# ENGINEERS INSIGHT VOLUME 33 December 2024

# **Editorial**

Engineers Insight Editorial Board



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# Award-Winning IoT Solutions by Trailblazing APU Innovators at iCAN 2024



Students from Asia Pacific University of Technology & Innovation's Centre of Research and Development for IoT (CREDIT) have once again demonstrated their exceptional innovation and creativity at the 9th International Invention Innovation Competition in Canada (iCAN 2024), held online on August 24, 2024.

Under the guidance of experienced mentors, these talented students presented groundbreaking projects that not only showcase technological advancements but also address pressing global sustainability challenges.

One such project, Maviglasses, developed by Muhammad Ahmed, Rohit Thomas, Pua Jun Yu, and Kannan Uthaya Kumar, has garnered significant attention. This innovative solution, a pair of autonomous Vision AIpowered smart glasses, is designed to revolutionize inspection processes across various industries by offering unparalleled accuracy and efficiency.

The team's remarkable achievement was recognized with a Gold Award, the International Special Award from the Hong Kong YCH STEM Faire, and the iCAN 2024 Organiser's Choice Award. These accolades underscore the transformative potential of Maviglasses in shaping the future of industrial inspection.

# **APU Students Shine Globally with SARVIDROS Innovation at Prestigious International Events**



Asia Pacific University of Technology & Innovation (APU) continues to demonstrate its leadership in groundbreaking innovation, earning global recognition for its Search and Rescue Vision Drone System (SARVIDROS) project.



A team of talented APU engineering students, Ng Joo Kiat, Cajun Tai Ka Joon, and Ang Jia Ze, have developed a groundbreaking disaster management technology known as **SARVIDROS**. This innovative solution has the potential to revolutionize disaster response operations by leveraging advanced technology to detect visual cues and autonomously execute life-saving missions.

Under the guidance of their mentors, Ir Narendran Ramasenderan, Mr Krishna Ravinchandra, and Ms Hema Latha Krishna Nair, the team has successfully brought SARVIDROS to life. This achievement showcases the exceptional talent and dedication of APU's students and faculty.

Event	Awards
World Genius Convention (WGC) 2024,	•Gold Medal Award
Japan	•Special Award Certificate

Event	Awards
International Design and Engineering	•Gold Medal Award
Application (IDEA) EXPO 2024, Hungary	•Excellence Award
	•Excellence in Innovation Award from the Romanian Inventors Forum
	•Award of Excellence from the Canadian Inventors College Organisation

Event	Awards
1 Idea 1 World 2024, Turkiye	•Gold Medal Award
	•Special Award by the Turkish Inventors Association
	•Special Award by the World Invention Intellectual Property Associations

### Achievements

Chong Chee Kin, a graduating student, also achieved top honors for his innovative project, **EcoDry**. This intelligent, eco-friendly, IoT-powered solar dehydration system revolutionizes food preservation by significantly accelerating the dehydration process while promoting sustainability. Chong's groundbreaking design was recognized with the **Gold Award**, the **Special Award** from the National University of Science and Technology Politehnica Bucharest, and the **Best Invention Design Award**, highlighting the exceptional efficiency and environmental consciousness of his creation.



The success of these projects is largely attributed to the support and guidance provided by APU's esteemed faculty mentors, including Assistant Professor Ir Narendran Ramasenderan, Assistant Professor Dr Lau Chee Yong, Professor Dr Vinesh Thiruchelvam, Mr Krishna Ravinchandra, Ms Hema Latha Krishna Nair, Assistant Professor Dr Alexander Chee Hon Cheong, and Associate Professor Dr Siva Kumar Sivanesan. Their dedication to fostering student potential has been instrumental in bringing these inventions to fruition.

"Together, these achievements embody the spirit of creativity, sustainability, and technological advancement that defines our institution. We are confident that these visionary solutions will continue to make a significant impact on the global stage," expressed Asst Prof Narendran Ramasenderan, Head of CREDIT, commending the teams' success and their contribution to APU's legacy of innovation

# Groundbreaking Assistive Robotics Innovation Silver Award at MTE's SDG IIAE 2024

The Malaysia Technology Expo (MTE 2024) hosted the Sustainable Development Goals International Innovation Awards and Expo (SDG IIAE 2024) virtually from 16th to 18th October 2024. Among the notable participants was Robodex Visionaries, a promising student-led start-up, mentored by Ir. Ts. Dr. Reena Sri Selvarajan. The team's innovative prototype, "Intelligent Robotic Systems Empowering Paraplegic Independence," earned the prestigious Silver Award.

Comprising Year 2 engineering students Tanaya Gadkari and Saarvin Kumar, the Robodex team unveiled **Dexterover**, an advanced robotic arm that has garnered significant online attention, particularly on YouTube. This groundbreaking invention is designed to improve the independence and quality of life for paraplegic individuals.

Dexterover incorporates several cutting-edge features: (1) vacuum gripping technology for secure object handling, (2) crawler-based mobility for versatile movement, (3) smart sensing technology that mimics natural hand movements, (4) dual control options (voice and manual) for intuitive operation, and (5) anti-collision sensors to ensure safety during use.

By prioritizing patient-centered design, Dexterover has the potential to revolutionize healthcare, rehabilitation, and insurance industries.

# Achievements

Guided by Dr. Reena's expertise in biosensing technology and robotics, the students' work aligns with the **Sustainable Development Goals (SDGs)** by promoting inclusivity and advancing healthcare infrastructure. This award-winning innovation reflects the students' dedication to pioneering robotics solutions and demonstrates how young innovators are addressing real-world challenges. Their vision is to foster a tech-driven, independent future for individuals with mobility impairments, paving the way for inclusive healthcare solutions powered by advanced robotics.

Team members: Tanaya Gadkari and Saarvin Kumar.

Advisor: Ir. Ts. Dr. Reena Sri Selvarajan

Link : https://youtu.be/hgNq03-zkIw?si=AKYY6uKNgo8KeFW0



R	RoboDex Visionaries <sup>™</sup>	Subscribe	A 11		A Share		
-V-	6 subscribers	Gubschbe		V	A share	± Download	

Malays	MTE ia Technology Expo <sup>TM</sup>	SDG 2024 Sustainable Development Goals International Innovation Awards & Expo	Silver Award	
No.	Organization Name	Innovation	Title Catego	ry
1.	Robodex Visionaries	Dexterover : Intellige System Empowering Independence	nt Robotic Health & We Paraplegic Being	ell

# Achievements

Dr. Reena's dedication to mentoring the students, both in technical and aspects and the presentation of their ideas, exemplifies her commitment to nurturing student potential and fostering an entrepreneurial spirit. Her guidance was instrumental in the student's success, setting a high standard for academic engagement in startup initiatives.

Team members: Tanaya Gadkari and Saarvin Kumar. Advisor: Ir. Ts. Dr. Reena Sri Selvarajan







Event	Awards
International Invention and Innovation Show (INTARG) 2024, Poland	<ul> <li>Special Award by Halle Pro Inventio Foundation</li> <li>Special Award by the IFIA Focal Point Middle East Office</li> </ul>

vent	Awards
European Exhibition of Creativity and	•Gold Medal Award
Innovation (EUROINVENT) 2024, Romania	•Diploma of Excellence Award
	•Excellence in Innovation Award by
	Romanian Inventors Forum
	•Special Award of Norton University
	•Special Award of Highly Innovative Unique
	Foundation

#### **APU's Commitment to Fostering Innovation and Entrepreneurship**

APU's commitment to fostering innovation and entrepreneurship is evident in the numerous initiatives and programs offered to students. One such program, the **APU Start-Up Week**, provides students with the opportunity to develop and pitch innovative ideas. During the recent Start-Up Week, **Dr. S. Reena** served as a key mentor, guiding and supporting student teams in refining their concepts and delivery. One such team, Robodex Visionaries, presented their innovative Autonomous Robotic Arm prototype to a live audience.

This project, developed over three months, showcased the team's technical skills and potential for real-world impact. Dr. Reena's involvement extended beyond technical guidance, encompassing active support in refining the students' pitching strategies to effectively communicate their innovative concept. Her dedication to nurturing student potential and fostering an entrepreneurial spirit has been instrumental in the success of these initiatives.

# **APU Start-Up Weekend**

### **Dr. Reena Mentors Team Robodex Visionaries**

From August 9th to 11th, 2024, APU Start-Up Week hosted a dynamic program designed to equip students with the essential skills for pitching innovative ideas, with a particular focus on developing a robotic arm prototype. Dr. S. Reena, a key academic mentor, played a crucial role in guiding and shaping the participating teams.

Under her mentorship, Robodex Visionaries, an aspiring student-led startup, presented their concept for an **Autonomous Robotic Arm** prototype to a live audience. Developed over three months, the team's prototype showcased advanced engineering solutions with potential real-world applications. Dr. Reena's involvement extended beyond technical guidance, encompassing active support in refining the students' pitching strategies to effectively communicate their innovative concept.

# **Inspires Future Minds**

# Dr. Reena as Keynote Speaker at Oli Peruvom 7.0, UniMAP

Dr. S. Reena was invited as the keynote speaker for the **Oli Peruvom 7.0 program**, organized by **PPKMU at Universiti Malaysia Perlis** (**UniMAP**). This three-day camp, designed to nurture young minds, promote educational awareness, and inspire future leaders, brought together 80 primary school students from Kedah and Perlis.

The program aligns with UniMAP's Corporate Social Responsibility (CSR) efforts and the national 10-10 Science, Technology, Innovation, and Economy (STIE) Framework, promoting STEM education.

In her keynote address, Dr. Reena emphasized the significance of STEM education as a pathway to future opportunities and personal growth. She encouraged the students to pursue tertiary education and make informed career choices, highlighting the importance of giving back to society with the knowledge gained.

Her message, "Becoming a graduate is not only for personal development but is also one of the most meaningful ways to contribute to humankind," resonated deeply with the participants.

# Workshop

Dr. Reena's unique engagement extended beyond the keynote address, as she ceremonially placed Ph.D. bonnets on each student, symbolically inspiring them to broaden their horizons and leverage education as a tool to unlock global opportunities. Her participation in **Oli Peruvom 7.0** demonstrates her dedication to fostering youth development and raising awareness about the transformative power of education.







# Low Code Data Analysis with MATLAB Workshop 29<sup>th</sup> October 2024

Ir. Dr. Soon Kian Lun successfully led a **MATLAB workshop**, providing APU staff and students with invaluable hands-on experience in low-code development using MATLAB. Participants were introduced to the high-level MATLAB language and its interactive tools, empowering them to import, preprocess, analyze, and visualize engineering and scientific data without the need for extensive coding. The workshop highlighted the convenience of automatically generating MATLAB code to replicate their work, along with the ability to document and share their findings through executable notebooks and reports. This engaging session transformed students' approaches to AI and data analysis, equipping them with essential skills for their academic and professional endeavors.



# **Industry-relevant Education: APU's PLC Lab Achieves**

**SIEMENS Certification - 2024** 



Asia Pacific University of Technology & Innovation's (APU) School of Engineering (SoE) celebrated a significant milestone in early September with the official certification of its Programmable Logic Controller (PLC) Lab by SIEMENS.

Located on the state-of-the-art APU campus in **MRANTI Technology Park Malaysia**, the newly certified PLC Lab on Block B, Level 3, is a testament to the SoE's commitment to providing students with industry-relevant education.

The certification ceremony was led by Ir Ts Dr Alexander Chee Hon Cheong, Program Leader for Mechanical Engineering, who spearheaded the planning and coordination of the training. The lab is equipped with the latest SIEMENS technology, ensuring it meets the stringent certification standards.

Prof Ho Chin Kuan, Vice-Chancellor of APU, graced the event and acknowledged the importance of such certifications in enhancing APU's reputation as a leader in engineering education.

# Workshop



Prof Ir Eur Ing Ts Dr Vinesh Thiruchelvam, Chief Innovation & Enterprise Officer (CIEO) of APU, commended the SoE for its efforts in elevating the learning experience under the leadership of Assoc Prof Ir Dr Siva Kumar Sivanesan, Head of SoE. As a token of appreciation, APU received recognition from the Supreme Didactic SIEMENS Official Training Centre and Partner.

Key representatives from SIEMENS, including Haji Junaidi, Haji Rozmi Rahim, Mr Suhaimi, and Ms Hazlind Ahmad, were present to celebrate this milestone and congratulate APU for its dedication to integrating advanced industry standards into its academic framework.



#### Workshop

These experts, including Ir Dr Hafizul Azizi Ismail @ Aziz, Ir Ts Dr Yvette Shaan-Li Susiapan, Ir Ts Dr Alexander Chee Hon Cheong, Ir Ts Dr Denesh Sooriamoorthy, Ir Dr Ilanur Muhaini Mohd Noor, Mr Nor Azwan Othman (Supreme Certified), and Mr Zulhairy Sahari (Supreme Certified), have earned their certification through rigorous training and dedication. Their expertise ensures that APU remains at the forefront of engineering education, providing students with top-notch training and industry-relevant skills.

#### **Integrating SIEMENS SITRAIN Training into the Curriculum**

Building on this certification, APU is excited to announce the integration of the globally recognized SIEMENS training program into its engineering curriculum. This program offers specialized training in automation and digital technologies, equipping participants with critical skills needed in the modern engineering landscape.

The integration of **SIEMENS training** and the **PLC Lab certification** enhances APU's capacity to deliver exceptional engineering education, ensuring that its students are industry-ready and well-prepared for the future. This initiative also reinforces APU's reputation as a leader in producing highly skilled graduates equipped with the knowledge and expertise needed to excel in an ever-evolving

technological world.



# Project Charles Walton: Honouring the Father of RFID Technology (Innovation in Teaching and Learning) - 2024

The Communication Engineering Principles (CEP) module has introduced a novel initiative, Project Charles Walton, designed to enhance the research and presentation skills of third-year engineering students. This project encourages independent research, technical proficiency, and effective communication, fostering a comprehensive learning experience.

Students dedicated 20 hours to exploring the intricacies of RFID technology, culminating in the creation of captivating video presentations. These videos, themed **"RFID Technology: Working Principles and Real-World Applications,"** were disseminated on LinkedIn, providing students with a platform to showcase their work to a wider audience. By leveraging this professional networking platform, students gained valuable exposure to industry standards and refined their ability to convey complex technical information in a clear and engaging manner.



This initiative not only enhances students' technical proficiency but also strengthens their presentation, storytelling, and communication abilities. Project Charles Walton marks a significant milestone in the module, demonstrating the **value of innovative pedagogical approaches** that empower students to express their individuality while advancing professionally relevant competencies. Students' presentation videos were rigorously evaluated and recognized with certificates of achievement in research and pitching skills, awarded by Dr. Reena.



# **Transforming Engineering Education: Dr. Reena Implements Treasure Hunt-Based Learning in Digital Electronics Module**

# (Innovation in Teaching and Learning)

**Ir. Ts. Dr. Reena Sri Selvarajan** introduced a novel teaching approach to her Digital Electronics module, transforming the traditional lecture hall into an interactive learning environment. Through a captivating treasure hunt-style activity, students embarked on a journey of designing logic circuits and relay systems, blending hands-on learning with problem-solving excitement.

The activity was carefully structured to engage students in a series of staged tasks, with clue cards guiding them through the process of designing relay systems step-bystep. This interactive format fostered collaboration, critical thinking, and the practical application of theoretical concepts.



The session culminated in an assessment of students' technical proficiency in designing relay systems for industrial applications, reinforcing their understanding of logic gates while introducing them to the intricacies of relay design. The winning team was honored with an achievement certificate. This playful yet educational approach showcased the power of experiential learning in engineering education.

Dr. Reena's innovative pedagogy has not only enriched students' learning experience but also ignited their enthusiasm for engineering. By seamlessly integrating theory with practice, she has made complex concepts more accessible and enjoyable, inspiring students to embrace engineering education with curiosity and confidence.

# **Industrial Visit to Sensata Technologies**

# Exploring Semiconductor Manufacturing, Automotive Sensors, and Automation

On August 20, 2024, a group of 38 engineering students, led by **Ir. Ts. Dr. Reena Sri Selvarajan**, embarked on an enlightening industrial visit to Sensata Technologies. This half-day program offered students a unique opportunity to explore cutting-edge advancements in semiconductor manufacturing, automotive sensors, and automated robotics.

A pivotal moment during the visit was the guided tour of Sensata's state-of-the-art cleanroom manufacturing facility. Students were captivated by the intricate processes involved in producing automobile sensors for renowned continental car brands. This hands-on experience deepened their understanding of precision engineering, quality control, and the complexities of sensor technology.



The program also included an address by General Manager En. Akmalrizwan, followed by an insightful technical session from Mr. Shahrul, Sensata's automation leader. The discussions explored the role of automation in enhancing manufacturing efficiency, aligning with evolving industry demands, and the future trajectory of automative sensor technology.

The visit concluded with a roundtable discussion, fostering productive dialogue between students and Sensata's leadership. This exchange opened doors to potential internship opportunities and future collaborations, empowering students to bridge the gap between academic learning and industry practices.

Overall, the experience broadened students' understanding of real-world engineering applications and inspired them to envision exciting career paths in the dynamic fields of automotive technology and industrial automation. Such industry exposure is invaluable in preparing students to meet the challenges and demands of the evolving engineering landscape.



News Release Link: https://www.apu.edu.my/media/news/3253

# Inspiring the Next Generation of Scientists: Dr. Reena Serves as Expert Panel for National STEM Competition "Who Wants to Be a Scientist"

The "Who Wants to Be a Scientist" competition, a National-level STEM initiative organized by The Petri Dish—Malaysia's first science newspaper, published by the Malaysian Biotechnology Information Centre (MABIC)— sought to promote STEM literacy among primary school students nationwide. This impactful program was spearheaded by Dr. Mahaletchumy Arjunan and Dr. Rahim Munna, with funding from MITRA, JPM.

To ensure the competition's educational quality and rigor, **Ir. Ts. Dr. Reena Sri Selvarajan** was selected as part of an expert panel tasked with developing STEMbased questions for the event. Two intensive question-development sessions brought together some of the nation's most prominent scientists and educators, emphasizing the importance of collaboration in delivering a meaningful and impactful learning experience.



The competition, conducted in **multiple stages**, saw enthusiastic participation from **2,055 students** representing **247 SJKT schools**.

- **Round 1:** An initial screening process to assess students' STEM knowledge, narrowing down the pool of participants.
- Semi-final: 90 students advanced to this stage, where they answered multiplechoice questions, further testing their critical thinking and grasp of STEM concepts.
- Final Round: Five finalists competed in a thrilling finale inspired by the "Who Wants to Be a Millionaire" format, with a unique twist. The finalists were also required to tackle one question related to global challenges, similar to the thought-provoking questions asked in beauty pageants. The grand final took place at UKM.

This initiative successfully **ignited students' curiosity** and inspired them to explore **STEM fields**, providing a platform for young minds to showcase their potential. Dr. Reena's contribution as part of the **expert panel** was pivotal to the competition's success, ensuring the **relevance and rigor** of the questions presented.

The competition received **remarkable public recognition**, with extensive media coverage, including features in **national newspapers**. By fostering STEM literacy at an early age, this initiative plays a critical role in **building Malaysia's future scientific community** and encourages students to embark on a lifelong journey of discovery and innovation. Dr. Reena expressed her pride in contributing to this **transformative program**, helping inspire the next generation of scientists and innovators.





Asia Pacific University of Technology & Innovation (APU) proudly co-hosted the highly anticipated **GREAT** (**Grand Robotics Engineering and Technology**) **Challenge Hackathon** from September 13th to 15th, 2024. Held on APU's vibrant campus, the event brought together 57 students for an immersive three-day journey into the world of robotics and artificial intelligence (AI).

The GREAT Challenge is a cornerstone initiative under the **National Grand Robotics Challenge (NGRC)** by **MRANTI**, aligned with the **MOSTI NRR2030** vision to foster technological innovation in Malaysia. This event served as a platform for students to confront real-world industry challenges across sectors such as agriculture, manufacturing, logistics, healthcare, retail, education, and more.

In collaboration with MRANTI and supported by **SCUTTLE Robotics LLC, Intel Corporation, and Viam**, students explored cutting-edge, open-source robotics and AI platforms. They proposed innovative solutions to complex problems, marking the event as a significant milestone in advancing Malaysia's robotics industry.

#### Leadership and Collaboration

This impactful event was spearheaded by APU's School of Engineering (SOE), under the leadership of **Ir Ts Dr. Denesh Sooriamoorthy**, in collaboration with MRANTI. The strategic guidance of key APU figures, including Prof. Chin Kuan Ho (APU Vice Chancellor), Prof. Dr. Ir EurIng Ts Vinesh Thiruchelvam (APU Chief Innovation and Enterprise Officer), Gurpardeep Singh (APU Chief Operating Officer), Assoc. Prof. Ir Ts Dr. Sivakumar Sivanesan (Head of SOE), and SOE Colleagues, played a crucial role in the event's success. Their commitment, combined with the expertise of the MRANTI team—comprising Safuan Zairi, Wan Mohd Farhan, Mohd Alhafidz, Ts. Qayyum Halim, and Ts. Amar Lokman—fostered an environment of innovation and hands-on learning.

#### **Pioneering Regional Impact**

APU proudly led the way by hosting the first GREAT Challenge Hackathon in the KL region, laying the groundwork for future events at prestigious universities like UTAR, UTP, UTHM, UNISZA, and UMPSA.

The event kicked off with opening speeches by Mohd Alhafidz, Manager of the Innovation Ecosystem at MRANTI, and Assoc. Prof. Sivakumar Sivanesan, Head of SOE at APU. Both speakers inspired students to harness their creativity and enthusiasm throughout the three days, encouraging them to push the boundaries of robotics innovation.



Assoc Prof Sivakumar giving his opening remarks to kick start the event.



#### **Industry Insights and Global Perspectives**

Following the opening speeches, participants received an insightful overview of industry challenges tied to the National Agenda and Sustainable Development Goals (SDGs) from Dr. NorAzmi Alias, Co-Founder & CEO of Katapult Asia. Dr. NorAzmi provided an in-depth introduction to mobile robotics, with a special focus on SCUTTLE robotics, demonstrating how these technologies align with Malaysia's broader goals for innovation and sustainability.

At 5 p.m., participants had the opportunity to engage with Intel Corporation's cutting-edge solutions through an Intel Edge Insight for Autonomous Mobile Robots session. This segment was led by Mr. Lim Xiang Yang, Software Enabling and Optimization Engineer at Intel Corporation, offering students an exclusive look at Intel's powerful AI-driven technologies for mobile robots.

Later in the evening, at 9 p.m., students were treated to a virtual discussion with **Nick Hehr**, Senior Developer Advocate at Viam, via an overseas call to New York. This live session enabled participants to explore the exciting capabilities of the SCUTTLE robotics platform, powered by Viam's open-source robotics software, further expanding their exposure to global advancements in robotics technology.



#### **Day 2: Hands-on Learning and Ideation**

The second day of the hackathon divided participants into two parallel tracks for hands-on tutorials. Track 1, held at B-4-01, focused on the **SCUTTLE Pi-Viam Tutorial**, while Track 2, at B-4-02, offered the **SCUTTLE Intel AMR Tutorial**. Both sessions were designed to equip students with the technical know-how to integrate the Intel and Viam platforms with the SCUTTLE robotic kits. Participants gained valuable skills in utilizing these platforms to enhance the functionality of the SCUTTLE robots, bridging the gap between theoretical knowledge and real-world application.

In the evening, students moved on to the critical Ideation and Concept Generation phase, where they began developing their project ideas. This session was expertly mentored by **Ir. Narendran, Ts. Suresh Gobee, Ir Ts Dr. Yvette Shaan-Li Susiapan, Dr. Chandrasekharan Nataraj, and Ir. Ts. Dr. Alexander Chee**, whose unwavering dedication to guiding the students throughout the weekend was both inspiring and instrumental in driving the students' creativity and technical understanding forward.



#### **Day 3: Pitching and Evaluation**

The final day of the GREAT Challenge Hackathon culminated in the muchanticipated pitching session, where students presented their innovative projects. In the morning, participants focused on refining and preparing their pitch decks, receiving guidance on how to effectively communicate their ideas and solutions. By noon, teams were ready for the ultimate test—presenting their projects to a panel of esteemed industry experts and academic professionals.

At 2 p.m., the pitching session commenced, with projects evaluated by a distinguished panel of judges. The expert panel included **Siti Atmamimah Ahmad Tajuddin** from Ideasparq Robotics Sdn Bhd and **Faizal Ahmad Fauzi** from DreamEDGE Sdn Bhd, two prominent figures in the Malaysian robotics industry. Joining them were key representatives from MRANTI, including **Wan Mohd Farhan** (Head of Innovation Ecosystem) and **Mohd Alhafidz** (Manager of the Innovation Ecosystem), as well as academic judges from APU, **Assoc. Prof. Ir Ts Dr. Sivakumar Sivanesan and Assoc. Prof. Ts. Dr. Sathish Kumar Selvaperumal.** 

These judges evaluated the students' projects based on innovation, feasibility, and potential impact, providing valuable feedback that further enriched the learning experience. The participants' ability to incorporate cutting-edge robotics platforms into their solutions impressed the judges, underscoring the hackathon's success in fostering real-world innovation.



#### **Closing Remarks: A Call for Passion and Innovation**

The hackathon concluded with inspiring **closing remarks** from **Prof. Dr. Ir EurIng Ts Vinesh Thiruchelvam**, APU's Chief Innovation & Enterprise Officer (CIEO). Prof. Vinesh encouraged students to maintain their passion and continuously strive for innovative solutions to real-world problems. He highlighted how events like the GREAT Challenge provide invaluable opportunities for students to think creatively and apply their knowledge to real-life challenges.

Prof. Vinesh also commended Ir Ts Dr. Denesh Sooriamoorthy for his exceptional leadership in organizing such an impactful event, emphasizing how the hackathon truly served as a transformative experience for the participants. He urged students to sustain this momentum and continue pushing the boundaries of their achievements.



# Top 6 Teams Advancing to the Prototyping Stage of the GREAT Challenge Hackathon

Congratulations to the **Top 6 teams** selected to advance to the Prototyping Stage of the National Robotics Grand Challenge! These teams impressed the judges with their innovative solutions and have earned the opportunity to bring their concepts to life with the support of loan kits and funds.

The selected teams are:

- Keep It Real
- Fantastic 4.0
- Common Emitter
- Team Sky
- Team Wall-E
- TechPulse

These exceptional teams will now embark on the exciting journey of transforming their ideas into working prototypes. Their projects, developed during the hackathon, demonstrated creativity, technical skill, and a keen understanding of real-world challenges. As they move into the next phase, they will continue to receive support and mentorship, bringing them one step closer to realizing their innovative solutions.



From left to right Assoc Prof Sivakumar, Chua Jun Yan ,Chang Zi Jing ,Prof Vinesh , James Lim Boon Shen, Hon Chu Hao, Wan Mohd Farhan (MRANTI), Ir Narendran

#### **Keep It Real**

#### [Chang Zi Jing, Chua Jun Yan, Hon Chu Hao, James Lim Boon Shen]

This hackathon proved to be both fun and educational, providing a great opportunity to learn the fundamentals of using the Scuttle robot and integrating it with lidar and a camera. The thrill of witnessing the robot's movement was palpable among all participants. Additionally, the brainstorming sessions during the event helped us explore the full potential of the Scuttle robot. Overall, we believe this hackathon was an incredibly valuable experience.



From left to right Assoc Prof Sivakumar, Goh Chuk Fun, Chong Chan Heng, Prof Vinesh, Samantha Koay Yenn Xian, Pang Cheng Hsiang, Wan Mohd Farhan (MRANTI), Ir Narendran

#### **Fantastic 4.0**

# [Goh Chuk Fun, Samantha Koay Yenn Xian, Chong Chan Heng, Pang Cheng Hsiang]

Participating in this hackathon was a truly rewarding experience. This event stimulated and pushed us to think outside the box while applying real-world problem-solving skills. The mentorship and support provided throughout the hackathon were invaluable. We had the opportunity to learn about the Scuttle Bot and discovered more opportunities and potentials that can be explored using this versatile platform. Overall, it was an excellent opportunity to showcase skills, learn new things, and gain valuable insights.



From left to right Assoc Prof Sivakumar, Su Xin Hong, Mohammad Fawzan Alim, Prof Vinesh, Nicholas Tan Peng Gen Wong Jun Zhi, Wan Mohd Farhan (MRANTI), Ir Narendran

#### **Common Emitter**

# [Nicholas Tan Peng Gen, Su Xin Hong, Mohammad Fawzan Alim, Wong Jun Zhi]

The Great Hackathon was absolutely amazing! We had such a blast collaborating with each other and coming up with innovative solutions to real-world problems. It was incredibly inspiring to see everyone's passion and creativity in action.

The teaching sessions were informative and enjoyable, providing a deeper understanding of SCUTTLE. We can't wait to apply what we've learned to our project. Learning from other teams' pitches was also a valuable experience.

Overall, it was a truly awesome event, and we're very grateful for the experience.



From left to right Assoc Prof Sivakumar, Mahmoud Dabour, Badr Khaled Al-Sabri, Mahmoud Nagib Ali, Prof Vinesh, Abed Moataz Sadek Mohamed, Wan Mohd Farhan(MRANTI), Ir Narendran

#### **Team Sky**

# [Badr Khaled Al-Sabri, Mahmoud Nagib Ali, Mahmoud Dabour, Abed Moataz Sadek Mohamed]

Team Sky had a great time at the Hackathon Challenge at APU. We gained valuable insights into industry challenges in agriculture, manufacturing, logistics, healthcare, and education. We were inspired by the open-source robotics and AI platforms presented by SCUTTLE Robotics, Intel, and Viam. Thank you for this incredible opportunity!



From left to right Assoc Prof Sivakumar, Ir Ts Dr Denesh Sooriamoorthy, Abdulrahman Adil, Prof Vinesh, Kundai Kashangura, Pedro Fabian Owono Ondo Mangue, Wan Mohd Farhan(MRANTI), Ir Narendran

#### Team Wall – E

# [Kundai Kashangura, Pedro Fabian Owono Ondo Mangue, Abdulrahman Adil]

The Hackathon provided an exceptional opportunity for us to collaborate and push our limits as a team. It was a highly competitive environment that challenged our creativity, problem-solving skills, and ability to work under pressure. The process of refining our business idea from concept to presentation required extensive brainstorming, late-night revisions, and constant adjustments to ensure it was both innovative and feasible. What stood out most was how well we complemented each other's strengths—combining leadership, creativity, and technical expertise. The diverse ideas presented by other teams pushed us to think outside the box and elevate our approach. This experience has been both professionally enriching and a testament to the importance of teamwork, communication, and adaptability.



From left to right Assoc Prof Sivakumar, Ir Ts Dr Denesh Sooriamoorthy, Kiew Zheng Wei, Prof Vinesh, Wong Yu Qin, Thanigai Kumaran , Chilinda Lwiindi, , Wan Mohd Farhan(MRANTI), Ir Narendran

#### TechPulse

# [Thanigai Kumaran Muthukumaran, Kiew Zheng Wei, Kevin A/L M Das, Chilinda Lwiindi, Wong Yu Qin]

The experience was very thrilling and knowledgeable. We had the opportunity to interact with Autonomous robots and learn the fundamentals of mobile robotics. Overall, the experience was very educational, interesting and interactive. We are definitely looking forward to participating in the prototyping stage and participating in more of these events.

#### **Shaping the Future of Robotics**

The GREAT Challenge Hackathon highlighted APU's role as a leader in robotics and technology education, empowering students to tackle real-world industry challenges through hands-on experience and practical insights.

This event underscores APU's dedication to cultivating future innovators, providing them with the essential skills to propel Malaysia's technological advancement..

As APU continues to spearhead such initiatives, the GREAT Challenge exemplifies the university's vision of integrating education, industry partnerships, and technological innovation to forge a more prosperous and technologically advanced future.



# SIDEC Event: Opening Ceremony of the Malaysia Semiconductor IC Design Park: Selangor Hub

A successful invitation of Ir. Dr. Soon Kian Lun to the SIDEC event "Opening Ceremony of the Malaysia Semiconductor IC Design Park: Selangor Hub" officiated by YB Rafizi Ramli, Minister of Economy of Malaysia at PFCC has marked a significant milestone for APU students to gain invaluable exposure to the semiconductor industry. Students had the unique opportunity to engage leading semiconductor companies, including Skyechip. Through hands-on interactions and discussions with industry leaders, APU students gained a deeper understanding of the integrated circuit (IC) design field, equipping them with the knowledge and skills necessary to thrive in this rapidly evolving sector. This initiative not only enhances our students' understanding of the IC design field but also strengthens our connection with the semiconductor sector, paving the way for future collaboration.



# **International Conference – MAY 2024**

Guru Nanak Dev Engineering College, Bidar, Karnataka, India, hosted the "International Conference on Recent Trends in AI, IoT, Machine Learning, Image Processing and their Application and Tech Innovation Showcase (ICAIMI-2024)" from May 25 to 27, 2024. As part of the conference, a project exhibition was held to showcase innovative projects and prototypes in cutting-edge fields. Dr. Sivakumar Sivanesan, Head of the School of Engineering, provided unwavering support and guidance to faculty and students throughout the process, encouraging their participation in the project showcase at the International Conference. Student projects supervised by Dr. Mukil, Dr. Yvette, Dr. Sathish, Dr. Chandra, and Dr. Narendran were shortlisted by the conference panel. Selected students from the School of Engineering presented their projects online and received of presentation. Ms. Nabiha Tasfia certificates Zaman (TP062046), а Telecommunication Engineering student, was awarded the Best Paper Award for her project supervised by Dr. Mukil Alagirisamy and mentored by Dr. Sathish Kumar Selva Perumal. The student has shared her experience as below:

The conference provided an invaluable opportunity to present my project titled **"Development of Multiple Signal Classification (MUSIC) Algorithm in Disaster Management for Accurate Signal Localization.**" Under the guidance of my supervisor, Dr. Mukil Alagirisamy, and mentor, Dr. Sathish Kumar Selva Perumal, I aimed to develop and refine the MUSIC algorithm to improve disaster management systems by accurately locating individuals trapped in disaster-stricken areas. This technology is essential for efficient rescue operations, as it enables precise and timely responses, ultimately saving lives.

Participating in the virtual conference was a truly enriching experience, combining the ease and convenience of remote engagement with opportunities to share innovative ideas and cutting-edge research. The online format enabled seamless networking with global experts, providing a unique opportunity to connect with leading professionals in the field. The virtual conference environment provided a dynamic and flexible learning atmosphere, fostering both personal and professional development.

A significant highlight of the conference was the opportunity for students to present their innovative projects and receive valuable feedback from experienced professionals. This exchange of knowledge and expertise not only enriched the learning experience but also fostered the development of new ideas and collaborations. Overall, the virtual conference provided an enriching experience, successfully blending learning, networking, and knowledge sharing in a highly accessible and engaging format.



#### SIDEC Event: Malaysia Semiconductor Recruitment Day 2024

The exceptional leadership of Ir. Dr. Soon Kian Lun, Assoc. Prof. Ts. Dr. Sathish Kumar Selva Perumal, and Dr. Lian Wen Xun in facilitating APU participation in the **SIDEC Event:** Malaysia Semiconductor students' Recruitment Day 2024 at MITEC has opened doors for students to enter Malaysia's thriving semiconductor industry. This participation has created new opportunities for APU students, positioning them at the forefront of Malaysia's rapidly expanding semiconductor industry. The event provided APU students with exceptional opportunity to engage directly with leading semiconductor an companies, gaining firsthand exposure to advanced technologies, industry trends, and career opportunities within this high-demand field. By fostering these vital industry connections, APU reinforces its commitment to career readiness, equipping students with the practical knowledge and industry insights necessary for success in the semiconductor and high-tech sectors.



# Industry visit to Toto Malaysia Sdn Bhd - 2024

TOTO Toilets is a premier toilet brand in North America, favored by homeowners and recommended by plumbing professionals. Originating in Japan, TOTO has evolved into a global leader in the toilet and bathroom industry.

**TOTO MALAYSIA SDN. BHD**. was incorporated in Malaysia on September 1, 1995, and specializes in the manufacturing and sale of microcomputer-controlled toilet seat parts, components, and deodorizers.

The primary objective of this visit was to provide students with firsthand exposure to the practical applications of theoretical concepts learned in the classroom, as well as to familiarize them with industry standards and practices. The visit provided students with valuable insights into the latest technologies applied to TOTO products, production processes, and safety practices, inspiring new ideas and creativity within our team.









# **SIET 2024: A Global Gathering of Engineering Minds**

The **6th Conference on Sustainable Innovation in Engineering and Technology** (**SIET**) **2024** was a resounding success, attracting over 200 attendees from around the globe.

Hosted by Asia Pacific University of Technology & Innovation (APU), the conference showcased the latest advancements in engineering and facilitated collaboration among academics, industry leaders, and academic experts.

A highlight of the event was the participation of Saveetha Institute of Medical and Technical Sciences (SIMATS) from India.



Their presence enriched the conference with diverse perspectives and fostered international collaboration.

The conference commenced with inspiring addresses from conference chairman Ir

Ts Dr Alexander Chee Hon Cheong, APU's Vice-Chancellor Prof Ho Chin Kuan, and Chief Innovation & Enterprise Officer Prof Ir Eur Ing Ts Dr Vinesh Thiruchelvam.

Their insightful speeches highlighted the crucial role of engineering in addressing global challenges and the importance of sustainable practices.



Renowned speakers from academia and industry, including **Dr. Peer Mohammad** (UKM), **Mr. Yogeswaran (ORS), Ts. Anwarudin Saidu Mohamed (Reservoir Link Energy Bhd.), and Ir. Rajasegaran Thevaraj (General Instruments (M) Sdn. Bhd.),** delivered thought-provoking keynote addresses on sustainability, innovation, and the future of engineering.

The audience was captivated by their insights, engaging in lively discussions and sessions featuring a wide range of research presentations that showcased the latest advancements in various engineering fields

Over 200 papers were submitted, showcasing the vibrant academic community and the potential for groundbreaking research.



Head of SoE Assoc Prof Ir Dr Siva Kumar Sivanesan, presented the Best Presenter Award to Dr Deepak Arun Annamalai.

The conference concluded with an award ceremony honoring outstanding contributions and collaborations.

**Dr. Deepak Arun Annamalai** from SIMATS was honored with the **Best Collaborator Award** for his significant contributions to APU's School of Engineering (SoE).

A vibrant cultural night concluded the conference, celebrating Malaysia's diverse heritage.



The performances showcased the country's rich cultural diversity and created a memorable atmosphere. SIET 2024 demonstrated APU's School of Engineering's commitment to academic excellence and global collaboration.

The conference provided a platform for knowledge sharing, networking, and inspiration, driving the future of engineering towards a more sustainable and innovative future.

APU expresses its sincere gratitude for the outstanding contributions of all participants, speakers, and organizers.

Their enthusiasm and expertise have made this conference a source of inspiration and knowledge. We look forward to continuing this journey of innovation and partnership at future events!

# APU IMechE Student Chapter HANDOVER CEREMONY - 2024



This event was held on August 5, 2024, bringing together the outgoing and incoming IMechE student committees, as well as notable senior lecturers.

During the event, speeches were delivered by the outgoing IMechE student president and other outgoing members. Senior lecturers shared insights into the organization, expressed gratitude to the outgoing student committee, and provided guidance to the incoming student committee.

Certificates and tokens of appreciation were presented to outgoing student members and senior contributors, recognizing their contributions. Group photos were taken to commemorate the event.





The new student committee members were introduced, each sharing a brief selfintroduction and their respective role within the committee. Lunch was provided for all attendees following closing remarks. Overall, this annual general meeting was a resounding success, providing valuable insights into APU's progress and offering exciting opportunities for future engineers.

# APU SPE Student Chapter HANDOVER CEREMONY – 2023/2024

The SPE APU Student Chapter successfully concluded a significant handover ceremony on October 10, 2024, marking the transition to the new leadership for the 2024/2025 term. The event was graced by the presence of esteemed guests, including **Dr. Sathish Kumar,** the Academic Leader, **Dr. Wong Siew Fan,** the SPE APU Student Chapter Advisor and Petroleum Engineering lecturers and SPE members.



The ceremony commenced with opening remarks by **Ms. Divya Kousyeka Indran**, the outgoing SPE Student Chapter President. She presented an insightful review of the 2023/2024 term's achievements, highlighting the chapter's progress and contributions to the field of petroleum engineering.



The ceremony then reached a pivotal moment as the new leadership for the 2024/2025 term was announced, generating excitement and anticipation for the upcoming year. The event concluded with an inspiring speech from **Bany Zechariah Mangar Chol**, the incoming SPE Student Chapter President, who outlined his vision and goals for the chapter. His words instilled a positive outlook for the new committee.





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# **AI in Healthcare**

The "AI in Healthcare" online seminar, held on August 30, 2024, brought together healthcare professionals, researchers, and technology enthusiasts to explore the transformative potential of artificial intelligence in modern medicine. A highlight of the seminar was a keynote presentation by **Dr. T. Manikandan**, Professor & Academic Head at **Rajalakshmi Engineering College**, who provided expert insights into the revolutionary impact of machine learning on cancer detection.

Dr. Manikandan delved into the advancements in AI-powered diagnostic tools, which are enhancing the accuracy and speed of cancer detection, ultimately improving patient outcomes. He emphasized the critical role of early detection and shared examples of how AI is being integrated into clinical workflows to assist radiologists in more effectively identifying cancerous tissues.

The seminar also addressed the ethical considerations and challenges associated with AI adoption in healthcare, including data privacy, algorithm transparency, and the need for collaboration between healthcare providers and AI experts.

Attendees gained valuable knowledge about the future of AI in medical diagnostics and left with a deeper understanding of how machine learning is reshaping cancer care and the broader healthcare landscape.



#### **APU IMechE Student Chapter - RED WEEK 2024**

During the "Red Week" event on August 19-20, 2024, the **IMechE student chapter** at APU actively engaged in a membership drive to increase student awareness and participation. A strategically placed booth served as the focal point for attracting students passing through one of the university's busiest areas.

Student committee members volunteered in shifts from 10 AM to 4 PM over the two days, providing detailed information about the benefits of joining IMechE as an affiliate member, including access to industry resources, networking opportunities, and professional development programs. The event fostered direct interaction between students and current IMechE members, allowing for firsthand insights into the organization's activities and benefits.

The approachable and committed committee members successfully engaged their peers, resulting in 14 new affiliate members by the end of the event. This achievement not only strengthened the chapter's membership but also laid the foundation for future involvement in IMechE initiatives, connecting a broader segment of the student body to the professional engineering community.





# APU SPE Student Chapter Industrial Visit to Kemaman Supply Base

On October 20th, a group from Petroleum Engineering students participated in an enlightening industrial visit to **Kemaman Supply Base (KSB)**, a premier supply base for offshore petroleum activities. Organized by the **Society of Petroleum Engineers (SPE) Kuala Lumpur,** the visit included students from three other regional universities.

The journey began at 6:00 AM, with a five-hour drive to KSB, where the group arrived at 11:00 AM. Upon arrival, the students were welcomed and received a comprehensive introduction to KSB in a conference room. Representatives from EPIC, the managing company, shared the company's history, achievements, and operations through a visual presentation.

Following the conference, the group had the opportunity to visit the coastal site. There, they enjoyed a breathtaking view of the distant oil rig and captured memorable photographs of the offshore petroleum environment.



As lunchtime approached, the group took a break to enjoy a meal together, fostering friendships among the participants.

After lunch, the students were guided to a storage facility dedicated to drilling materials. A facility manager provided a detailed briefing on drilling operations, showcasing the equipment and materials used in the industry. The visit concluded with a group photo session, marking the end of an educational and engaging day. The students returned with valuable insights into the petroleum industry and a deeper appreciation for the complexities of offshore operations. This industrial visit not only enriched the students' academic experience but also strengthened the connection between universities and the industry, paving the way for future collaborations.



# APU SPE Student Chapter Benchmarking International Online: Harmony in Collaboration

On November 24, 2024, members of the SPE APU Student Chapter participated in the "Benchmarking International Online: Harmony in Collaboration" event, hosted by the SPE UM Student Chapter. The online benchmarking session aimed to promote collaboration, knowledge sharing, and best practice exchange among SPE Student Chapters. The session commenced at 2:00 PM (GMT+8) via Zoom, convening students and committee members from diverse SPE Student Chapters. Participants joined the Zoom meeting, where introductions fostered a friendly and welcoming atmosphere.

The event commenced with opening remarks from the presidents of the attending Student Chapters. Each president shared their chapter's accomplishments, current initiatives, and future aspirations. These presentations highlighted the diversity of ideas and underscored the collective commitment of all chapters to the advancement of SPE. Subsequent to the presentations, participants were divided into breakout rooms for discussions. This session facilitated personal connections, experience sharing, and exploration of collaborative opportunities among members. For many attendees, this provided a unique opportunity to network with fellow SPE members from diverse universities, fostering both personal and professional relationships.

To conclude the event on a positive note, an interactive game session was organized. Participants enthusiastically engaged in the activity, creating a convivial atmosphere and fostering camaraderie among members. To express gratitude for their participation, the organizers presented certificates of appreciation to each university. This gesture emphasized the value of collaboration and left participants feeling appreciated and acknowledged.



Closing Remarks:

This event provided an invaluable platform for the SPE-APU Student Chapter to engage with fellow members of the global SPE community. By fostering collaboration, knowledge sharing, and networking opportunities, this event has inspired and united our members.

# Bridge Building Competition IEM-APU Student Section (IASS) 22nd September 2024



On 22nd September 2024, the IEM APU Student Section (IASS) successfully hosted the Bridge Building Competition at Asia Pacific University (APU). This highly anticipated competition attracted 7 teams from prominent universities, including APU and Universiti Tunku Abdul Rahman (UTAR). The event was a dynamic platform for participants to demonstrate their engineering knowledge in a hands-on challenge, creating bridges designed to withstand heavy loads. The competition was not only a display of technical skill but also a celebration of innovation, creativity, and problem-solving. Through careful organization and precise execution, the event emerged as a tremendous success, leaving a lasting impact on participants and demonstrating clear alignment with the United Nations Sustainable Development Goals (SDGs). Results and Highlights.

The winning teams were impressed with their structural ingenuity and resourceful use of materials. These teams walked away with cash prizes of RM 500, RM 300, and RM 100, along with high praise for their engineering excellence. The event highlighted the participants' deep understanding of key engineering principles, combined with strong teamwork and practical problem-solving. The event was successfully promoted through a robust social media strategy and key university channels. IASS utilized its social media platforms, including Facebook, Instagram, and LinkedIn, to generate awareness and excitement for the competition. The promotional campaign also extended to Microsoft Teams channels and APU media platforms, such as APSpace and campus TV, by leveraging the form templates provided by APU's Student Affairs Department. Moreover, IASS took the initiative to email all relevant university departments directly, ensuring wide participation and engagement.

IEM Malaysia was also contacted for support, and they played a pivotal role in promoting the event to a broader engineering audience, which greatly contributed to the success and visibility of the competition.















The competition saw the following winners:

1st Place: Team from Asia Pacific University (APU)

2nd Place: Team from Asia Pacific University (APU)

3rd Place: Team from University Tunku Abdul Rahman (UTAR)



Future Prospects The IASS Bridge Building Competition was a remarkable achievement, providing participants with a platform to apply their skills and gain real-world engineering experience. The competition fostered a spirit of innovation, sustainability, and collaboration, perfectly aligning with the SDGs and preparing students to tackle future engineering challenges with confidence. The event was also a testament to the IEM APU Student Section's commitment to delivering high-quality, impactful events that promote learning, engagement, and professional development. Looking ahead, the competition will continue to grow, inviting more participants and expanding its influence in fostering the next generation of engineers. We express our deepest gratitude to Ms. Subhashini, Assoc. Prof. Ts. Dr. Sathish Kumar Selva Perumal, Assist. Prof Ts. Dr. Arun Seeralan Balakrishnan, and IEM Malaysia for their invaluable contributions in making this event a success.