides a sustainable and cost-effective solution to improve clean water accessibility in rural areas.



RECENT SUCCESS STORY

UNIVERSITI MALAYA RESEARCHERS SHINE AT MTE 2025 WITH AWARD-WINNING INNOVATIONS

🏆 Gold Medal Award

Revolutionizing Waste Management: Turning Plastic Waste into Sustainable Fuels

A collaborative effort by Dr. Muhamad Fazly Abdul Patah, Prof. Ir. Dr. Wan Mohd Asri, Ts. Mohd Nor Irmad Sulaiman, Ms. Dania Qarrina, and Ms. Saw Poh Ai, this research presents a novel approach to addressing plastic waste challenges by converting it into valuable fuel resources.



These remarkable achievements highlight Universiti Malaya's commitment to pioneering research that addresses real-world challenges and contributes to global sustainability efforts. We extend our heartfelt congratulations to all winners and look forward to more groundbreaking discoveries from our talented researchers.

LIST OF PUBLICATIONS

The TDR office congratulates all the dedicated researchers who have published high-impact journals, contributing to the advancement of cutting-edge technologies. As of February 25, 2025, the Faculty of Engineering has successfully published approximately 68 high-impact journals.

Investigation of heat transfer and pressure loss of bio-based functionalized multi-walled carbon nanotubes nanofluid in separation flow passage.
<https://doi.org/10.1007/s10973-024-13976-x>



A Novel Approach to Test-Induced Defect Detection in Semiconductor Wafers, Using Graph-Based Semi-Supervised Learning (GSSL)
DOI :[1109/ACCESS.2025.3535103](https://doi.org/10.1109/ACCESS.2025.3535103).



Design and Evaluation of Noise Simulation Algorithm Using MATLAB Ray Tracing Engine for Noise Assessment and Prediction
<https://doi.org/10.3390/app15031009>



Utilizing black phosphorus as a Q-switcher in Nd-doped fiber laser system.
<https://doi.org/10.1007/s10946-024-10229-y>



Screen-printed high stretchability and conductivity horseshoe silver traces: fabrication and characterization.
<https://doi.org/10.1007/s00170-025-15183-w>



Electrospun poly (vinylidene fluoride) nanofibers: A review on Its utilization in energy harvesting devices.
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NEW LEADERSHIP AT AMMP CENTRE

ASSOC. PROF. IR DR MOHD SAYUTI AB KARIM, HEAD OF AMMP CENTRE

We extend our warmest congratulations to Associate Professor Ir. Dr. Mohd Sayuti Ab Karim on his appointment as the new Head of the Centre of Advanced Manufacturing and Material Processing (AMMP) from 17 March 2025 to 31 December 2026.

AMMP Centre, established in 2003 at Universiti Malaya, is a leading hub for research in advanced manufacturing and material processing. It has welcomed a diverse community of researchers, including graduate students, postdoctoral fellows, and visiting professors from Malaysia and beyond. The Centre is currently focused on initiatives such as nanolubrication systems, surface quality improvement, and the integration of emerging technologies like selective laser melting and hybrid manufacturing.



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