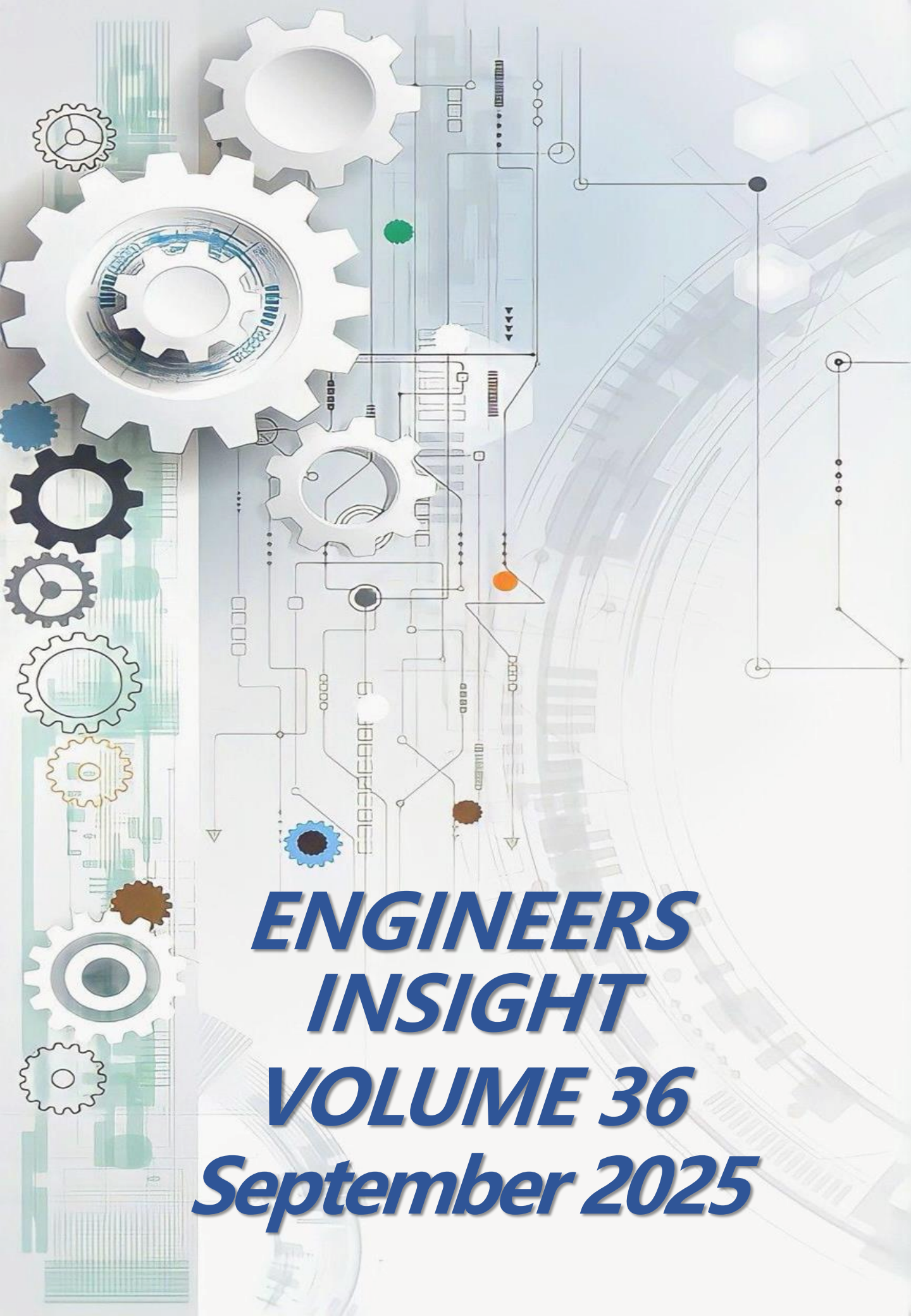

ENGINEERS INSIGHT

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AWARDS & ACHIEVEMENTS

APU Lecturer Honoured at Private Education Excellence Awards 2025

Assistant Professor Ir. Eur Ing Ts DDr. Harvin Kaur Gurchran Singh Recognised with Merit Highly Commended Award for **Outstanding Contribution to Private Higher Education**

Asia Pacific University of Technology & Innovation (APU) proudly celebrates the recognition of Ir. Eur Ing Ts DDr. Harvin Kaur Gurchran Singh, Assistant Professor at the School of Engineering, who was conferred the Merit Highly Commended Award at the 11th Private Education Excellence Awards 2025, organised by **Koperasi Pendidikan Swasta Malaysia Berhad (EduCoop).**

The ceremony took place on **9th July 2025** at the **Mandarin Oriental Kuala Lumpur** and gathered over 200 educators, education entrepreneurs, and institutional leaders from across Malaysia.

The awards aim to celebrate individuals who have made meaningful contributions to the advancement of private education, showcasing excellence in academic leadership, innovation, and the overall enhancement of learning outcomes.

Dr. Harvin's selection by the Panel of Judges for this national-level recognition is a testament to her remarkable commitment to transformative education, academic quality, and the holistic development of students. With a strong background in engineering, and a passion for empowering learners through innovative pedagogical approaches, she continues to lead by example in the higher education landscape.

Dr. Harvin has consistently demonstrated her dedication to shaping a dynamic and future-ready learning environment. At APU, she has been involved in curriculum innovation, strategic academic planning, and interdisciplinary teaching that bridges theory with practice.

Her teaching philosophy places a strong emphasis on critical thinking, industry relevance, and lifelong learning, ensuring students are equipped with the skills and mindset to excel in complex global industries.

She also plays a key role in implementing advanced teaching methods that encourage active participation, collaborative learning, and real-world problem-solving.

From hands-on workshops to engaging student-led activities**, Dr. Harvin** is deeply committed to creating inclusive learning spaces that foster curiosity and resilience among learners.

In addition to her teaching, she has mentored numerous student teams, guided final-year projects, and collaborated with industry stakeholders on research initiatives that contribute to both academic advancement and societal impact.

Recognised Leadership in the Academic Community

Dr. Harvin's contributions extend beyond the classroom. Her active involvement in university-level committees, external review panels, and engagement with accreditation bodies has helped strengthen APU's academic governance and quality assurance processes. She is also known for her initiatives in bridging academia with industry, organising forums, guest lectures, and collaborative projects that expose students to current trends and professional standards.

Upon receiving the award, Dr. Harvin expressed her gratitude, saying:

"It's truly an honour to receive this recognition. This award reflects not only my personal journey but the collective efforts of my colleagues, mentors, and students who inspire me every day. I'm grateful to APU for the support and opportunities to innovate and grow as an educator."

A Moment of Pride for APU

The entire APU community extends its warmest congratulations to Dr. Harvin on this well-deserved recognition. Her achievement exemplifies the spirit of excellence that APU cultivates among its academic staff and reinforces the university's role as a leader in Malaysia's private higher education sector.

As we continue to drive forward with our mission to deliver quality, industry-driven education, we take pride in celebrating the successes of individuals like Dr. Harvin who embody the values of commitment, innovation, and academic integrity.

Congratulations, Dr. Harvin! Your success is an inspiration to all of us at APU

APU's Ir. Ts. Dr Dhakshyani Ratnadurai Elected to Prestigious IEM Council

The Institution of Engineers, Malaysia (IEM), established in 1959, aims to promote and advance the science and profession of engineering across all disciplines. It also facilitates the exchange of information and ideas related to engineering. The IEM is governed by the Council, headed by the President. The Executive Committee, which manages the Council's affairs, consists of the President, Deputy President, seven Vice Presidents, Honorary Secretary, Honorary Treasurer, and eight elected Council members. IEM is a society established to promote and advance the Science and Profession of Engineering in any or all its disciplines and to facilitate the exchange of information and ideas related to Engineering. **Dr. Dhakshyani** is actively involved in IEM besides being an **Academician and Researcher** in **SOE.**

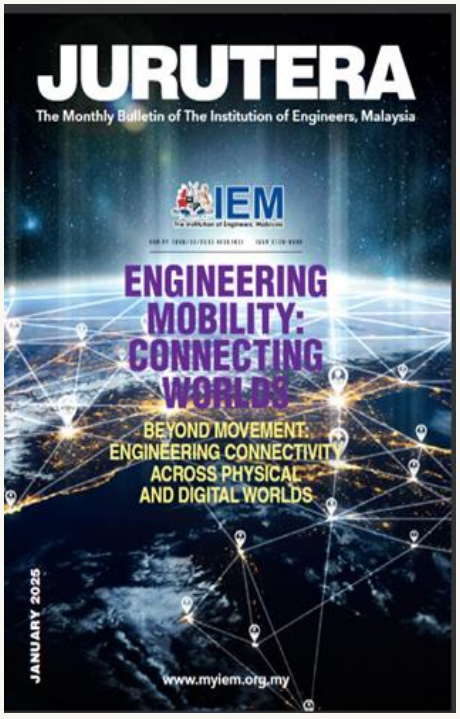
Dr. Dhakshyani has been elected as the **Council Member (Other Disciplines Representative)**, since April 2025 succeeding through the nomination and election processes organized by IEM. Her responsibilities include providing strategic direction, governance, and oversight for the institution's activities and affairs. Key roles and responsibilities include setting the overall objectives and policies for the IEM, representing the institution in external bodies, ensuring the effective management of the institution's resources, and making decisions on matters affecting the engineering profession in Malaysia.

Chairlady Session 2024/2025 and Session 2025/2026, Engineering Education Technical Division (E2TD), IEM

Dr. Dhakshyani also holds the position of **Chairlady in the Engineering Education Technical Division (E2TD)** for two consecutive sessions 2024/2025 and 2025/2026.

She was reelected in August 2025 to serve the division for the second term. Her primary role is general supervision of the E2TD and its activities within IEM guidelines. Other responsibilities include chairing division meetings, ensuring activities align with the IEM Council's objectives, overseeing the division's finances and operations, and working with the Deputy Chairman and Committee Members to promote engineering education and STEM initiatives, as per the rules of IEM.

She led the E2TD committee members towards the successful publication of Jurutera Bulletin January 2025 and continues to lead the committee in the upcoming Jurutera Bulletin 2026.



COVER *Note*

by Ir.Ts. Dr Dhakshyani Ratnadurai
Chairman, Engineering Education Technical Division (E2TD) Session 2024/2026

Engineering Academicians with a Purpose

For the first issue of the *JURUTERA* Bulletin for 2025, IEM's Engineering Education Technical Division (E2TD) is showcasing Engineering Mobility: Connecting Worlds. E2TD has actively conducted webinars, physical talks, mock accreditation visits, technical visits, STEM related activities as well as the Prestigious Talk on Engineering a Sustainability Future related to integrating United Nations (UN) Sustainable Development Goals (SDGs) into engineering education.

E2TD committee members are striving towards creating more activities in relation to awareness of engineering fields which have become less popular in comparison to non-engineering fields.

Besides the importance of incorporating SDGs, it is also necessary for academicians and engineers to investigate current trends such as artificial intelligence (AI) as well as environment, social and governance (ESG) which are important and should be embedded in the engineering curriculum in order to benefit future engineering graduates so that they can be assets to the engineering fraternity. It is essential for us to be mobile and to keep up with the latest trends which lead to connecting the world. ■

Moderator at ENGINEER 2025 Event Organized by IEM

IEM Corporate Affairs division selected Dr. Dhakshyani to be the **Moderator** for the IEM Engineering Convention Event called as '**Sembang Chillex Kejuruteraan**' at **Kuala Lumpur Convention Centre (KLCC)** in conjunction with **ENGINEER 2025**.

This session's aim was to share insights on the Engineer's role in society and activities. The panelists consist of Professional Engineers working in the industry and academic fields. It was a very engaging session with the topic of discussion was on whether by being a Professional Engineer with the status of Ir. gives higher salary, easy life or is it just an illusion. This session was conducted live with audiences of various background and its recording available in you tube.

By holding various important positions in IEM, it is a great honour to share and contribute towards the enhancement of the Engineering fraternity through the IEM platform.

Congratulations to Dr. Dhakshyani!
Her contributions to the engineering fraternity are commendable, and we are proud to have her at APU.

APU Students Win First Runner-up At IEM Engineering Quest 2025

A team of five students from **Asia Pacific University of Technology & Innovation (APU)** secured the **First Runner-Up** title at the **IEM Engineering Quest 2025**, held on 21st June 2025.

Team members **Lee Cheng Jin, Dheeraj Suresh Kumar, Megan Yap Jhun Kay, Mahishkumar Ganeson,** and **Ho See Hui** represented APU in this research-intensive competition aimed at redefining sustainable urban environments.

This success was made possible through the mentorship **of Ir Ts Dr Denesh Sooriamoorthy** (Senior Lecturer, School of Engineering at APU) and **Ir Ts Dr Yvette Shaan Li Susiapan** (Senior Lecturer, School of Engineering at APU).

The competition was jointly organised by the **Institution of Engineers Malaysia (IEM)** Student Sections of Universiti Tunku Abdul Rahman (UTAR), Universiti Kebangsaan Malaysia (UKM), and Xiamen University Malaysia (XMUM), which brought together top engineering minds to explore the theme of "**Smart Technology in achieving Zero Carbon City**."

Under the competition's first category, participants were challenged to craft a technical report addressing sustainability in the urban retail sector, leveraging advanced technologies such as Internet of Things (IoT), artificial intelligence (AI), and renewable energy.
APU's team proposed an innovative solution titled **"NeuroToll: A Dynamic Pricing Model with an Open Toll System."**

Their project tackled carbon emissions by eliminating traditional toll booths and replacing them with a real-time, congestion-sensitive tolling system. By dynamically adjusting pricing based on traffic density and zones, NeuroToll offers a smart alternative to reduce idle emissions, improve traffic flow, and promote green urban mobility.

Driving Innovation for Carbon-Neutral Cities

The team's performance stood out among submissions from numerous universities nationwide, earning commendations for technical accuracy, creativity, and real-world applicability.

On top of that, their solution aligned strongly with Malaysia's carbon neutrality goals and highlighted the integration of data-driven systems in sustainable urban design.

As Malaysia continues to explore smarter and more sustainable urban solutions, achievements like this highlight how APU students are contributing meaningfully through practical innovation, technical knowledge, and a strong sense of environmental responsibility.

A huge congratulations to the team and their mentors on this impressive accomplishment! They have truly done APU proud.

Gold Award at ESTE 2025 with Industry-Based Final Year Project

Our final year mechatronics student from School of Engineering (SOE), **Kareshmen Maheswaran**, supervised by **Ir. Ts. Dr. Reena Sri Selvarajan**, won a **Gold Award** for his industrial-based final year project at the **Engineering Science and Technology Exhibition (ESTE 2025),** held on 13th August 2025. Competing against participants from leading Malaysian universities including both private and public universities, the APU team distinguished itself by emerging as one of the Gold Award winners in the Mechanical Engineering category.

The award-winning project, titled "**Smart Autonomous Wheel Drone for Cable Surveillance on Offshore Platforms**", stands out as a prime example of industry-based research excellence. Carried out in close collaboration with Nexus NeoTech Sdn. Bhd., the project directly addresses critical offshore platform challenges. Backed by an industrial grant of RM3,000, it focused on developing a sustainable cable health monitoring and surveillance system tailored for offshore environments.

With the dedicated supervision of Dr. Reena, the prototype successfully achieved **Technology Readiness Level (TRL) 6**, validating its suitability for real-time deployment. This milestone highlights not only the technical competence of APU students but also the university's commitment to delivering industry-relevant solutions with societal impact.

Reflecting on the achievement, **Dr. Reena** emphasized the value of hands-on industry collaboration in nurturing young engineers:

"This victory underscores the power of academia-industry partnerships. By engaging students in real industrial challenges, we empower them to transform ideas into tangible innovations that create real impact. I am extremely proud of Kareshmen's dedication and the success this project has achieved."

This recognition at ESTE 2025 is a proud moment for APU's School of Engineering (SoE), further strengthening its reputation for producing future-ready engineers and impactful innovations on both national and international platforms.

This prestigious Gold Award is a testament to the hard work of the student and the invaluable mentorship of Dr. Reena.

From Engineers to Technopreneurs: Dr. Reena's Third Student Led Start-Up Wins First Runner-Up

On 15th August 2025, **Team CMORE**, comprising **Quek Kia Hau** and **Leong Yu Hang**, and mentored **by Dr. Reena** made their mark at Startup Weekend by securing the **First Runner-Up** position, a proud testament to innovation, resilience, and the spirit of young technopreneurs.

This recognition marks a significant milestone in Dr. Reena's continuous efforts to nurture entrepreneurial mindsets among engineering students. CMORE is the third student start-up group under her mentorship, following the successful registration of The Gigs with SSM, and Robodex Visioneries, currently in development (with previous achievements of securing one Gold and 2 Silvers in international innovation competitions).

Another team under her guidance, **AQUAI,** also showcased its innovative pitch at the competition. While not among the top winners, their participation demonstrated courage, creativity, and the first steps into the world of technopreneurship.

Dr. Reena emphasized that true growth extends beyond lecture halls, where students challenge themselves to transform ideas into impactful solutions for end-users. With 14 teams participating in the event, the students continue to embody the spirit of innovation, proving that engineers can indeed become the technopreneurs of tomorrow.

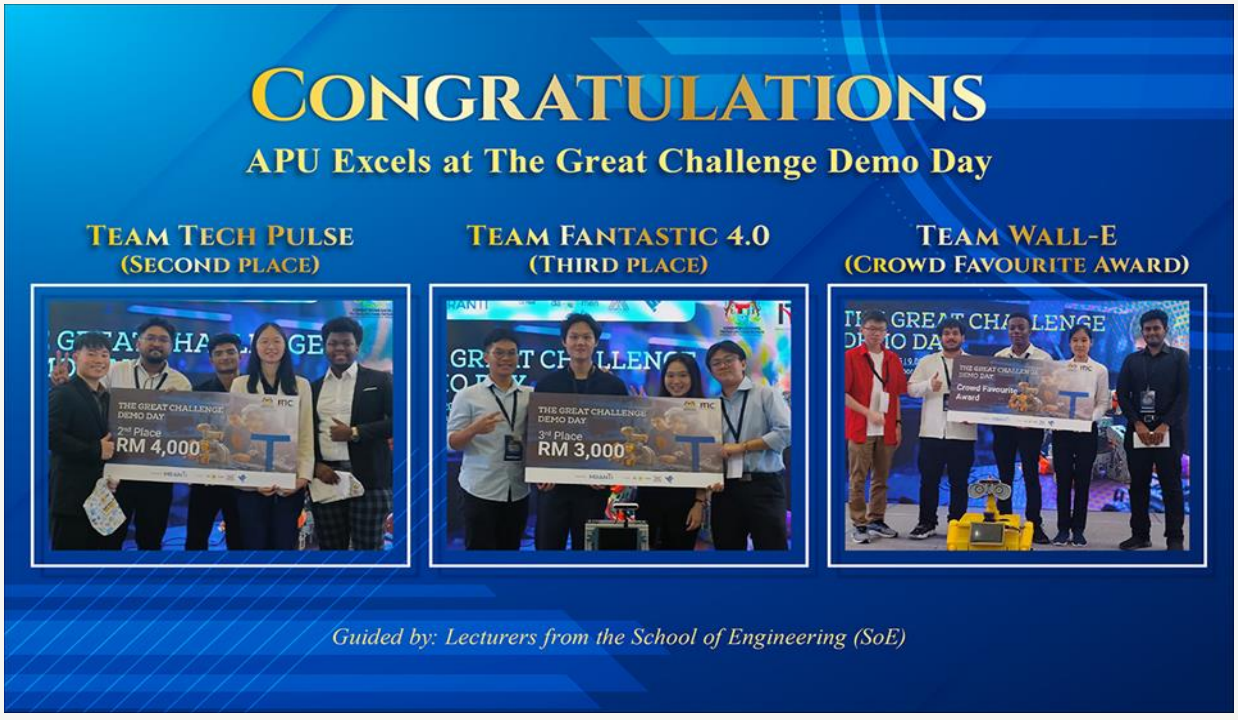
Their success is an evidence to the powerful blend of engineering and innovation.

APU Excels At The Great Challenge Demo Day

Asia Pacific University of Technology & Innovation (APU) has achieved remarkable success at **The Great Challenge Demo Day**, securing **second and third place**, and the **Crowd Favourite Award**.

The Great Challenge Demo Day took place under **the Industrial Technology Innovation Centre (ITIC)** and was managed **by Malaysian Research Accelerator for Technology (MRANTI)**, with support from the **Ministry of Science, Technology & Innovation (MOSTI).**

The competition brought together the brightest minds from Malaysia's top universities, providing them with a platform to showcase their expertise in robotics, engineering, and innovative problem-solving.



Under the guidance of **Ir Ts Dr Denesh Sooriamoorthy** (Senior Lecturer, School of Engineering at APU), **Assoc Prof Ts Dr Sathish Kumar Selva Perumal** (Associate Professor, School of Engineering at APU), **Ir Narendran Ramasenderan** (Assistant Professor, School of Engineering at APU), **Ir Ts Dr Alexander Chee Hon Cheong** (Assistant Professor, School of Engineering at APU), **Ts Suresh Gobee** (Senior Lecturer, School of Engineering at APU), **Dr Chandrasekharan Nataraj** (Senior Lecturer, School of Engineering at APU), and **Ir Ts Dr Yvette Shaan-Li Susiapan** (Senior Lecturer, School of Engineering at APU), this achievement not only demonstrates a strong commitment to innovation but also highlights leadership in developing pioneering solutions that bridge technology with practical applications.

Path to Success

Dr Denesh expressed his immense pride for the students' achievement, emphasising APU's dedication to fostering innovation and excellence in engineering and technology.

"*This accomplishment is a testament to the hard work, creativity, and perseverance of our students. This success not only adds to APU's growing list of accolades but also reaffirms our commitment to pushing the boundaries of technological innovation*," he said.

Celebrating APU's Winning Teams

Recognition	Team Name	Project	Team Members	Project Description
Second place	Team Tech Pulse	Sapsense	**Thanigai**, **Kiew Zheng**, **Kevin**, **Chilinda**, and **Wong Yu Qin**	Sapsense is a fully autonomous robot engineered for rubber tapping and latex collection, designed to address labor shortages while maximizing latex yield.
Third place	Team Fantastic 4.0	SecurePath AGV Rover	**Goh Chuk Fun**, **Samantha Koay**, **Chong Chan Heng**, and **Pang Cheng Hsiang**	SecurePath AGV Rover is an intelligent security robot designed to patrol, monitor, and respond to emergencies, providing reliable safety anytime, anywhere.
Crowd Favourite Award	Team Wall-E	CareBot	**Kundai**, **Abdulrahman Hany**, **Mohamed Yazdan**, **Chan Teah Hong**, and **Megan Yap**	CareBot is an autonomous pediatric healthcare robot designed for child supervision and support in hospitals, featuring voice control and an interactive smart display for enhanced patient engagement.

In contrast, **Assoc Prof Ir Dr Siva Kumar Sivanesan** (Head, School of Engineering at APU) highlighted that this achievement not only marks a significant milestone for APU but also underscores its ability to innovate in alignment with industry demands.

"*On top of that, achievements like this not only enhance the students' appeal to tech employers in Malaysia, positioning them as highly sought-after professionals in their respective fields, but also solidifies APU's reputation as a frontrunner in nurturing graduates with practical skills tailored to meet the ever-evolving demands of the tech industry,"* he said.

This incredible win showcases the innovation and hard work of our students, and we extend our warmest congratulations to the entire team!

APU Dominates Malaysia Startup Challenge 2025 with Gold, Silver and Bronze Medal Wins

APU's Extraordinary Triumph at Malaysia Startup Challenge 2025

Asia Pacific University of Technology & Innovation (APU) has once again proven its place at the forefront of innovation by sweeping **16 awards** — including **seven Gold Medals** — at the prestigious **Malaysia Startup Challenge 2025.** This remarkable accomplishment reflects not only the ingenuity of APU's students but also the visionary leadership and mentorship that has transformed the university into a hub of technological excellence.

At the heart of this triumph is **Prof. Ir. Eur Ing Dr. Vinesh Thiruchelvam**, Chief Innovation & Enterprise Officer, whose establishment of the Centre for Research and Development of IoT (CREDIT) has created Malaysia's premier innovation ecosystem. **Dipl.-Ing. Inv. Ir. Narendran Ramasenderan**, Head of CREDIT, personally coached all 16 winning teams, guiding students through every phase — from concept ideation to commercialization — with unmatched expertise and commitment. Supporting him, **Mr. Krishna Ravinchandra** provided critical technical solutions and 24/7 assistance, ensuring no team faced roadblocks on their way to success.

Academic strength came from **Associate Prof. Ir. Dr. Siva Kumar Sivanesan** and **Associate Prof. Dr. Sathish Kumar Selva Perumal**, whose mentorship sharpened technical excellence, while **Dr. Yvette Shaan-Li Susiapan** orchestrated smooth cross-department collaboration. From the School of Business, **Dr. Daniel Ruiz de Garibay Ponce** offered market insights and commercialization strategies that helped transform student innovations into viable, investor-ready products.

🏆 Gold Medal Excellence: Seven Stories of Innovation

The Gold Medal-winning projects reflected the breadth of APU's innovation, spanning AI, IoT, robotics, and sustainability.

HackWave Smart AIoT Chicken Coop

Developed by **Choh Jing Yuan, Tan Jun Ka, Samuel Benjamin, Gregory Panagary,** and **Woon Shun Yuan**, this project transforms poultry farming through AI and IoT integration. Computer vision tracks flock movement patterns, audio processing detects distress calls and respiratory issues, and smart feeding stations monitor food and water intake. Together, these features allow early disease detection and improved farm productivity; a critical solution for sustainable agriculture.

Plastic Sensing Material Recovery System

The team of **Liew Ming Khang, Adam Wood Chuswan, Tan Ee Loong,** and **Eyu Ji Yuen** created a dual-sensor waste management system capable of identifying and sorting plastics like PET, HDPE, and PVC with remarkable accuracy. By automating the sorting process and compressing waste, their solution addresses one of the world's most urgent challenges — efficient recycling and responsible consumption.

SecurePath AGV Rover

Led by **Goh Chuk Fun, Samantha Koay Yenn Xian, Chong Chan Heng,** and **Pang Cheng Hsiang**, SecurePath is an autonomous security rover designed to protect facilities in real time. Using SLAM navigation, machine vision for fall and facial detection, and even a chatbot powered by LLM technology, this AGV can patrol autonomously, interact naturally with humans, and dispense medical supplies within 2.5 seconds during emergencies — turning security into a proactive safety solution.

NeRFs-Based Plant Analytics & Fish Counting for Farm 4.0

Chong Vincent, Tang Kai Yuan, Noor Alharrasi, and Viresh Nagouda employed Neural Radiance Fields (NeRF) to create ultra-precise 3D models of plants and aquaculture environments. Farmers can analyze foliage density, plant growth, and fish populations in real time, enabling them to optimize yield and resources while supporting sustainable practices.

MedGuard AGV Rover

Created **by Badr Khaled Al-Sab, Mahmoud Nagib Ali Mahmoud Dabour,** and **Abed Moataz Sadek Mohamed**, MedGuard is a hospital sanitization robot that autonomously maps high-touch surfaces and disinfects them using UV-C light arrays and precision sprayers. This innovation improves hospital hygiene standards while reducing manual cleaning requirements.

Quadrupedal Robot with Reinforcement Learning

A breakthrough project by **Jonathan Cheong Eugene, Lam Weng Yew, Ng Xen Hng, Ting Ming Song,** and **Dwayne Phang Zi Chern**, this four-legged robot uses reinforcement learning, servo motor control, and ROS2-enabled navigation to adapt its gait, avoid obstacles, and traverse complex environments.

All-Weather Autonomous Drone System

Designed by **Leong Wai Jun, Abdul Afiq Akmal Bin Abdul Mumin, Sum Chun Yin,** and **Kareshmen A/L Maheswaran**, this rugged aerial platform integrates edge computing and vision-based navigation to perform flood monitoring and emergency response missions, even under harsh weather conditions.

🥈 Silver Medal Achievements

The Silver Medal winners showcased APU's strength in solving real-world challenges:

HydroGuard SAR Safety AGV Rover

Chang Zi Jing, Chua Jun Yan, Hon Chu Hao, and **James Lim Boon Shen** built a six-wheel, IP68-rated flood-response rover that detects and traces chemical contamination sources in real time and erects containment barriers automatically.

Defective Chili Detector & Fertilizer Rover

Seifeldin Amr, Hamza Rehmani, and Nur Diyana Abdelrahman Hazem created a selective harvesting robot with precision end-effectors and targeted treatment application for sustainable farming.

Athlete Motion Capture System

Yoong Ming Jun, Lee Zhan Tom, Chin Wen Chun, and **Kok Tang Chin** developed a marker less motion capture system that provides athletes with data-driven performance analysis and injury risk reduction.

Intelligent Drone Safety & Recovery System

Mahmoud Khairy, Shokri Eyad Khaled, and Abdelkarim Haitham Abdelbary delivered a drone health monitoring solution with automated parachute deployment and safe landing zone detection.

Palm Vision AGV Rover

Andrew Ng Chee Wei, Tan Chun Pan, Suah Jing Ye, and **Wong Chee Kei** designed an AGV that uses multi-spectral imaging to assess palm fruit ripeness and track loose fruit for maximum yield.

Underwater Robotic System

Chen Pek Hui, Leong Li Jie, Seow Wai Ken, and **Hoo Xiao Tong** created a waterproof drone with YOLOv7-tiny object detection and water sample collection for marine monitoring and coral mapping.

🥉 Bronze Medal Contributions

Bronze winners also made an impact with inventive solutions:

Predictive Guard Inspection AGV Rover - Wong Jun Zhi, Nicholas Tan Peng Gen, Su Xin Hong, and **Mohammad Fawzan Alim** developed a multi-sensor AGV for predictive maintenance in smart factories.

Non-Lethal Wildlife Deterrent AGV – Fareed Ali, Dave Kevin Prawiro, Abdulrahman Adil, and **Robby Edwardo** proposed an environmentally conscious approach to keeping wildlife away from crops without harm.

Wheeled Bipedal Robot with Reinforcement Learning - Andrew Ng Chee Wei designed a hybrid mobility platform combining wheels and legs with RL-based adaptive control for improved balance and navigation.

The breadth of APU's innovation from smart agriculture and autonomous vehicles to underwater robotics, disaster-response drones, and IoT-driven healthcare systems, demonstrates the university's mission to integrate technology with social responsibility. Each project not only solved a technical challenge but also aligned with UN Sustainable Development Goals, underscoring APU's commitment to creating technology that improves lives.

By winning across categories such as **Tertiary-Startup Product, Tertiary-Startup Innovation, Tertiary-Startup Idea, and Professional Ideapreneur**, APU has cemented its place as a regional leader in innovation-driven education; proving that its students are not just engineers, but innovators capable of shaping a better, smarter future.

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A huge congratulations to the APU teams on their incredible success at the Malaysia Startup Challenge 2025!

APU Students Excel at IBIEC 2025: Driving Global Innovation

The International Borneo Innovation, Exhibition & Competition (IBIEC) 2025 kicked off on 23 July 2025, hosted virtually by Politeknik Mukah, Sarawak (KKMS) under the theme "**Global Innovation Synergy: Bridging Education, AI, and Sustainable Technologies**." As one of the largest international platforms for innovation, IBIEC 2025 provided a unique opportunity for inventors and researchers to demonstrate their breakthroughs, connect with industry leaders, and explore avenues for commercialization.

This year's competition focused on the powerful intersection of education, artificial intelligence, and sustainability, a reflection of the global imperative to innovate responsibly while addressing pressing social and environmental challenges. By adopting a virtual format, IBIEC 2025 opened its doors to participants and audiences around the world, making knowledge exchange and collaboration more inclusive than ever.

Celebrating APU's 1st Prize Winners

Asia Pacific University (APU) students once again showcased their creativity and technical expertise with multiple top awards.

Leading the winners was the **Vision-Based Athlete Performance Analysis System** developed **by Yoong Ming Jun, Lee Zhan Tom, Chin Wen Chun, and Kok Tang Chin**. This markerless, field-ready sports analytics platform integrates OpenPose motion tracking, CNN-based gait detection, and XGBoost injury projection, delivering real-time feedback on stride, cadence, joint angles, and injury risk. The system correlates strongly with gold-standard motion capture data, offering coaches and athletes a scalable, high-accuracy tool for performance optimization and injury prevention.

Another first-prize achievement was the **SecurePath Surveillance & Security AGV Rover** by **Goh Chuk Fun, Samantha Koay Yenn Xian, Chong Chan Heng,** and **Pang Cheng Hsiang**. SecurePath is an autonomous, next-generation security robot designed for retail and facility applications. It combines SLAM navigation, machine vision for fall and facial detection, chatbot interaction powered by large language models (LLMs), and an automated medical supply dispenser. With over 90% recognition accuracy and a dispensing response time under 2.5 seconds, SecurePath represents a scalable, SDG-aligned intelligent safety solution.

The Circular Plastic Sensing & Material Recovery Dustbin, created by **Liew Ming Khang, Adam Wood Chuswan, Tan Ee Loong, Darrick Aaron Untarman,** and **Eyu Ji Yuen**, took first prize for its innovation in sustainable waste management.

Using YOLOv11 vision models, Time-of-Flight sensors, and linear actuators, this smart bin sorts and compresses PET, HDPE, and LDPE plastics with up to 96% accuracy. A companion mobile app provides users with recycling statistics and gamified interaction, supporting the SDG goals of responsible consumption and environmental protection.

APU's 2nd Prize Achievements

APU's presence was equally strong among the second-place winners. The **SentiVita RS:1 Max Fusion Healthcare AI Agent**, developed by **Rumi Iqbal Sufi,** impressed with its integration of a finetuned LLaMA-3.2 model trained on 11 million medical Q&A pairs, multimodal medical image analysis, therapeutic audio, and adaptive cognitive rehabilitation games. The platform supports disease classification with 94.2% accuracy, multilingual assistance in nine languages, voice-authenticated security, and innovative features such as ASMR-based therapy.

In industrial automation, **Nicholas Tan Peng Gen, Wong Jun Zhi, Su Xin Hong,** and **Mohammad Fawzan Alim** presented the **Predictive Guard Inspection Rover**, an AGV platform leveraging LiDAR-based SLAM, thermal imaging, and acoustic inspection. It uses YOLOv11 and autoencoders to achieve 89–92% detection accuracy, ensuring predictive maintenance and compliance with ISO and IEC standards for Industry 4.0 operations.

The **Palm Vision AGV Rover**, designed by **Andrew Ng Chee Wei, Suah Jing Ye, Tan Chun Pan,** and **Wong Chee Kei,** focused on precision agriculture. Equipped with ROS2 navigation, YOLOv8 object recognition, and DeepSORT tracking, the rover autonomously counts fruit bunches, assesses ripeness, and maps plantation data in real time. A rugged four-wheel design and integrated web dashboard make it ideal for improving yield, addressing labor shortages, and advancing sustainable plantation management.

Third Prize Recognition

APU's commitment to UAV safety was recognized with 3rd Prize for the **Intelligent Drone Safety & Recovery System**, created by **Mahmoud Khairy, Shokri Eyad, Khaled Abdelkarim,** and **Haitham Abdelbary.** This system continuously monitors drone health using advanced sensors and AI-powered diagnostics. When critical failures are detected — from battery issues to motor malfunctions — it can autonomously initiate return-to-home protocols, deploy a parachute, and locate safe landing zones. Real-time telemetry, accessible through a GUI, enables remote supervision and rapid decision-making. With UAV applications rapidly expanding across logistics, construction, and disaster response, this innovation offers significant commercial potential.

These accomplishments were made possible under the guidance of the **Center for Research and Development of IoT (CREDIT),** led by **Assistant Prof. Dipl.-Ing. Inv. Ir. Narendran Ramasenderan** and **Mr. Krishna Ravinchandra**, with strong support from **Prof. Ir. Eur Ing Dr. Vinesh Thiruchelvam**, Chief Innovation & Enterprise Officer and Head of sustainability **Dr. Daniel Ruiz De Garibay Ponce**.

Through IBIEC 2025, APU students once again demonstrated their ability to combine creativity, advanced technology, and a strong sense of social responsibility. Their successes not only earned international recognition but also reaffirmed APU's mission to produce future-ready engineers and innovators capable of shaping a sustainable, technology-driven world.

Congratulations to the team on this fantastic achievement!

APU Students Shine at Virtual Innovation Competition (VIC) 2025

The Virtual Innovation Competition (VIC) 2025 brought together creative minds and breakthrough ideas from across Asia, and students at **Asia Pacific University (APU)** rose to the occasion, showcasing projects that spanned healthcare, agriculture, robotics, security, and sustainability. Organized by the **Digital Information Interest Group (DIGIT)** in collaboration with **DIGIT360**, VIC 2025 was held in cooperation with **UiTM Kelantan Branch, Malaysia, Universitas Ngudi Waluyo, Indonesia, Camarines Sur Polytechnic Colleges, Philippines, Indian Innovators Association, India, The Union of Arab Academics, Yemen, Nusantara Training and Research, Indonesia,** and **Academica Press Solutions.**

The competition was established with a clear mission — to cultivate a culture of innovation and design thinking among teachers, learners, and the wider community, and to provide an international platform where innovators could present their ideas digitally. APU students responded with remarkable creativity and technical excellence, earning top spots in multiple categories and once again reinforcing the university's position as a hub of future-focused innovation.

Pushing the Boundaries of Innovation

Among the most celebrated winners was the **HydroGuard SAR Safety AGV Rover**, a standout project by **Chang Zi Jing, Chua Jun Yan, Hon Chu Hao,** and **James Lim Boon Shen**. Developed as part of the SARVIDROS system, HydroGuard is a six-wheel rover designed to operate in flood conditions. With IP68-rated waterproof electronics, a 100kg payload capacity, and an advanced environmental monitoring suite, the rover can detect 32 industrial chemicals, trace contamination sources, and even deploy containment barriers autonomously. By leveraging ROS2 and centralized AI coordination, HydroGuard transforms chemical monitoring from a slow, post-flood inspection process into an immediate emergency response system.

Another 1st Prize winner, the **AIoT Plastic Sensing Material Recovery System**, impressed judges with its innovative approach to smart recycling. Created by **Liew Ming Khang, Adam Wood Chuswan, Tan Ee Loong,** and **Eyu Ji Yuen**, the system combines time-of-flight depth sensing with high-resolution imaging to accurately identify and sort various plastic types such as PET, HDPE, and PVC. This solution promises to improve recycling efficiency and support sustainable waste management efforts worldwide.

The SecurePath AGV, designed by **Goh Chuk Fun, Samantha Koay Yenn Xian, Chong Chan Heng,** and **Pang Cheng Hsiang**, redefined **security robotics with its SLAM-based navigation, real-time gesture and fall detection, and natural-language chatbot interface** powered by large language models. More than just a surveillance tool, SecurePath is capable of active intervention, including delivering emergency medical supplies, making it a complete security solution for modern facilities.

The Underwater Robotic System for Autonomous Navigation and Acoustic-Based Surveillance, created by **Chen Pek Hui, Leong Li Jie, Hoo Xiao Tong,** and **Seow Wai Ken,** also took 1st Prize. This waterproof drone, built on the NVIDIA Jetson Nano platform, uses YOLOv7-tiny algorithms to achieve real-time object detection and navigation underwater. In addition to environmental mapping, it can collect water samples for analysis, making it ideal for marine research, underwater inspection, and ecosystem protection.

Transformative Second-Place Projects

APU students also secured several **2nd Prize** wins. **The Vision-Based Athlete Performance Analysis System**, developed by **Yoong Ming Jun, Lee Zhan Tom, Chin Wen Chun,** and **Kok Tang Chin,** uses a network of RGB cameras and pose estimation algorithms to reconstruct 3D models of athletes' motion in real time. This data is processed by an AI engine to deliver feedback on joint angles, velocity, and muscle engagement, offering a powerful performance optimization and injury prevention tool.

Agricultural innovation was represented by the **Palm Vision Logistics AGV Rover** by **Andrew Ng Chee Wei, Tan Chun Pan, Suah Jing Ye,** and **Wong Chee Kei.** This autonomous rover uses multi-spectral imaging and advanced vision algorithms to analyze ripeness levels of Fresh Fruit Bunches (FFB) and detect loose fruits on the ground, ensuring maximum yield and minimizing waste in palm oil plantations.

In the social innovation category, the **Voice-Activated Smart Glasses for the Visually Impaired**, by **Aravind Soundirarajan, Abdelaziz Osama Ahmed Elsayed Mohamed Asim Khidir Wedatal, and Damian Etienne Ernesta,** caught the judges' attention. These lightweight smart glasses integrate real-time vision capture and bone-conduction earphones, allowing users to receive spoken guidance for navigation, object recognition, and obstacle detection through simple voice commands.

Finally, the **AIoT Chicken Coop Health Monitoring System** by **Choh Jing Yuan, Tan Jun Ka, Samuel Benjamin, Gregory Panagary, and Woon Shun Yuan** uses computer vision, audio monitoring, and smart feeding systems to detect early signs of illness in poultry, giving farmers actionable data for disease prevention and sustainable farm management.

Recognition for Agricultural Tech

Earning **3rd Prize**, the **Neural Radiance Fields (NeRF) Augmented Reality Agricultural Analytics System** by **Chong Vincent, Tang Kai Yuan, Noor Alharrasi,** and **Viresh Nagouda** brings cutting-edge computer vision to farming. Using NeRF algorithms, the system reconstructs high-fidelity 3D models of plants and fish populations, enabling farmers to monitor growth patterns, detect disease early, and manage resources more efficiently.

These exceptional achievements were made possible under the guidance of the Center for Research and Development of IoT (CREDIT), led by **Assistant Prof. Dipl.-Ing. Inv. Ir. Narendran Ramasenderan** and **Mr. Krishna Ravinchandra**, with support from **Prof. Ir. Eur Ing Dr. Vinesh Thiruchelvam**, Chief Innovation & Enterprise Officer.

The Faculty of Engineering also played a pivotal role, with contributions from **Associate Prof. Dr. Sathish Kumar Selva Perumal, Dr. Ir. Ts. Dr. Yvette Shaan-Li Susiapan, Associate Prof. Ir. Dr. Siva Kumar Sivanesan, Asst. Prof. Ir. Eur Ing Ts. Dr. Lau Chee Yong, Asst. Prof .Ir. Ts. Dr. Alexander Chee Hon Cheong Ir. Dr. Hafizul Azizi Ismail,** and **Ir. Ts. Dr. Denesh Sooriamoorthy.**

Through their mentorship, APU students have once again proven their ability to merge creativity with technical excellence. VIC 2025 highlighted not just their engineering expertise, but also their commitment to solving real-world problems in sustainability, safety, and automation.

This outstanding achievement proves that APU is a leader in technology and innovation-driven education.

APU Experts Judge at Young Innovator Challenge 2025: A Community Achievement

APU has once again solidified its commitment to fostering the next generation of innovators, with three of our esteemed lecturers serving as judges at the **Young Innovator Challenge (YIC) State Level Maker Fair** for Selangor, Kuala Lumpur, and Putrajaya. The prestigious event, which brings together 50 teams of secondary school students, serves as a dynamic platform for young minds to learn, innovate, and create solutions for their communities.

The YIC is more than just a competition; it is a celebration of scientific curiosity and technological ingenuity. This year's virtual format brought together students, industry leaders, and technical experts from across Malaysia, all united by a shared mission to ignite interest in science and technology. Our lecturers consists of **Ms. Fatin Ayuni binti Mohd Suhaimi, Dr. Hazwani Mohd Rosli,** and **Mr. Muhammad Syahmi Afif Mokhtar Yazid** were invited to bring their expertise to the judging panel, where they provided critical feedback and guidance to the young participants.

Ms. Fatin Ayuni binti Mohd Suhaimi was joined by a panel of industry experts, including **Ms. Maz Zafirah Zainuddin** from **Yayasan Petronas**, to evaluate ten of the most promising teams. The judging process was guided by core principles: impartiality, confidentiality, engagement, and a focus on fun, ensuring a positive and equitable experience for all students.

The APU judges were highly impressed by the level of innovation on display. The students' projects showcased a deep understanding of cutting-edge technologies like Artificial Intelligence (AI) to address real-world community challenges.

The experience proved to be profoundly rewarding for the APU judges, who not only shared their expertise but also gained fresh insights into the innovative landscape of school-based projects. The students' ability to integrate cutting-edge technologies, particularly AI, to address real-world community issues was a recurring theme.

"*I was thoroughly impressed by the depth and maturity of the projects*," said **Dr. Hazwani Mohd Rosli**. "*Many of these students are leveraging advanced technologies like AI to solve practical problems. It's a great reminder of how crucial it is to nurture a passion for technology from a young age.*"

Another judge**, Mr. Muhammad Syahmi Afif Mokhtar Yazid**, commented on the tangible social impact of the students' work. "*We saw several projects that, if implemented, could truly give back to the community in a meaningful way*," he noted. "*It's exciting to see the next generation of engineers and entrepreneurs focusing their talents on creating a better world.*"

The event was not just about the technical aspects; it was about the energy and enthusiasm of the participants. The atmosphere was exciting and inspiring, demonstrating that the future of Malaysian innovation is in capable hands. For the APU judges, the experience served as a powerful reminder of the importance of mentorship and the role of academia in shaping the leaders of tomorrow.

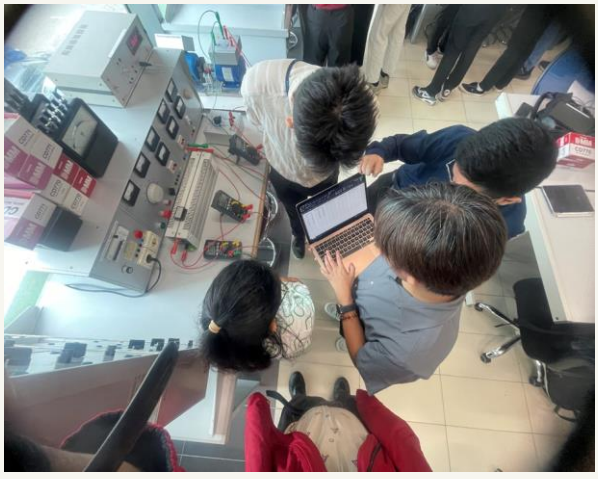
The participation of our esteemed colleagues as judges at the Young Innovator Challenge underscores APU's commitment to nurturing the next generation of innovators. Their invaluable contribution not only enriched the competition but also reinforced APU's position as a leader in fostering technological excellence and community-focused innovation.

WORKSHOP

Mastering Electrical Machines : A Hands-on Workshop for APU Students

Electrical Machines lab hands-on Workshop with Topic: **Electrical Machines operation and handling** was held on Date: 3rd September 2025, from 10.30 am to 1.00 pm was conducted physically at B-03-Power Lab by Trainer: **Mr.Ravi Lakshmanan**.

The energy conversion between electrical and mechanical power is done by electrical machines in both directions. Electrical machines can be used for different ranges of speed and as a motor particularly in traction, electrical vehicles, and others or as generators in power station, wind turbines, etc. Electric machines are essential systems in electric vehicles and are widely used in other applications. .



Permanent magnet direct current (PMDC) motors have been extensively employed in electric vehicles and battery-powered devices such as wheelchairs, power tools, guided vehicles, welding equipment, X-ray and tomographic systems, and computer numerical control (CNC) machines. This workshop helps the students to know about the different types of dc machines, their operation, working principle, characteristics, and applications.

Exploring the Link Between Games and AI Innovation

APU undergraduates took part in an exclusive hands-on workshop, an experience that provided real-world insights into the development and training of Artificial Intelligence (AI) including the history of how games shaped the modern AI as well as its importance in industrial settings.

On July 24th, 2025, students at Asia Pacific university (APU) gathered for an exciting and insightful workshop titled "**How Games Shaped the Modern AI: A Hands-on Workshop**", led by **Dr. Yew Weng Kean**, Assistant Professor at Heriot-Watt University Malaysia.

The workshop that was organised by the **IEM APU Student Section (IASS)** offered a unique blend of history, hands-on experience, and future-forward thinking, showing how games have played a pivotal role in shaping the AI technologies we use today.

The event began with a warm welcome by **Ir. Ts. Subhashini**, Senior Lecturer and Club Advisor for IEM APU Student Section (IASS) towards Dr. Yew Weng Kean and all participants.

Dr. Yew Weng Kean kicked off the session with a deep dive into the historical roots of AI, tracing its evolution from classic games like Chess and Go to modern machine learning systems. Students learned how these games served as experimental platforms for developing algorithms that now, power autonomous vehicles, recommendation systems, and more.

The highlight of the workshop was the interactive coding session. About 60 over students got to experiment with AI tools and simulations, observing how game strategies translate into real-world problem-solving. Pre-prepared code allowed participants to focus on learning concepts without getting bogged down in setup issues.

During this section, Dr. Yew Weng Kean gave personalised guidance to those who wanted a deeper understanding on the code provided. In addition, the facilitators were assisting those who faced technical errors.

In a concise but impactful segment, Dr. Yew Weng Kean showcased how AI is revolutionizing engineering—from robotics and automation to smart systems and predictive maintenance. This helped students connect gaming-based AI strategies to their future careers in engineering.

The workshop wrapped up with a lively Q&A, where students asked questions, shared ideas, and discussed the ethical and practical implications of AI. The open dialogue fostered a sense of community and curiosity among attendees.

Sarah Wong Pei Li, a 1st Year Diploma in Mechatronic Engineering Student reflected on how well the workshop was ran, stating that " his explanations, which helped me stay focused and understand what was going on".

She added that "*I loved that the code was prepared beforehand, so we didn't have to fuss over it. The facilitators were helpful when I faced issues, which made the experience smooth and enjoyable. I'm looking forward to the next one*!"

Another insight was provided by **Aanjaey Raam Perumal Samy**, a 1st Year Computer Engineering Student who said that "the workshop was like playing a level in a game". "*I did not know that gaming could be so educational with regards to AI. The workshop was like playing a level in a game—educational, engaging, and full of joy! Learning felt like an adventure I didn't want to end, thanks to the blend of history, technology, and application*."

A fellow engineering student **Lau Yijie**, a 1st Year Mechatronic Engineering Student expressed that, "*I personally think that the workshop was conducted in an interesting way where we were able to get hands-on with the programming and coding. Hearing information about AI from a professional really helped answer some of my curiosity about AI*."

The event ended with a closing ceremony where a gift of appreciation from APU's representative, **Ir. Ts. Subhashini** was presented to **Dr. Yew Weng Kean** for opening our minds on the correlation between games and how it played its huge role in shaping the modern AI.

Ir. Ts. Subhashini gave the following statement to express her gratitude towards Dr. Yew Weng Kean.

"Dr, Yew's ability to connect with students, simplify complex AI concepts, and make learning genuinely fun was inspiring to witness. The hands-on activities and real-world applications sparked curiosity and enthusiasm among our members, many of whom are just beginning their journey in engineering and computer science. It was especially rewarding to see students from different backgrounds actively participating, asking questions, and walking away with a deeper appreciation for the role of games in AI development. We're incredibly grateful to Dr. Yew for his time and expertise, and we look forward to more collaborations like this in the future."

A Spark of Inspiration : Dr. Reena with A-Level Students from Villa International School, Maldives

Ir. Ts. Dr. Reena Sri Selvarajan led a hands-on workshop on basic digital electronics, engaging a total of 80 enthusiastic A-Level students. The sessions were conducted by Dr. Reena in two distinctive sessions where students were introduced to digital circuits and guided to build simple yet impactful circuits.

Following that, a short talk introducing the importance of **Science, Technology, Engineering, and Mathematics (STEM)** was conducted to inspire these young minds.

Beyond technical learning, Dr. Reena's mentorship left a lasting impression, sparking curiosity, confidence, and motivation among the students. Their reflections, ranging from "*I like engineering*" to "*You inspired me!",* captured the spirit of the workshop.

The initiative not only nurtured essential STEM skills but also encouraged young girls and boys alike to envision engineering as a future career path.

Dr. Reena's role went beyond teaching circuits; she inspired a generation of learners to dream bigger and step boldly into the world of science and technology.

Dr. Reena Gains Hands-On Experience in National STI Policy Development at 'Blueprint to Impact' Workshop

Ir. Ts. Dr. Reena Sri Selvarajan was recently selected as one of the only 11 young scientists and professionals from across Malaysia to participate in the prestigious "**Blueprint to Impact: A Policy Development Workshop**." This initiative brought together emerging leaders to gain hands-on exposure to the processes of shaping and implementing **Science, Technology, and Innovation (STI) policies.**

Guided by distinguished mentors, including Prof. Denny K. S. Ng and Prof. Aini Suzana Ariffin—an international expert in AI governance and chair of UNESCO's STEPAN network—the workshop empowered participants to see beyond research, recognizing the crucial role scientists play in national development.

Through this experience, Dr. Reena not only strengthened her understanding of the policy landscape but also embraced her role in bridging science and governance.

The program reinforced the importance of young scientists as active contributors, ensuring that STI policies are not only well-crafted but also effectively translated into real-world impact.

3D Printing Workshop

On 16 July 2025, a group of 21 students from Asia Pacific University (APU) visited the **Advanced Manufacturing Innovation Centre (AMIC)** under **the IME Group of Companies**, located at 24, Jalan Tamborin 33/23, Seksyen 33, 40400 Shah Alam, Selangor.

The purpose of the visit was to participate in a **3D Printing Workshop**, aimed at enhancing the students' understanding of additive manufacturing technologies, their applications, and the latest advancements in the field. During the session, students were introduced to various 3D printing methods, materials, and design considerations, followed by practical demonstrations of the printing process.

The workshop provided valuable insights into real-world manufacturing workflows, from digital design to physical prototyping, bridging the gap between academic knowledge and industry practices. Students also had the opportunity to engage with industry experts from IME Group, discuss emerging trends, and explore career prospects within the field of advanced manufacturing.

Student Impact

The visit to AMIC provided students with hands-on exposure to cutting-edge 3D printing technologies, reinforcing their theoretical knowledge with practical applications. Through live demonstrations and interactive discussions with industry professionals, students gained a clearer understanding of design-to-production workflows, material selection, and the role of additive manufacturing in modern engineering. The experience not only enhanced their technical skills but also broadened their perspective on innovative manufacturing solutions and potential career pathways in the advanced manufacturing sector.

Organising Team's Contribution

The visit was organised by the **APU IMechE Student Chapter**, with special coordination and support from **Ts. Dr. Arun Seeralan Balakrishnan**, our Academic Liaison Officer (ALO), who facilitated the arrangements with AMIC and ensured the smooth execution of the event.

Key takeaways included:

- Gained practical knowledge of 3D printing processes, from CAD design to final prototype.
- Understood the different types of 3D printing technologies and their applications in various industries.
- Learned about material properties and how material selection impacts product performance.
- Experienced live demonstrations of additive manufacturing equipment in an industrial setting.
- Engaged with industry experts to explore career opportunities and industry trends.
- Recognized the importance of innovation and rapid prototyping in modern product development.

Navigating Life After University Dassault Systems Career Workshop

Engineer Your Future Navigating Life After School with Dassault Systems was an engaging and interactive 60-minute session designed to prepare engineering students for the transition from university to professional life. The event featured a high-energy career talk by Dassault Systems, a global leader in 3D design and engineering software, offering practical insights, real-world strategies, and inspiring industry use cases.

The purpose of the visit was to participate in a 3D Printing Workshop, aimed at enhancing the students' understanding of additive manufacturing technologies, their applications, and the latest advancements in the field. During the session, students were introduced to various 3D printing methods, materials, and design considerations, followed by practical demonstrations of the printing process.

Students participated in a live career simulation, exploring pathways such as industry employment, further studies, and entrepreneurship. The workshop also covered essential career skills often overlooked in the classroom, including networking, personal branding, and crafting impactful elevator pitches.

Attendees learned creative approaches to securing jobs and internships beyond traditional online applications, as well as how innovation and digital transformation are shaping engineering careers.

The session concluded with valuable networking opportunities and exclusive giveaways, including 1:1 mentoring sessions with Dassault Systems executives, access to Dassault systems software and training, and invitations to the DS Career Support Club, a private community for engineering students and graduates.

Student Impact

The session had a significant impact on students, equipping them with practical career strategies, industry insights, and the confidence to navigate life after university. Through the live career simulation and interactive discussions, participants developed a clearer understanding of their career options and the skills required to excel in the professional world. The exposure to real industry uses cases from Dassault systems inspired students to think creatively about problem-solving and innovation in engineering.

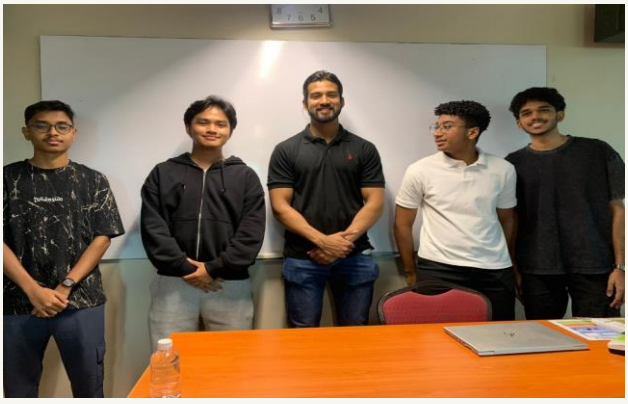
Networking opportunities and access to mentorship programs provided a direct link between students and industry leaders, fostering valuable professional connections. Many attendees reported feeling more motivated and better prepared to build their personal brand, approach potential employers, and explore unconventional paths to securing internships and jobs. The giveaways and exclusive resources further empowered students to continue their learning and professional growth beyond the event.

Key takeaways included:

- Practical strategies for navigating the transition from university to industry.
- Experience in making real-time career decisions through a live simulation.
- Insights into networking, personal branding, and delivering impactful elevator pitches.
- Creative approaches to securing jobs and internships beyond online applications.
- Exposure to real industry use cases demonstrating how innovation is transforming engineering.
- Understanding how Dassault Systems recruits and what makes engineers stand out.
- Opportunities for mentorship, software access, and career support through Dassault systems.

Organising Team's Contribution

The event was successfully organised by the **APU IMechE Student Chapter**, who coordinated logistics, promotion, and participant engagement to ensure a smooth and impactful session. Their efforts in liaising with Dassault systems and managing event flow contributed greatly to its success. Special thanks to our **Academic Liaison Officer, Ts. Dr. Arun Seeralan Balakrishnan**, for his guidance, support, and facilitation in making this collaboration possible.



Building the Future: Scuttlebot AMR Training at Asia Pacific University Powers Up Innovation for APU Students

On the 23rd and 24th of July 2025, the A-4-5 lab at Asia Pacific University was abuzz with the sounds of motors, coding sessions, and lively discussion as engineering students participated in an intensive hands-on training workshop on autonomous mobile robotics (AMR). Organized under the leadership of **Dipl.-Ing. Inv. Ir. Narendran Ramasenderan**, the workshop was conducted in collaboration with **Katapult Asia**, the official **SCUTTLE** vendor in Malaysia.

The training aimed to introduce students to the fundamentals of autonomous robotic systems while giving them practical experience in ROS2 the industry-standard robot operating framework. Over two days, students worked directly with the **SCUTTLE Intel AMR Kit**, taking a robot from mechanical assembly through full system integration and autonomous navigation.

This experience bridged classroom theory with practical implementation, allowing students to see how algorithms and control strategies translate into real-world robotic movement.

Figure 1: The Scuttle AMR kit assembled from components

The SCUTTLE kit provided a comprehensive learning platform. Students assembled the aluminum 3060 extrusion frame, mounted the motorized drive wheels, installed the I/O interface box, and integrated a range of sensors and control components.

They were introduced to the Intel-based ASROCK NUCS BOX-1340P/D4 computer, equipped with a 13th Gen Core™ i5 processor, 64GB RAM, and 1TB SSD — giving them insight into the powerful onboard computing required for real-time robotics applications.

The system's $LiFePo_4$ battery power solution, distribution box, and toggle switch taught students about efficient power management for mobile robots, while the YDLIDAR-X2 Lidar and Intel RealSense D455 camera provided perception data for mapping and obstacle detection.

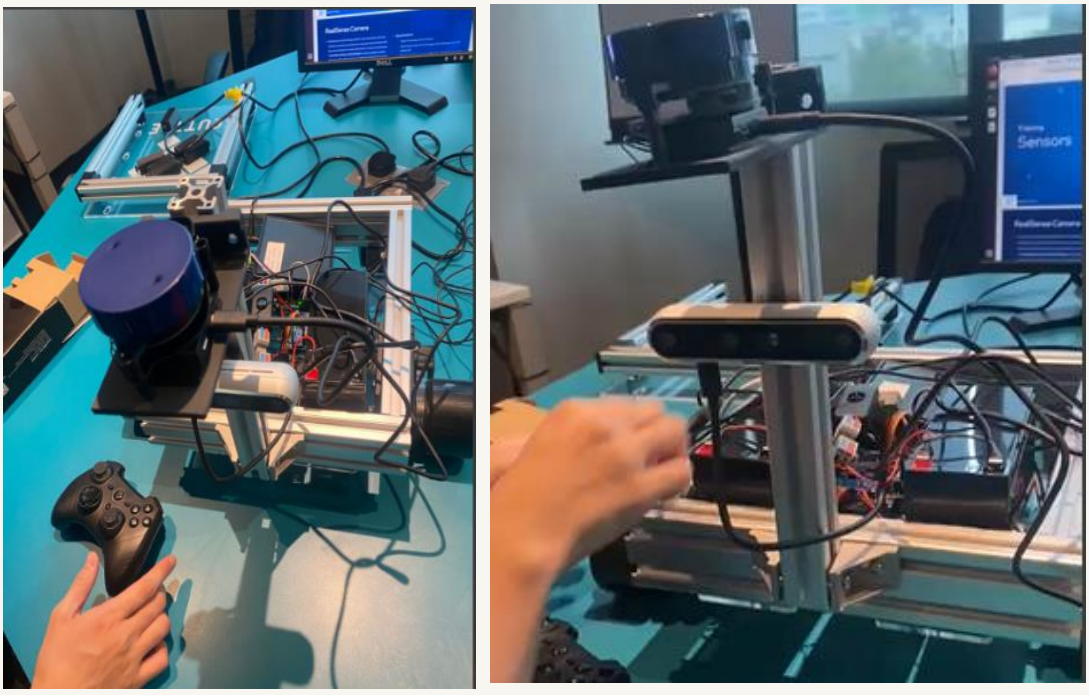


Figure 2(a) wiring the Lidar for AMR localization &
Figure 2(b) setting up the stereo cameras for depth sensing

The workshop was designed as a fully immersive experience. Students learned to configure ROS2 nodes, create publishers and subscribers, and integrate hardware drivers with live sensor data.

They applied algorithms for SLAM (Simultaneous Localization and Mapping), navigation, and obstacle avoidance, enabling their SCUTTLE robots to map their environment and plan paths in real time.

Motor calibration and odometry exercises gave participants an understanding of motion control and trajectory execution, while IoT integration tasks demonstrated how sensor data could be streamed for remote monitoring and analytics.

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Beyond the technical aspects, the training encouraged teamwork and problem-solving. Students collaborated in groups, troubleshooting challenges and iterating their solutions in a process that closely mirrors professional engineering workflows. This approach not only strengthened their technical confidence but also prepared them for future collaborative projects, including capstone design work and applied research in robotics and IoT.

The significance of this training extends far beyond the workshop itself. Robotics and IoT are key drivers of the Industry 4.0 revolution, and students who can integrate hardware, software, and data into functional systems will be in high demand. By mastering SCUTTLE-based systems and ROS2 frameworks, students positioned themselves as industry-ready engineers capable of contributing to smart manufacturing, logistics automation, and other cutting-edge applications.

The Center for Research and Development of IoT remains committed to providing future-focused, practice-based learning opportunities for students. The SCUTTLE AMR training reflects this mission for empowering the next generation of engineers to not just adapt to the technological changes ahead, but to actively create and lead them.

#RoboticsTraining #ScuttlebotAPU #FutureEngineers #AsiaPacificUniversity #HandsOnLearning #Mechatronics #AIandComputing

EVENTS

NXP Semiconductors Visits APU Engineering Faculty

APU Engineering Faculty recently had the pleasure of hosting **NXP Semiconductors** for an insightful meeting aimed at enhancing partnerships between the university and industry. The meeting which was on 23rd July 2025 was joined by **4 personnel from NXP Semiconductors** and **5 from APU Engineering faculty.**

During the visit, discussions were focused on expanding internship opportunities for engineering students, providing them with valuable hands-on experience in real-world engineering environments. This initiative is designed to better prepare our students for the workforce by exposing them to practical challenges and industry practices.

In addition, discussions were also held around final year project titles. NXP Semiconductors would be working closely with faculty members in proposing innovative and industry-relevant topics as final year projects titles which would at the same time be solving issues in their plant.

The meeting also touched on introduction of new modules that aim to keep the engineering curriculum relevant and forward-looking, equipping students with the latest skills and knowledge required to excel in today's rapidly evolving engineering landscape and also to station their equipment at APU.

We look forward to a successful collaboration with NXP Semiconductors—where academia meets industry to nurture talent, spark creativity, and engineer a brighter future.

APU SoE's Knowledge Transfer Programme Ignites STEM Dreams at SJK (T) Sungai Buaya Banting, Selangor

APU School of Engineering (SoE), in collaboration with **Worlds of Robotics,** recently ignited young minds at SJK (T) Sungai Buaya with a vibrant **Knowledge Transfer Programme**. Forty students engaged in a dynamic STEM awareness talk and a thrilling robotics workshop, with most building robots for the first time. This initiative proved highly successful, as 95% of participants later reported a newfound interest in STEM, underscoring its impact on sparking innovation.

Asia Pacific University of Technology & Innovation's (APU) School of Engineering (SoE) recently spearheaded an impactful half-day Knowledge Transfer Programme at **Sekolah Jenis Kebangsaan (Tamil) Sungai Buaya, Banting, Selangor** aiming to inspire the next generation of innovators.

This enriching initiative, a highlight of **Ir Ts Dr Reena Sri Selvarajan's** annual Science, Technology, Engineering, and Mathematics (STEM) Talk Series in Tamil schools, was delivered with the invaluable support of **Dr Sharman Sundarajoo** and in collaboration with Worlds of Robotics.

The programme welcomed 40 enthusiastic students from Standard 4 to Standard 6 for two engaging sessions, seamlessly blending hands-on robotics with an enlightening STEM awareness talk.

The first session captivated students by introducing the expansive applications of STEM in real-world contexts. Through interactive discussions, participants were encouraged to perceive STEM not merely as academic subjects but as foundational pathways leading to diverse and meaningful careers.

Figure: Through guided discussions, Ir Ts Dr Reena Selvarajan encouraged the students to identify their talents and aspirations.

The session prompted students to identify their unique talents and aspirations, urging them to dream beyond their immediate circumstances and envision academic journeys that could uplift their lives and contribute positively to society.

A significant aspect of this session was the redefinition of success and achievement beyond traditional paper-based academic excellence. It reinforced the powerful message that every student is unique, possessing the potential for extraordinary dreams.

The second session was a whirlwind of practical learning as students were guided step-by-step in constructing and programming LEGO-based robots. Key concepts in robot operation were taught in detail, allowing students to delve into the fascinating world of robotics.
Their palpable enthusiasm was evident as they tested their creations, with smiles of pride and accomplishment mirroring the profound impact of the programme.

Beyond academics, towards innovation

The programme culminated in a deeply symbolic and inspiring moment. **Dr Reena**, in a powerful gesture symbolizing academic achievement, placed her PhD bonnet on each student's head, encouraging them to envision themselves as future graduates.


Figure: Students testing the robots they developed.

Beaming with happiness, and with the assistance of **Dr Sharman**, each student was then presented with a treasured copy of **Dr A.P.J. Abdul Kalam**'s inspiring book, 'Enathu Payanam: Transforming Dreams into Actions'.

This heartfelt gift underscored the programme's core message: every aspiration matters, and every dream is worth pursuing.

"*Students gained a deeper understanding of STEM and its real-world applications, moving beyond a narrow academic definition of success*," said Dr Reena.

"*Through the STEM awareness seminar, participants explored their passions and talents, learning that every dream is valid and understanding how STEM can shape their future and impact generations*."

Figure: Dr Reena received an appreciation from Ms Krishna Kumari Sivalingam, the Vice Principal of SJK (T) Sungai Buaya, Banting, Selangor..

A follow-up survey, conducted a week after the event alongside the presentation of certificates of participation, revealed a significant impact. A remarkable 95% of the participants expressed a newfound interest in STEM fields, with many articulating that they could now envision themselves as future graduates and innovators.

Students conveyed immense gratitude and excitement, highlighting the new knowledge gained and the inspiration they felt to explore STEM pathways.

Reflecting on the transformative experience, Dr Reena shared, "*The greatest gift we can give is 'Vidya Thaanam', which means the gift of knowledge. It is the best gift of all*."

Dr. Reena did not just lead the charge; she also made sure to acknowledge the incredible team behind the scenes.

With heartfelt gratitude, she extended her sincere appreciation to the dedicated supporting staff, including **Dr Sharman Sundarajoo**, student trainers **Krithika Sree Devi** and **Chandramohan Akshayan**, and **Associate Professor Ir Dr Siva Kumar Sivanesan** (Head of SoE).

She also gave a special shout-out to their invaluable collaborator, **Worlds of Robotics**. Their unwavering dedication and seamless teamwork were, she noted, crucial in making this impactful initiative a resounding success.

From left: Krithika Sree Devi (Student Trainers), Ir Ts Dr Reena Sri Selvarajan, Dr Sharman Sundarajoo and Chandramohan Akshayan (student trainers).

Measuring the Spark: Impact of Project STEM Rising (Survey and Certificates Presentation)

On 24th July 2025, a post-event impact analysis was carried out following Project STEMRising, a **Knowledge Transfer Programme** led by **Ir. Ts. Dr. Reena Selvarajan** at **SJK(T) Sungai Buaya, Banting**. Conducted under her annual STEM Talk Series in Tamil schools, the initiative was supported by **Dr. Sharman Sundarajoo** with collaboration from **Worlds of Robotics.** The programme brought together 40 students from Standard 4 to Standard 6, offering them an exciting combination of a hands-on robotics workshop and an inspiring STEM awareness talk.

A week later, Dr. Reena returned to present certificates of participation and to conduct a survey, ensuring that the students' voices and reflections were captured. The findings underscored a remarkable impact: **95%** of students reported understanding STEM and its real-world applications, **98%** envisioned themselves becoming future graduates, **and 85%** expressed a developed interest in STEM. These figures highlight not just immediate engagement but also the potential long-term transformation of young learners' academic and career aspirations.

Such initiatives reflect the School of Engineering's unwavering commitment to promoting STEM education and ensuring inclusivity by reaching out to young minds at the school level.

By instilling confidence, sparking curiosity, and planting the seeds of higher learning, **Project STEMRising** stands as a powerful example of how early intervention can nurture Malaysia's future innovators and technopreneurs.

SOE Students Explored Cutting-Edge Technology at MIMOS, Malaysia's National Applied R&D Centre

On 7th August 2025, a group of 43 engineering students, led by **Ir. Ts. Dr. Reena Sri Selvarajan**, embarked on an enriching educational industrial visit to **MIMOS Berhad**, Malaysia's National Applied Research and Development Centre under the **Ministry of Science, Technology and Innovation** (MOSTI).

It was a half-day programme, conducted in two engaging sessions, (1) talk and (2) site visit to labs, aimed at inspiring the next generation of engineers. The visit offered both valuable learning and unforgettable first-hand experiences, exposing students to cutting-edge innovations in microfabrication and failure analysis within the semiconductor and IC chip-making industry.

The day began with an engaging talk by Mr. Wan Mohd Tasyrif Wan Yaakob, a Failure Analysis Engineer at MIMOS, who introduced students to the art and science of detecting faults in electronic components.

Using real-life examples and state-of-the-art tools, he showed how tiny imperfections can make or break a device's performance and how engineers play a vital role in solving these challenges.

Next came the highlight of the visit, a tour inside MIMOS' world-class laboratories. In the Nano Lab, students were introduced to photolithography, a process that turns silicon wafers into the tiny integrated circuits (ICs) powering our phones, computers, and countless modern technologies. Watching from the gallery, they followed the intricate chip-making process step-by-step.

Before entering the lab area, students suited up in cleanroom top gowns, experiencing first-hand the strict discipline required in such high-precision environments; a moment that, for many, felt like stepping into the shoes of a real microfabrication engineer.

In the Failure and Material Analysis Lab, excitement grew as students came face-to-face with towering, multi-million-ringgit machines, powerful instruments that help scientists pinpoint microscopic defects in advanced electronic systems. MIMOS technicians guided them patiently, answering questions and sharing insights that made the complex technology come alive.

For the students, the day was not just about learning but it was about imagining. Throughout the visit, they engaged enthusiastically with MIMOS experts, seeing not just machines and processes, but potential career paths and futures they could build.

"This visit has been a game-changer for many of our students," said Dr. Reena, the organiser of the trip. "*Seeing these sophisticated facilities in action has inspired them to think beyond textbooks to imagine themselves as innovators contributing to Malaysia's growing high-tech industry*."

The day ended with a group photo and a small token of appreciation presented by Dr. Reena to the MIMOS team. In her closing words, she shared a personal connection — years ago, her research journey began in a field closely related to the cutting-edge work carried out at MIMOS, working on microfabrication and developing sensors for artificial kidney applications. Today, she hopes to see her students return to MIMOS not as visitors, but as trailblazers leading Malaysia's technological future.

Industrial Visit to Top Glove: Bridging Academia and Industry

An industrial visit to Top Glove was successfully organised by **Ir. Dr. Wong Siew Fan**, supported **by Ir. Ts. Subhashini A/O Gopal Krishnan**, both from the School of Engineering (SOE), on 20th August 2025. The visit brought together approximately 30 engineering students from various programmes, offering them a valuable opportunity to experience the inner workings of a leading global manufacturer.

The day began at **Top Glove Tower, Shah Alam**, where the students were warmly welcomed by Ms. Farah Irdina, Executive from the HR Department. She led an engaging tour of the corporate headquarters, showcasing Top Glove's operations and workplace culture.

The group then proceeded **to Factory 25 R&D Centre in Klang**, where **Ms. Ain**, a **Production Engineer**, introduced the students to the glove production line and its processes.

The visit continued with a tour of several research and testing laboratories, guided by Dr. Devi from the R&D Department. Students explored the analytical lab, chemical lab, wastewater testing lab, and microbiological lab, gaining insights into the scientific and environmental aspects of glove manufacturing.

The session concluded with a Q&A segment, allowing students to interact with Top Glove professionals and deepen their understanding of industrial practices.

This industrial visit provided students with first-hand exposure to real-world engineering applications, bridging the gap between classroom theory and industrial practice. By observing live production lines and engaging with professionals in R&D and manufacturing, students gained a clearer understanding of process engineering, quality control, sustainability practices, and regulatory compliance in the glove manufacturing industry.

Moreover, the visit fostered professional networking opportunities, encouraged career exploration, and inspired students to consider roles in manufacturing, R&D, and industrial sustainability.

The experience also enhanced their soft skills, such as communication, teamwork, and critical thinking, through interactive sessions and group discussions.

APUSPESC Tree Planting Mission: Cultivating Sustainability and Stewardship

On the morning of 9 August 2025, the Asia Pacific University's **SPE Student Chapter (APUSPESC)** embarked on an educational and impactful tree planting mission at **Bangsar Nursery**, located along Jalan Limau Purut. This initiative was part of **APUSPESC's** ongoing commitment to sustainability, environmental conservation, and hands-on engagement with nature, and it aligns closely with Asia Pacific University's broader commitment to **Environmental, Social, and Governance (ESG) practices**.

The event began with a warm welcome and introduction by the APUSPESC team, setting the tone for a day of learning and meaningful action. Participants were then guided through a nature walk led by local experts, who shared fascinating insights into the diverse plant species thriving within the nursery.

As we strolled through the lush greenery, we explored the historical, cultural, and ecological significance of various trees, learning how certain species play a vital role in combating climate change, supporting biodiversity, and preserving local ecosystems.

One of the highlights of the walk was a deep dive into the unique features of different plant species is from medicinal herbs to towering century-old trees. The guide emphasized the importance of native trees and their cultural relevance, sparking a renewed appreciation for nature's role in shaping our communities.

Following the walk, participants moved to the designated planting area where the main activity commenced. Divided into smaller groups, each team was tasked with planting different tree species. Under expert guidance, participants learned proper planting techniques, including optimal hole depth, root care, and soil preparation. The session also introduced composting methods, irrigation techniques, and the use of organic materials to enhance soil health all contributing to a holistic understanding of sustainable plant care.

Throughout the planting process, a strong sense of teamwork and camaraderie emerged. Members collaborated to ensure smooth execution, while gaining practical knowledge in sustainable farming and environmental stewardship. The event was not only about planting trees but also about sharing knowledge, building connections, and fostering a culture of sustainability.

Lucas Chiong, an active APUSPESC member, reflected on the experience:

"*I've always believed that small actions can have a profound impact, and today I saw that in action. The tree planting was not only a meaningful contribution to the environment, but it was also a great way for all of us to come together as a team. What I learned about planting techniques and caring for the trees is something I'll carry with me. It's amazing how simple practices can make such a big difference for the planet*."

After several hours of planting, the team enjoyed light refreshments and reflected on the day's achievements. The atmosphere was filled with a sense of accomplishment and hope, knowing that each tree planted would grow to become part of a thriving ecosystem.

Levi Louis, Vice President of APUSPESC, shared:

"*This tree planting initiative was a powerful reminder of the role we all play in creating a sustainable future. It wasn't just about the trees we planted, but the knowledge we gained about the environment. I think everyone walked away with a deeper understanding of how simple actions like planting trees can help tackle global challenges like climate change. I'm proud of the efforts put in by our team, and I look forward to more initiatives like this in the future*."

The event concluded with a group photo to commemorate the day's success. Reflecting on the mission, Bany Zechariah Mangar, President of APUSPESC, remarked:

"*Today we planted more than just trees; we planted hope for the future. This mission was a clear demonstration of how collective action can create lasting change. I am grateful for the opportunity to work alongside passionate individuals who are committed to protecting our planet, and I'm excited to see how our efforts will grow*."

The success of this initiative was made possible through the guidance and support of **Ir. Dr. Wong Siew Fan**, Advisor to APUSPESC. Her dedication to environmental education and student empowerment continues to inspire the chapter's efforts in promoting sustainability and community engagement.

This tree planting mission exemplified the core values of APUSPESC; sustainability, education, and community engagement and reflected Asia Pacific University's strategic commitment to ESG principles, particularly in fostering environmental responsibility and social impact through student-led initiatives. By participating in this mission, members not only contributed to the environment but also gained valuable knowledge about plant care, climate action, and sustainable living.

As the day ended, participants left with a renewed commitment to environmental stewardship. The trees planted and the lessons learned will continue to grow, both literally and figuratively that will be contributing to a greener, more sustainable future for generations to come.

APUSPESC CSR Initiative: Empowering Communities Through Sustainability

On Saturday, **2 August 2025**, from 9:00 AM to 3:00 PM, the Asia Pacific University's **SPE Student Chapter (APUSPESC)** successfully carried out a **Corporate Social Responsibility (CSR) initiative**, bringing together approximately 30 students and staff members in a meaningful effort to give back to the community. This impactful event was held under the guidance **of Ir. Dr. Wong Siew Fan**, Advisor to APUSPESC, whose leadership and commitment to sustainability continue to inspire student-led initiatives across the university.

Volunteers of the APU Community at the Beach Cleanup in Bagan Pinang.

The CSR activity was designed to foster community engagement, environmental awareness, and social responsibility, aligning closely with **Asia Pacific University's Environmental, Social, and Governance (ESG)** goals. Through this initiative, **APUSPESC** demonstrated its dedication to creating positive change beyond the classroom, reinforcing the university's mission to cultivate responsible global citizens.

Participants engaged in a variety of activities aimed at supporting local communities and promoting sustainable practices. These included:

- Environmental clean-up efforts to restore and beautify public spaces.
- Awareness campaigns on waste management and recycling.
- Interactive educational sessions with community members on the importance of sustainability and climate action.

Throughout the day, students and staff worked collaboratively, fostering a strong sense of teamwork and purpose. The event not only provided hands-on experience in community service but also deepened participants' understanding of the social and environmental challenges faced by local communities.

Allocated gathering point at Bagan Pinang.

APU Community working together to collect the surrounding trash

Ir. Dr. Wong Siew Fan played a pivotal role in mentoring the team and ensuring that the activities were both impactful and educational. Her guidance helped bridge the gap between academic learning and real-world application, empowering students to take initiative and lead with empathy.

Reflecting on the success of the event, APUSPESC President Bany Zechariah Mangar shared:
"*This CSR initiative was a powerful reminder of the difference we can make when we come together with a shared purpose. It was more than just a day of service; it was a learning experience that strengthened our commitment to sustainability and community development*."

The **CSR** mission exemplified **APUSPESC**'s core values of education, sustainability, and community engagement, while reinforcing Asia Pacific University's strategic focus on ESG integration.

By participating in this initiative, students and staff not only contributed to societal well-being but also gained valuable insights into responsible leadership and environmental stewardship.

As the day concluded, participants left with a renewed sense of purpose and a deeper appreciation for the role they play in shaping a more inclusive and sustainable future.

APUSPESC remains committed to continuing such efforts, ensuring that every initiative contributes meaningfully to both the community and the planet.

The advisor, Ir. Dr. Wong Siew Fan (center of the front row) and the APUSPESC committee who made this CSR a successful event.

Zero Hunger Webinar Day

The Zero Hunger Webinar, held on July 11, 2025, was a great success, bringing together approximately 130 participants, both online and on-site. The event gathered enthusiastic students and educators to explore how artificial intelligence (AI) and smart technologies are shaping the future of farming.

The session was led by the Agri team **Prof. Ir. Eur. Ing. Dr. Vinesh A/L Thiruchelvam, Ts. Suresh A/L Gobee, and Ts. Dr. Arun Seeralan Balakrishnan** and featured **Dr. Adeline Sneha John Chrisastum**, who shared deep insights into the evolution of agriculture from traditional methods to AI-powered smart farming systems.

Highlights:

- Introduction to agriculture's roots, starting from Mesopotamia to modern practices.
- Discussion on digital farming, including smart sensors, drones, IoT, and precision agriculture.
- Demonstration of automated robots, vertical farming, and hydroponic systems.
- Real-world issues like pesticide overuse, climate change, and emerging pests (e.g., Giant African Snail) were addressed.
- Participants learned how AI helps reduce chemical usage by applying pesticides only where needed.

Key takeaways included:

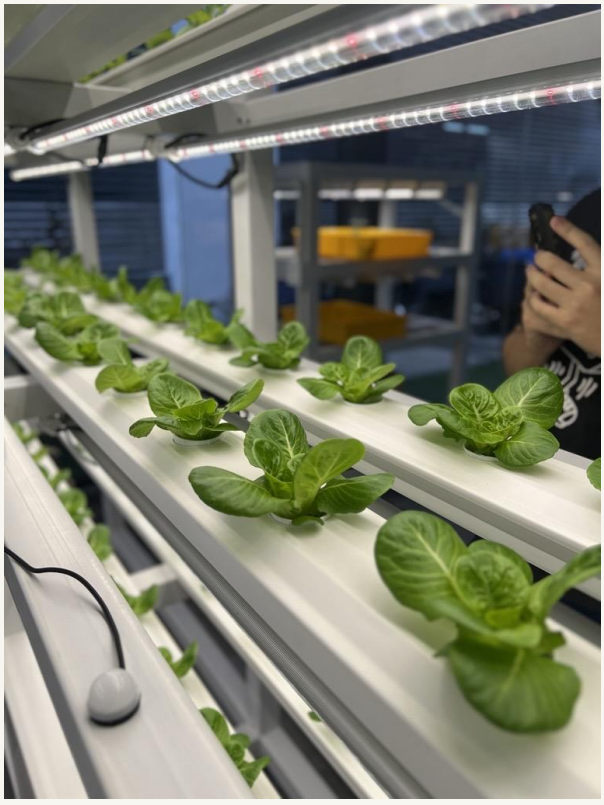
- Gained practical knowledge of 3D printing processes, from CAD design to final prototype.
- Understood the different types of 3D printing technologies and their applications in various industries.
- Learned about material properties and how material selection impacts product performance.
- Experienced live demonstrations of additive manufacturing equipment in an industrial setting.
- Engaged with industry experts to explore career opportunities and industry trends.
- Recognized the importance of innovation and rapid prototyping in modern product development.

On-Ground Engagement

After the webinar, participants were invited to visit the APU Agri Hub to see vertical farming setups and IoT-integrated solutions in action. Attendees even had the opportunity to try hands-on planting using sponge trays and nutrient water systems.

Key Message

To achieve the Zero Hunger goal by 2030, it's not enough to produce more food, we must produce it smarter. AI can help reduce waste, increase yields, and create more sustainable farming methods.



AWCS Seminar at APU

On Friday (08/08/2025) **IMechE**, in collaboration with **STREAM Environment,** successfully organised a seminar on the **Automated Waste Collection System (AWCS)**, featuring guest speaker **Ir. Chea Thean Teik.**

The seminar introduced AWCS as an innovative waste management solution that replaces conventional collection methods with an underground vacuum pipeline system transporting waste directly to a central facility. This modern approach reduces reliance on garbage trucks, minimizes odour and carbon emissions, and enhances both public health and urban cleanliness.

We were honored to have our Chief Innovation & Enterprise Officer, **Prof. Ir. Eur Ing Dr. Vinesh A/L Thiruchelvam**, attend the talk. His presence and motivational words inspired students to continue exploring engineering innovations that contribute to sustainability and societal impact. Alongside him, our Academic Liaison Officer (ALO), **Ts. Dr. Arun Seeralan Balakrishnan**, also attended the session, showing strong support for student-driven initiatives.

Ir. Chea shared his expertise on:

- The engineering principles behind AWCS
- Its sustainability and hygiene benefits
- Real-world applications in Malaysia and abroad
- The technical and logistical challenges of implementing AWCS on a large scale

The session was highly engaging, with attendees actively participating in discussions and Q&A, gaining valuable insights into how forward-thinking engineering aligns with sustainability and modern urban development goals.

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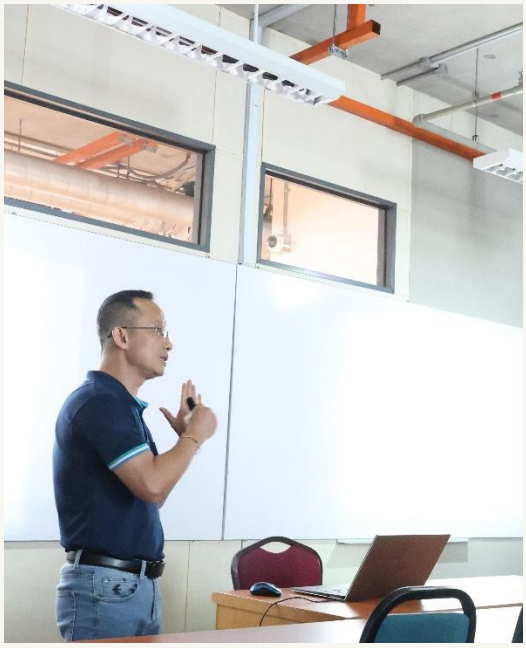
A sincere appreciation goes to **STREAM Environment**, Ir. Chea Thean Teik, our Chief Innovation & Enterprise **Officer Prof. Ir. Eur Ing Dr. Vinesh A/L Thiruchelvam**, and our **ALO Ts. Dr. Arun Seeralan Balakrishnan** for their invaluable contributions, as well as to all participants who made the seminar a success.

Student Impact

The seminar gave students an eye-opening perspective on how innovative engineering solutions can transform urban living. By learning directly from industry expert **Ir. Chea Thean Teik**, students gained a deeper understanding of the technical principles, sustainability benefits, and real-world challenges of implementing the Automated Waste Collection System.

The presence of **Prof. Ir. Eur Ing Dr. Vinesh A/L Thiruchelvam, Ir. Ts. Dr. Yvette Shaan-Li Susiapan** and **Ts. Dr. Arun Seeralan Balakrishnan** further motivated students, showing the strong link between academia, industry, and innovation. The session not only enriched students' technical knowledge but also inspired them to think about how their future engineering contributions can address sustainability and smart city development.



Key takeaways included

- Gained insights into the engineering principles behind Automated Waste Collection Systems (AWCS).
- Understood the sustainability, hygiene, and urban development benefits of AWCS.
- Learned from real-world case studies of AWCS in Malaysia and abroad.
- Explored the technical and logistical challenges of large-scale implementation.
- Inspired by the industry perspective shared by Ir. Chea Thean Teik.
- Motivated by the presence and encouragement of Prof. Ir. Eur Ing Dr. Vinesh A/L Thiruchelvam and Ts. Dr. Arun Seeralan Balakrishnan.
- Strengthened the link between academic learning, industry applications, and innovation for sustainability.

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Organising Team's Contribution

The success of this seminar was made possible by the dedication of the organising committee. A huge thank you to **Shiddarrtana Soorace** for leading the coordination with **STREAM Environment** and ensuring smooth communication with the industry partner.

In addition, a heartfelt appreciation goes to the entire committee team, whose hard work and commitment ensured that the event ran seamlessly from planning to execution.

Special recognition is also extended to **Ts. Dr. Arun Seeralan Balakrishnan, our Academic Liaison Officer (ALO)**, whose guidance, advice, and unwavering support were instrumental in the success of the seminar. Their combined efforts truly showcased the strength of teamwork in delivering a meaningful and impactful seminar.

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GAMUDA Tram Project

APU MALAYSIA STUDENT CHAPTER
Institution of MECHANICAL ENGINEERS

As part of the smart mobility showcase at the Gamuda showroom, a fully **functional Gamuda Tram System** was demonstrated, highlighting its real-time route automation and manual control capabilities. The tram operates across five fixed locations within the showroom from Asai Hotel to Cove Centrum and supports two operational modes: Automatic and Manual.

The Gamuda Tram Operation System is a smart, vision-guided indoor transportation project developed to automate and demonstrate efficient route-based mobility within a showroom environment. The tram travels through five predefined locations **Asai Hotel, Discovery Park, Town Square, Splash Mania,** and **Cove Centrum** providing a reliable and flexible mode of movement for visitors or materials across the facility.

The system supports two key operational modes:

Automatic Mode:

Enables the tram to autonomously cycle between all five locations, stopping at each point in both forward and return directions. This mode ensures consistent and uninterrupted service flow for routine operations.

Manual Mode:

Allows the operator to manually select a desired location via a Graphical User Interface (GUI), where the tram navigates directly and halts until a new command is given. This is particularly useful for demonstrations or targeted trips.

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An innovative feature of the project is the **Calibration Function**, which addresses any positional errors. In case the tram misses a stop or overshoots a destination, the Calibrate button in the GUI lets the tram record its current position and return to the missed location using the Back function all without restarting the full route. This ensures operational resilience and precision in indoor navigation.

Organising Team's Contribution

The successful completion of this project was made possible as Asia Pacific University provided a strong support in both the development and implementation stages.

Key contributions

- **Component and equipment support:**

  Ts. Dr. Arun Seeralan our Project Head always had a check on the requirement of the components. Hardware tools and technical resource were provided to us by Dr. Arun and APU project management team.

- **Transportation**:

  The university coordinated the safe transportation of materials and system components from APU to the Gamuda site, ensuring everything arrived on schedule and in proper condition.

The Gamuda Tram Operation System stands as a successful demonstration of smart indoor mobility, combining automation, user control, and real-time correction features.

With strong support from APU and hands-on involvement from the organising team, the project not only met its technical goals but also showcased the value of collaboration in bringing innovative solutions to life.

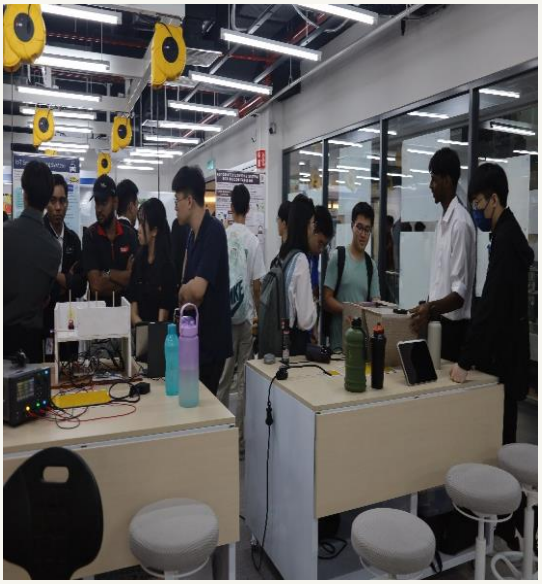
Project Team

- Ts. DR. Arun Seeralan Balakrishnan (Project Head)
- Sanjay Kumar (Research Assistant)
- NG ZI YI (Research Assistant)
- Amogha Seelan B.A (Research Assistant)

Sunway Bonding Session

On 30th July 2025, our student chapter took part in the **Sunway Bonding Session**, hosted at Sunway. The event brought together various student chapters including **IMechE UTAR, UiTM IchemE**, and **IMechE UiTM Student Chapter**, creating a collaborative and engaging platform for networking.

The session began with student ambassadors giving us a tour around Sunway, where they showcased a variety of FYI student projects. The projects were both innovative and informative, providing valuable insights into different areas of engineering and technology.



Following the tour, we had a gathering session with the other student chapter presidents, where we exchanged ideas, shared experiences, and discussed potential future collaborations and events.

The evening continued with interactive physical games, which encouraged teamwork and bonding among the participants, before concluding with a dinner session that allowed for more casual networking and social interaction.

Overall, the event was an enriching experience that combined knowledge-sharing, leadership networking, and fun activities, strengthening the connection between various student chapters.

Student Impact

The Sunway Bonding Session provided students with a meaningful platform to gain exposure to innovative projects, expand their professional network, and develop leadership connections across different institutions. By engaging in interactive discussions with fellow presidents and members from other student chapters, students were able to exchange ideas, share best practices, and explore potential collaborations for future events.

The inclusion of physical games and social activities further encouraged team bonding, communication, and relationship-building skills, making the overall experience both educational and personally enriching.

Key takeaways included:

- Exposure to a wide range of innovative FYI student projects at Sunway.
- Opportunity to network with student ambassadors, presidents, and members from various institutions.
- Knowledge sharing on event management, leadership, and chapter activities.
- Strengthened collaboration and communication between different student chapters.
- Development of teamwork and bonding skills through engaging physical games.
- A platform to build long-term professional connections in a casual and interactive environment.
- A well-rounded experience combining learning, networking, and fun.

Organising Team's Contribution

The organising team from Sunway played an instrumental role in the success of the bonding session. They thoughtfully planned and coordinated the entire program, from welcoming participants and arranging campus tours guided by student ambassadors, to showcasing the FYI projects, facilitating interactive games, and hosting the dinner session.

Their efforts ensured a smooth flow of activities and created a warm and engaging environment for all attendees. The dedication and hospitality of the Sunway team not only made the session enjoyable but also fostered meaningful networking and stronger connections among the participating student chapters.

Visit to Alpha Swift Industries

The IMechE APU Student Chapter recently had the privilege of hosting students from **De Montfort University, UK**, for an educational trip to **Asia Pacific University (APU).** As part of this international academic exchange, our chapter organized a special industrial visit to Alpha Swift Industries, a leading drone technology company based in Malaysia.

This visit provided a unique opportunity for both APU and De Montfort University students to gain first-hand insights into the **UAV (Unmanned Aerial Vehicle)** industry, including drone development, autonomous systems, and industrial applications in agriculture, logistics, and surveillance. The team at Alpha Swift Industries offered an engaging tour, showcasing their cutting-edge drone prototypes, advanced manufacturing techniques, and real-time demonstrations of drone operations.

The event not only enhanced students understanding of emerging technologies in robotics and automation but also fostered cross-cultural academic collaboration and knowledge sharing between institutions.

It was an enriching experience that aligned with IMechE's mission to bridge the gap between academia and industry while preparing the next generation of engineers for global innovation.

Student Impact

The industrial visit to Alpha Swift Industries had a profound impact on the students, offering them invaluable exposure to real-world drone technology and its diverse applications. It bridged the gap between classroom learning and industry practices, allowing students to observe how theoretical concepts in mechatronics, robotics, and aerospace engineering are applied in a high-tech environment.

Engaging directly with industry professionals inspired students to think innovatively, ask critical questions, and gain clarity on potential career paths in the UAV and automation sectors. The experience also encouraged international collaboration, teamwork, and broadened their global engineering perspective.

Organising Team's Contribution

The organising team from the IMechE APU Student Chapter played a pivotal role in ensuring the success of the event. They managed seamless coordination and planning, overseeing all logistics and communications between APU, De Montfort University, and Alpha Swift Industries to deliver a smooth and professional experience.

Through proactive industry engagement, the team secured a valuable partnership with Alpha Swift Industries, providing students with direct exposure to cutting-edge drone technologies. The organisers also created a vibrant and inclusive atmosphere that encouraged cross-cultural exchange and active participation, significantly enriching the educational value of the visit for both local and international students.

The event was spearheaded by the **APU IMechE Student Chapter**, with special coordination and strong support from **Ts. Dr. Arun Seeralan Balakrishnan**, our Academic Liaison Officer (ALO), whose guidance and encouragement were instrumental in making the visit a success.

APU Showcases Cutting-Edge Drone Technology and AI Training at ASEAN TVET Conference 2025

The **ASEAN TVET Conference 2025**, held on 13–14 August 2025 at the **World Trade Centre Kuala Lumpur**, brought together policymakers, educators, researchers, and industry leaders from across Southeast Asia to discuss the future of Technical and Vocational Education and Training (TVET). Recognised as one of the region's most prominent platforms for advancing skills development, the conference placed a strong emphasis on aligning education with the demands of Industry 4.0.

Asia Pacific University of Technology & Innovation (APU) proudly joined this international gathering, presenting both its groundbreaking research initiatives and its commitment to workforce upskilling.

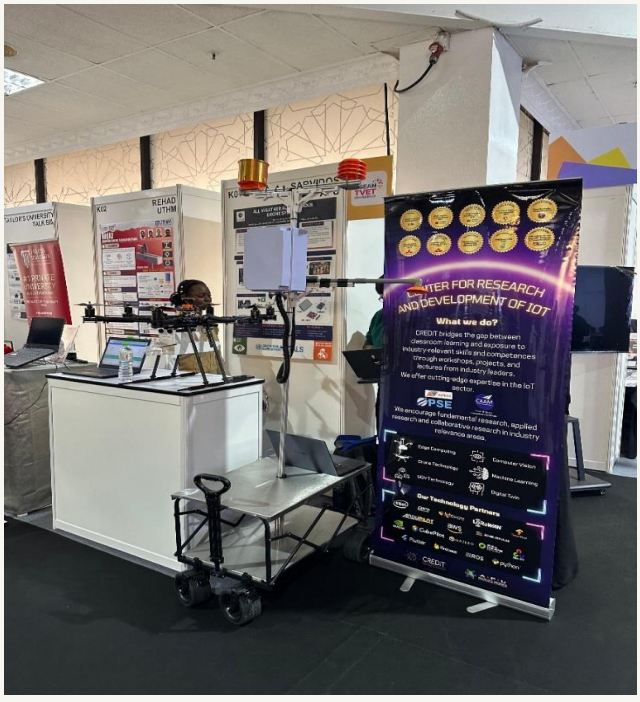


Figure 1(a) APU's CREDIT Innovators booth Fig 1(b) APU Corporate Training Team booth at the ASEAN TVET Conference 2025

Showcasing Research and Innovation

APU's Center for Research and Development of IoT (CREDIT) took centre stage with its booth, which featured pioneering drone projects designed for real-world impact. We were selected to join the Event and showcase our TVET innovation the **Search And Rescue Vision drone system with Edge AIOT Weather stations**, both developed to ensure reliable aerial operations under challenging conditions and to provide rapid response capabilities during emergencies in Center for research and development of Iot in Asia pacific University by our engineering students.

These innovations showcased APU's strengths in IoT integration, applied research, and autonomous systems, reinforcing its role in advancing technologies that can serve society and industry alike. CREDIT researchers actively engaged with visitors, answering technical questions and sharing insights into the lab's mission of fostering innovation and transferring knowledge from research to practice.

Special Highlights

One of the most memorable moments of the event came when **Malaysia's Deputy Prime Minister** visited the exhibition hall. **Mr. Krishna** the Credit Event leader had the honour of welcoming him to their booth and capturing a commemorative photograph, marking a significant moment in the university's participation at the conference.

Figure 3 Mr. Krishna ,CREDIT lead with Malaysia's Deputy Prime Minister during the exhibition.

Mentorship and Representation

The success of APU's participation was made possible through the dedication of the **CREDIT team** and the **APU Training Team**, who ensured that the booths were engaging, informative, and impactful.

The CREDIT delegation included our APU CREDIT internship students:

- Galal Al-Zubair
- Darrick Aaron Untarman
- Paul Kalinga
- Mbawemi Thandose Zimba
- Shuhd Fadhl Hussein Ghaleb

These innovations were made possible under the guidance of the **Center for Research and Development of IoT (CREDIT)**, led by **Assistant Prof. Dipl.-Ing. Inv. Ir. Narendran Ramasenderan** and **Mr. Krishna Ravinchandra**, with strong support **from Prof. Ir. Eur Ing Dr. Vinesh Thiruchelvam**, Chief Innovation & Enterprise Officer.

Their combined expertise and passion for technology inspired participants and positioned APU as a thought leader in applied research and innovation.

Looking Ahead

APU's presence at the **ASEAN TVET Conference 2025** underscored its commitment to nurturing talent, advancing research, and shaping the future of education in the region. By engaging with policymakers, educators, and industry partners, the university strengthened its mission to create a skilled workforce equipped for tomorrow's challenges and opportunities.

Through its dual focus on research excellence and professional training, APU continues to pave the way for a technology-driven, sustainable future in Malaysia and beyond.

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Stay tuned for more exciting updates! 🚀
#EngineeringExcellence #ThankYou

ENGINEERS INSIGHT