

MALAYSIAN INVENTION AND DESIGN SOCIETY

NEWSLETTER
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Patron YAB Tun Dr Mahathir Mohamad MINDS Executive Committee (2024 - 2026) President Academician Emeritus Prof Tan Sri Datuk Dr Augustine S H Ong Vice President Datuk Dr Choo Yuen May Honorary Secretary Prof. Ir. Dr. Leong Wai Yie Honorary Treasurer Ms Christine Ong Committee Members Dr. Azman Ismail Inv. Cheah Bok Eng Prof. Dr. Lee Chien Sing Major Munusamy Arigovindan Dr. Ravigadevi Sambanthamurthi Mr. Tan Kim Seng Co-Opted Committee Members Mr. Ahmad Ezzat Ismail Mr Myocho Kan Mr Ong Soon Ee Executive Secretary Ms Crystal Ann Bastin Editor Dr. Ravigadevi Sambanthamurthi Co-Editor Ms Crystal Ann Bastin Malaysian Invention & Design Society C3A-10, 4th Floor Block C Damansara Intan No 1, Jalan SS20/27 47400 Petaling Jaya, Selangor Tel: (60) 3 7118 2066/64 HP: (60) 12 903 212 Email: minds.secretariat@gmail.com Website: www.minds.net.my Percetakan Soon Li Heng No. 15 Jalan Besar, Selayang Baru 68100 Batu Caves, Selangor Tel: (60) 3 6138 5672 Fax: (60) 3 6138 7180	EDITOR'S NOTE As we delve into the vibrant tapestry of recent MINDS activities, a clear theme emerges: the power of collaboration, the brilliance of young minds, and the unwavering commitment to a future driven by innovation. Our journey begins with a look back at the inaugural Malaysia Inventor and Innovator Convention (MYIIC 2024) themed "Inspiring Talents for Sustainable Growth," which brought together a diverse ecosystem of thinkers and doers. The hands-on workshop led by Mr. Miroslav Kostecki of the STEMSEL Foundation, introduced students to the revolutionary "runlinc" coding platform. This initiative promises to empower the next generation to harness the potential of IoT and AI. The spirit of Malaysian innovation shone brightly on the international stage at IPITEX 2025 in Bangkok. Our contingent of 350 inventors, proudly representing MINDS, brought home a remarkable haul of medals, including the prestigious IPITEX Big Prize. Our young innovators continued to impress on the global stage at the Hong Kong International Student Innovation Invention Contest (HKISIIC)2025. Under the MINDS banner, Malaysian students presented their ingenious projects, leaving a lasting impression on the international judging panel. Similarly, the young inventors made the nation proud with their Second Prize win at the prestigious Beijing Youth Science Competition (BYSCC) 2025. Back on home ground, UTAR MINDS is actively nurturing the innovative spark in young minds. Their recent "Ideation & Teamwork" event at UTAR Kampar served as a powerful catalyst for student engagement, fostering the very skills that underpin successful invention and design. Celebrating the invaluable contributions of women in STEM was the focus of the 6th National Conference on Contributions to National Development by Malaysian Women Scientists and Inventors Webinar 2025. This event highlighted the exceptional achievements of Malaysian women in science, technology, and innovation, inspiring future generations of female leaders in these critical fields. Finally, we look forward to ITEX 2025, themed "The Power of STEAM and AI Unleashed." This premier event promises to be a dynamic convergence of global innovators, emphasizing the transformative synergy between Science, Technology, Engineering, Arts, and Mathematics, and the groundbreaking impact of Artificial Intelligence. As we reflect on the recent successes, it is clear that the spirit of invention and innovation is thriving in Malaysia. MINDS remains committed to fostering this vibrant ecosystem, empowering individuals, and driving sustainable growth through the power of human ingenuity. Stay curious, stay innovative, and stay connected with MINDS!
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FOREWORD BY PRESIDENT, MALAYSIAN INVENTION AND DESIGN SOCIETY

Y.BHG ACADEMICIAN EMERITUS PROF. TAN SRI DATUK DR AUGUSTINE S. H. ONG



The Malaysian Invention and Design Society (MINDS) was founded with a singular mission - to encourage Malaysians to generate original ideas that could improve lives, drive economic development, and contribute meaningfully to the global innovation landscape. In pursuit of this mission, MINDS initiated an annual platform known as the International Invention, Innovation & Technology Exhibition (ITEX) with CIS to showcase and celebrate the creative spirit of our people.

When we first launched ITEX, participation stood at just 50 inventors. Through unwavering commitment and growing national interest, this number rose significantly, reaching over 1,000 participants in subsequent years. Although the COVID-19 pandemic temporarily reduced participation to around 500, we are pleased to see a strong recovery, with an estimated 800 participants this year. These innovators come from schools, universities, and industries, reflecting a cross-section of Malaysia's inventive talent. To date, over 15,000 inventions have been exhibited - an extraordinary milestone that speaks volumes of our nation's capacity for innovation.

Our young inventors have also demonstrated impressive momentum on the international stage. Their participation in platforms across Hong Kong, China, and Thailand is not only a source of national pride but also a gateway for future collaboration in invention and creativity with our regional neighbours.

While ITEX has become a cornerstone of our innovation ecosystem, we have recently embarked on a new initiative: the Malaysia Inventor and Innovator Convention (MyIIC). Though still in its early stages, MyIIC has shown tremendous promise. The second edition is scheduled for 8 November 2025, and we are optimistic that this platform will further drive cutting-edge research, interdisciplinary collaboration, and recognition of scientific and technological excellence across academia and industry.

Moving forward, it is crucial that we deepen our investments in Research and Development (R&D) and create stronger linkages between knowledge institutions and industry stakeholders. Innovation today is not confined to laboratories - it flourishes across disciplines, including the digital and performing arts, which we are now beginning to incorporate into our national innovation narrative. One exemplary figure who embodies this cross-disciplinary excellence is Tan Sri Michelle Yeoh. Known globally for her dynamic presence in cinema, she has carved a niche as a trailblazing female action star, performing her own stunts in a genre historically dominated by men. Her historic Oscar win in 2023 made her the first Asian and Malaysian actress to receive this honour, marking a significant milestone for Malaysia on the world stage. Beyond her cinematic achievements, Tan Sri Michelle Yeoh is a UN Goodwill Ambassador, using her platform to promote the Sustainable Development Goals, with a focus on road safety and environmental protection. She has also contributed as a producer, uplifting emerging voices and championing diversity in storytelling. She stands as a cultural icon and a source of inspiration, not only for aspiring actors and filmmakers, but for all Malaysians pursuing excellence against global standards. Her story is a powerful reminder that creativity, perseverance, and commitment to purpose can transcend boundaries, disciplines, and expectations. It is precisely this spirit that ITEX, MyIIC, and MINDS as a whole aim to nurture in every Malaysian. Innovation is not an event - it is a culture. And together, we must ensure that this culture continues to grow, evolve, and inspire.

MALAYSIA INVENTOR AND INNOVATOR CONVENTION (MYIIC 2024)

The inaugural 2024 Malaysia Inventor and Innovator Convention (MyIIC 2024) themed "Inspiring Talents for Sustainable Growth" was successfully held at Universiti Sains Malaysia (USM), Penang from 8th to 10th December, bringing together a dynamic community of innovators, industry leaders, researchers, and students. Over three days, MYIIC 2024 celebrated innovation and invention, while providing a platform for knowledge sharing, networking, and future collaborations. The event garnered extensive media coverage, including four articles in Bulletin Mutiara and one article each in China Press and Guang Ming Press, highlighting its reach and impact. MyIIC 2024 was successfully inaugurated with strong support from the Penang state government, industry, professional associations, and regional partners, benefiting approximately 300 participants. Strategically, MyIIC 2024 played a role in supporting Malaysia's public and private institutes of higher learning in embracing an innovation culture among a wider group of undergraduate populations.

Pre-Convention Workshop: Empowering the Next Generation

Ahead of the main convention, a Pre-Convention Workshop was held on 8 December 2024, hosted by the STEMSEL Foundation. Led by Mr. Miroslav Kosteckí, Chief Technology Officer, the workshop introduced university and college students to "runlinc," a groundbreaking coding platform enabling the rapid development of Internet of Things (IoT) applications integrated with artificial intelligence (AI) and space technology. This hands-on session empowered students to quickly prototype sophisticated STEM projects, giving them critical skills for competitions, entrepreneurship, and future careers.

Opening and Key Addresses

The convention officially opened on 9 December 2024 with a Welcome Address by YBhg. Academician Tan Sri Emeritus Professor Datuk Dr. Augustine Ong Soon Hock, President of MINDS, followed by an Opening Address by the Guest of Honour, YB Wong Hon Wai, representative of Penang Chief Minister and Penang State Exco member. The ceremony also featured an awards presentation and an exhibition tour.

Thematic Sessions: Industry Perspectives on Innovation

The convention featured a series of focused sessions, bringing together distinguished speakers from leading global companies to discuss innovation across multiple sectors:

- **Innovation in Artificial Intelligence Era**
Mr. Ewe Kok Howg, Senior Director of Software Engineering at Intel, explored the symbiotic relationship between AI and innovation, emphasizing the importance of fostering responsible technological advancement.
- **Easy Coding: An Accelerator for Internet-of-Things (IOT) Innovation**
Mr. Hew Peng Koon, Senior Director of Automation Development Engineering at Western Digital, highlighted key strategies for achieving operational excellence through digital innovation.
- **Innovation in Semiconductor Industry**
Ms. Debra Bell, Vice President of DRAM Product Engineering at Micron, discussed the critical role of memory and storage technologies in shaping future applications.
- **Innovation in Medical Industry**
Dr. Fu Yongji, Vice President and Head of Research & Development at B. Braun Medical Industries, shared insights into the transformative impact of innovation in the healthcare industry.

Panel Discussion #1: Conversation with Industry Leaders

A high-profile panel discussion, moderated by Ms. Ong Wooi Leng of the Penang Institute, featured leaders from Intel, Western Digital, Micron, B. Braun Medical Industries, Oppstar, and Siblings Keeper Corp. Panelists shared experiences and strategies on leading innovation in diverse sectors, offering practical advice for future inventors and entrepreneurs.

Expanding Innovation Beyond Technology

The second day of MYIIC 2024 broadened the conversation to include agriculture, history, intellectual property, and commercialization:

- **Innovation in Modern Agriculture:**
Associate Professor Dr. Phelim Yong Voon Chen, Taylor's University, addressed how innovation is redefining global food security.
- **Legacy of Innovation in Penang's History**
Dato' Dr. Ooi Kee Beng, Executive Director of Penang Institute, reflected on Penang's historical journey and its resilient innovation culture.
- **Innovation in Automotive Electronic Packaging**
Dr. Eu Poh Leng, Senior Director at NXP Semiconductors, discussed transformative advances in automotive semiconductor technologies.
- **TRIZ: Theory of Inventive Problem Solving**
Mr. Tan Eng Hoo, President of the Malaysia TRIZ Innovation Association, introduced TRIZ methodology as a tool for systematic innovation.

Further sessions addressed critical aspects of protecting and commercializing innovations:

- **Intellectual Property**
Ms. Fiona Teresa Jeffrey of Marks & Clerk examined the complexities of content ownership in the digital era.
- **Aligning Patent with Overall Business Strategy**
Mr. Lok Choon Hong, Founder and Managing Director of PINTAS IP Group, unveiled strategies for effective patenting through Tesla and Ikea case studies.
- **Journey from Idea to Commercialization**
Dr. Ir. Sattar S. Emamian, CEO of SCIONS, guided participants through the journey of transforming research ideas into commercial products.

Panel Discussion #2: Conversation with Innovators

A second panel session, moderated by Dr. Ir. Wong Shaw Fong of IEEE EPS, featured rising innovators and entrepreneurs from NXP Semiconductors, B. Braun Medical Industries, SpaceIn, and TusStar Malaysia. The discussion showcased personal journeys, innovation strategies, and the challenges faced in commercializing technology-driven ideas.

Celebrating Excellence: Award Ceremony Highlights

A major highlight of MYIIC 2024 was the conferment of the prestigious MINDS awards:

MINDS Luminary Award

Conferred upon inventors and innovators who have secured multiple patents or achieved sustained contributions in their field of innovation.

Award Recipients:

Datuk Dr. Choo Yuen May, FASc

Dr. Ravigadevi Sambanthamurthi, FASc

MINDS Meritorious Award

Awarded to individuals whose singular patented invention or innovation significantly enhances the quality of life.

Award Recipients:

Assoc. Prof. Ts. Dr. Suliadi Firdaus Sufahani

Dr Arumugam Gunasegaran

Madam Teng Yu-Mein

Mr Bao Kiew Wu

Meet the Winners 🏆

MINDS Luminary Award

Datuk Dr. Choo Yuen May, FASc

Datuk Dr. Choo Yuen May has been recognized with over 100 international and national scientific and innovation awards, including Malaysia's prestigious Merdeka Award for Health, Science & Technology. She has also received the Knight of the International Order of Merit of Inventors from the International Federation of Inventors' Associations (IFIA) and the World Intellectual Property Organization (WIPO) Gold Medal for Best Woman Inventor.



She holds an impressive 72 patents, with over half already granted. Many of her inventions have been successfully commercialized, making substantial contributions to the Malaysian oil palm industry by expanding applications for palm oil, boosting its global market share, and generating revenue and foreign exchange for the country. Below are five selected highlights of her impactful innovations:

1. Commercialization of Carotene-rich Red Palm Oil

Datuk Choo's patented process for producing carotene-rich red palm oil led to the establishment of a commercial plant in 1996. Marketed under the trade name CAROTINO, this product is now available in over 50 countries, including Malaysia, the USA, Asia Pacific, Africa, and the EU.

2. Production of Renewable and Environmentally Friendly Palm Biodiesel

This project, a billion-ringgit industry venture, was commercialized with:

- The establishment of nine palm biodiesel plants, both locally and internationally (South Korea, Thailand, and Colombia), showcasing Malaysia's ability to export patented indigenous technologies. The product, palm biodiesel is marketed globally.
- Initiative from the Malaysian government in blending palm biodiesel with petroleum diesel in the transportation sector. Currently, B10 (10% palm biodiesel) is the primary blend offered at Malaysian petrol stations nationwide, with B20 available in specific regions (Langkawi, Labuan, and Sarawak excluding Bintulu). B7 is the standard for industrial use.

3. Green and Renewable Winter Grade Low Pour Point Palm Biodiesel

A patented, clean process was developed to produce winter-grade palm biodiesel suitable for temperate climates, with a low pour point of -20°C to meet seasonal requirements in cold regions. This innovation led to the establishment of three commercial plants in Malaysia.

4. Production of Palm Carotene Concentrate and Tocotrienol Concentrate

These high-value products, with applications in dietary supplements, nutraceuticals, pharmaceuticals, cosmeceuticals, functional foods, beverages, and feed additives, have been commercialized via two plants built from a patented process in Malaysia, catering to both local and international markets.

5. Green, Biodegradable, and Renewable Palm-based Industrial Solvents and Degreasers

A green, renewable palm-based solvent was formulated leading to the development and commercialization of the palm-based degreaser INXBIO, catering to industrial applications with sustainable, biodegradable solutions.

Through these innovations, Datuk Dr. Choo Yuen May has not only advanced the Malaysian oil palm industry but also demonstrated the potential for sustainable and versatile palm oil applications globally.



CAROTINO® Commercial Production Plant



Palm Phytonutrients Commercial Plant



Winter Grade Palm Biodiesel Commercial Plant



Palm Biodiesel Commercial Plant

MINDS Luminary Award

Dr. Ravigadevi Sambanthamurthi, FASc



Dr. Ravigadevi Sambanthamurthi, a Fellow of the Academy of Sciences Malaysia (ASM), and Fellow of the World Academy of Sciences chairs ASM's Biology, Agriculture, and Environmental Sciences Discipline. With over 40 international patent filings, most of which have been granted, she has made significant contributions to scientific innovation, particularly in the oil palm industry. She was the founding Director of the Advanced Biotechnology and Breeding Centre at the Malaysian Palm Oil Board (MPOB), where she served until her retirement in 2015, but continues to interact closely with MPOB.

Dr. Ravigadevi's discovery that palm oil milling waste is a rich source of phenolic bioactives, known as Palm Fruit Bioactives (PFB), led to the development and commercialisation of an eco-friendly extraction process. This groundbreaking achievement culminated in the establishment of the world's first

PFB production facility in Mexico. PFB is now used globally and was recognized as one of the top three new ingredients at the NutraIngredients USA 2019 Awards. With proven health benefits and reduced waste, PFB has opened new market opportunities for a circular economy while promoting health and wellness. The UN Millennium Project acknowledged this work as transformative for both industry and humanity.

Dr. Ravigadevi led the pioneering team that sequenced and published the oil palm genome, creating the world's first publicly available oil palm genome reference. This milestone led to the identification of and development of diagnostic tests for economically and environmentally significant genes, including:

- The SHELL gene, a primary determinant of oil yield
- The MANTLED gene and its epigenetic role in clonal abnormality
- The VIRESCENS gene, which regulates fruit colour and ripeness, essential for yield optimization

The work led to three Nature publications, with Dr. Ravigadevi as the corresponding author on each - an unprecedented achievement for Malaysia, underscoring her contributions to global scientific advancement. MPOB's economic analysis indicates a potential USD1.63bn/yr increase in oil production through DNA testing for the SHELL gene before planting.

Her numerous honours include the Tan Sri Augustine Ong Lifetime Achievement Award for Inventions and Innovations in Oil Palm (in conjunction with the Oils and Fats International Congress 2022), the Knight of the International Order of Merit of Inventors from the International Federation of Inventors Association (2009), and the Intel Environment Laureate distinction from the Tech Museum Award, USA, for *"individuals and organizations whose ideas and execution are changing the world."* She was also nominated for the 2014 BIO Rosalind Franklin Award for Leadership and received the Rotary Gold Award for Excellence in Scientific Research. A strong advocate for teamwork, Dr. Ravigadevi attributes these accolades to the collective efforts of her team at MPOB: *"I am a firm believer in teamwork, and I see this latest recognition, the MINDS Luminary Award, not just as my own but as a tribute to the dedication and passion of my team at MPOB,"* she said.



World's first Phenolic Commercial Production Plant in Mexico

MINDS Meritorious Award

Assoc. Prof. Ts. Dr. Suliadi Firdaus Sufahani



(i) Malaysian Secondary Boarding School Menu Planning System with Post-Optimality Process

This study aims to create a scientific, mathematical model and decision support system for planning balanced, nutritious menus for boarding school students aged 13-18. Recognizing that manual menu planning is inefficient, the study develops a flexible system that meets students' dietary needs while reducing costs. Data from the Ministry of Education and school authorities informed the model, which uses Binary Programming and the "Sufahani-Ismael Algorithm." Users can modify menus post-optimization, triggering a recalculation. This Malaysian system is the first of its kind globally, with applications extending to hospitals, the military, and dietary needs for various medical conditions.

(ii) Optimizing Royalty Payments Through Mathematical Approach and Hybrid Shooting Method

This research addresses a nonstandard Optimal Control problem focused on maximizing a performance index with an unknown final state value (final product price), resulting in a nonzero terminal shadow value (initial price of a new product). Due to the non-differentiable royalty function, an indirect method is applied using a modified shooting method developed in C++. A continuous approximation using the hyperbolic tangent function (tanh) overcomes the difficulties with the royalty function. The study aims to achieve accurate optimal results, offering a new approach for researchers to solve complex, real-world problems, emphasizing the importance of foundational theory in resolving challenging issues.

(iii) Technical Gaps: A Descriptive Analysis of Non-Operational and Operational Electric Vehicle
Electric vehicles (EVs) are cost-effective and eco-friendly, requiring minimal maintenance due to fewer moving parts and reduced petroleum reliance. They offer a solution to rising emissions, global warming, and resource depletion. This study developed a framework for assessing electric buses' technical aspects during downtime, focusing on batteries, temperature, structure, and energy use. Using two buses - standard and luxury - data was collected through observation to identify best practices for EV technology in urban areas. Additionally, a 36-day analysis of the diesel Nissan Navara versus the 63-day electric BYD SUV showed the BYD is 70% cheaper per kilometer, supporting EVs for municipal use.

MINDS Meritorious Award

Dr Arumugam Gunasegaran



Malaysian inventor with UK and India patents for a simple and practical innovation to mitigate:

- Depleting fossil fuel energy resources
- Poor urban air quality
- Global warming and climate change

XECON (eXtra Environmental CONservation and eXtra ECONomy) has been real world verified in 12 countries in about 15,000 road vehicles over 12 years to:

- Boost road vehicle engine energy efficiency by energising urban air quality
- Improve urban fuel consumption to almost equal extra urban fuel economy
- Almost eliminate toxic tailpipe exhaust emissions (CO, NOx, SOx, Particulate Matter)
- Boost octane of RON 89 and RON 91 petrol to RON95 without octane boosting additives

(Verified in India, China, Jamaica, Australia and New Zealand)

- Boost octane for Natural Gas Vehicles (NGV) to avoid engine knocking concerns

(Verified in Malaysian and Indian NGV taxis)

With XECON fitted in most Malaysian vehicles during annual servicing, Malaysia can:

- Save more than RM20 billion annually on fuel subsidies (no need for RON 95 petrol)
- Significantly improve urban air quality.



Problem : Increasing urban traffic congestion resulting in poor urban air quality and high fuel consumption



Solution: Aftermarket service device, like air filters and oil filters, suitable for most road vehicles

MINDS Meritorious Award

Teng Yu-Mein



The Efinity Water Filters.... an innovation created with Empathy for the Marginalized Communities

During a visit to an Orang Asli village, witnessing how the marginalized communities were using murky and contaminated water for drinking and cooking saddened Teng Yu-Mein. The resulting diseases such as stomach aches, Cholera, Leptospirosis, Typhoid Fever, Giardia, Dysentery, Escherichia coli infections and other waterborne diseases highlighted the dire consequences of the unhygienic water quality. Upon returning home, she made a personal vow to do something about it. The main challenge was finding the solution for a water filter system that could work without the need of water pressure from the tap or electricity to run a pump.

One day while ironing the clothes, the “EUREKA Moment” erupted when this housewife noticed that water pressure can be created manually like in the water spraying bottle in her hand. She immediately began putting her thoughts into creating a water filtration system using this same principle. Within six months, she created a working proto-type and upon securing some funds from Yayasan Inovasi Malaysia (YIM) and the Ministry of Science Technology and Innovation (MOSTI), production and commercialization began. The product was small and light weight for easy transportation, easy to set up and maintain, and most importantly inexpensive and durable.

This simple ingenious innovation won a gold medal at the 2017 ITEX and has since been deployed to many refugee camps and disaster relief centres all over the world. Many were also sent to the underdeveloped parts of Cambodia, Vietnam, Nepal, Pakistan, Bangladesh, Africa, Philippines, Sri Lanka, and Myanmar. Back home in Malaysia, thousands of the Efinity Water Filters are widely used by the Orang Asli as well as the Orang Asal in the rural part of Sabah and Sarawak.



Effinity Water Filter

MINDS Meritorious Award

Mr Bao Kiew Wu



Ocean Wave Power System

We began our R&D on ocean wave energy in 1995. After a long journey, we successfully invented the Ocean Wave Power System for which patents have been applied in Malaysia, Taiwan, Israel, the USA, and under International Preliminary Examination No. PCT/MY2023/050010.

Ocean wave power system converts the energy of ocean waves into electricity, providing a renewable and consistent energy source. By harnessing the natural movement of waves, the system can generate electricity. This technology offers a sustainable alternative to fossil fuels, helping to integrate cleaner energy into the grid. The system is modular, scalable, adaptable, and economical. We aim to produce 10% of the world's electricity,

about 3,000 terawatt-hours per year. Our website: <https://oceanwavepowersystem.com/>

Our Ocean Wave Power System has won a Gold Medal at ITEX24.

Background of the Invention

Due to global warming, 195 countries adopted the Paris Agreement to set renewable energy targets. With existing energy sources alone, these targets cannot be fully met. The Ocean Wave Power System is the missing piece in the trio of major green and renewable energy sources, complementing solar and wind energy.

Ocean wave energy research has been ongoing for over 100 years, likened to a modern-day gold rush. Since 2007, alongside private investors, Europeans and Americans have spent more than US\$2 billion on research in this and related fields. Research continues at an annual budget exceeding US\$100 million.

2024: Up to \$112.5 million is now available for wave energy developers.

Unfortunately, ocean wave energy remains challenging to harness at a commercial scale until now.

A VISUAL JOURNEY THROUGH MYIIC 2024



Welcome remarks by Inv. Ts. Cheah Bok Eng



Workshop speaker, Miro Kotecski from STEM-SEL Australia on Internet of Things.



Students attending the workshop



Students with MINDS President, Tan Sri Augustine Ong at the workshop



75 participants attended the convention workshop on 8 December 2024 (Sunday); more than 10 students enrolled for potential project engagement.



MyIIC 2024 Opening ceremony by representative of Penang Chief Minister, YB Wong Hon Wai, Penang State Exco member



MyIIC 2024 Sponsors appreciation by MINDS President, Tan Sri Augustine Ong



MyIIC 2024 Opening Ceremony by representative of Penang Chief Minister, YB Wong Hon Wai, Penang State Exco member



Welcome remarks by MINDS President, Tan Sri Augustine Ong



MyIIC 2024 Press conference with YB Wong Hon Wai, Penang State Exco member.



Group photo during MyIIC 2024 closing ceremony



VIP Visiting exhibition booth of MINDS after Opening Ceremony



Group photo of committee members and masters of ceremony



MINDS President, Tan Sri Augustine Ong with Inv. Ts. Cheah Bok Eng and Ms. Ravenna Chen (Chief Executive Officer, TusStar Malaysia)



Exhibition booth visit by participants



MyIIC 2024 Networking Dinner: Penang Chief Minister, YAB Chow Kuan Yeow accompanied by MINDS President, Tan Sri Augustine Ong, convention sponsors and invited guests.



MyIIC 2024 Networking Dinner: Penang Chief Minister, YAB Chow Kuan Yeow accompanied by MINDS President, Tan Sri Augustine Ong and industry leaders.



MyIIC 2024 Networking dinner at Eastin Hotel



Penang Chief Minister, YAB Chow Kuan Yeow graced the occasion of the dinner



Networking event attended by industry and academia leaders.

IPITEX 2025 : A Global Stage for Innovation

The Bangkok International Intellectual Property, Invention, Innovation, and Technology Exposition 2025 (IPITEX 2025) was successfully held from 2nd to 6th February 2025, as part of Thailand Inventors' Day 2025. This prestigious event attracted over 2,000 inventions from more than 25 countries, with over 500 presentations showcasing groundbreaking innovations across various fields. Malaysia's delegation, represented by 350 inventors under MINDS), delivered an outstanding performance, securing 37 Gold, 26 Silver, and 10 Bronze Medals, and the coveted IPITEX Big Prize. The Malaysian participants hailed from institutions such as Alor Setar Technical School, INTI International University, Universiti Malaya, Universiti Kebangsaan Malaysia, Universiti Tun Hussein Onn Malaysia, various vocational and community colleges, as well as government agencies and private companies.

Prof. Dr. Leong Wai Yie, Head of Delegation from MINDS, noted that international judges, visitors, and Ms. Jayagowri from the Embassy of Malaysia in Bangkok were highly impressed with Malaysia's innovative contributions. Hosted by Thailand's National Research Agency (NRC) under the Ministry of Higher Education, IPITEX 2025 provided a global platform for inventors and researchers to exchange knowledge and showcase their inventions in categories such as medicine, public health, modern agriculture, green technology, ICT, robotics, and more.

The Malaysian delegation not only demonstrated technical excellence but also inspired fellow inventors worldwide. Among the notable achievements, Malaysian innovators received over 10 special awards from organizations in Poland, Britain, Singapore, Indonesia, the Philippines, Russia, Korea, and India. Key awards included the Philippine Gold Award for Invention, the Great Prize IPITEX 2024 from the Association of European Inventors (AEI) Poland, the Young Innovator Award from Citizen Innovation Singapore, and the Innovation Excellence Special Recognition Award from the International British Innovation, Invention, Technology Exhibition (IBIX) United Kingdom.

Highlighting individual successes, Dr. Suliadi Firdaus Sufahani from Universiti Tun Hussein Onn Malaysia won the IPITEX Big Prize for his research on electric vehicles, comparing the operational efficiency of diesel and electric-powered vehicles. His study provides key insights into cost savings and efficiency, advocating for wider EV adoption. Meanwhile, Mr. Vijaya from the Education Department of Pasir Gudang (PPD Pasir Gudang) received the NRCT Special Prize for his AI-powered assessment platform, S3PA, which enhances fairness and precision in student evaluations.

Among the many participating institutions, SM St. Michael Penampang, Sabah, made its largest-ever participation in an on-site innovation competition with 28 students. Led by Principal Jennifer Asing and teachers Mariatul Hanis and Cyprian Rian Jokinol, their inventive projects - Hydralert, Binbuster, and HydroHarvester - left a significant impact on the judges and audience alike.

The unique and active judging process at IPITEX 2025 which kept exhibitors alert and ready while interacting with visitors was lauded. The International Pavilion offered a great opportunity for networking and international exposure. This year's physical event highlighted the importance of being present in person, giving Malaysian inventors a valuable chance to showcase their creativity and innovation to a global audience. The success at IPITEX 2025 further strengthens Malaysia's reputation as a hub for innovation and invention. Malaysian inventors eagerly anticipate future participation in IPITEX and similar global exhibitions, fostering international collaboration and continuing to push the boundaries of innovation.

The National Research Council of Thailand (NRCT) also played a pivotal role in strengthening global partnerships at IPITEX 2025, hosting the prestigious award ceremony on February 6th at BITEC, Bangna. Chaired by Dr. Wipharat Di-ong, Director of the National Research Office, alongside Mr. Ali-reza Rastegar, President of the International Federation of Inventors' Associations (IFIA), the ceremony recognized outstanding Thai and international inventions. Dr. Wipharat emphasized NRCT's dedication to supporting inventors and highlighted the increased participation in the 2025 exhibition, featuring over 1,000 innovative projects through the collaboration of 28 international and 32 Thai organizations.

Mr. Rastegar lauded NRCT's ongoing efforts and reaffirmed IFIA's commitment to international co-operation.

The Grand Prize was awarded to "NS-UR Flux-Cored Solder Wire" from Universiti Malaysia Perlis (UniMAP), Malaysia, and "Innovative Composite Bar Mesh: GFRP Wire Mesh" from Walailak University, Thailand. The International Young Inventor Award went to a project from Macau, China. Other notable awards included the ASEAN Excellence Invention and Innovation Award (Indonesia) and the Outstanding International Invention & Innovation Award (projects from Thailand, Malaysia, Croatia, Japan, and South Korea). The event also recognized numerous NRCT Special Award recipients and International Special Prize winners, awarding a total of 322 Gold, 202 Silver, and 137 Bronze Medals.

Attracting over 2,000 international participants from 25 countries, IPITEX 2025 reinforced Thailand's position as a global innovation hub. NRCT aims to further enhance international cooperation, expand its network, and elevate the quality and diversity of showcased inventions in future editions, demonstrating the power of collaboration in driving technological progress for a better future.



IPITEX Opening Ceremony by Minister Supamas Isarabhakdi (second row, left 11), the Minister of Higher Education, Science, Research, and Innovation (HESI) of Thailand



350-Member Delegation from MINDS with 37 Gold, 26 Silver, 10 Bronze medals, and more than 10 Special Awards from Poland, India, Britain, Singapore, Indonesia, Philippines, Korea and Russia.



Welcome reception for all heads of delegation.



Mr Vijaya (first on the right), from the Education Department of Pasir Gudang (PPD PASIR GUDANG), won an NRCT Special Prize, for his in-



Special Award from Mi Young Han the President of World Women Inventors and Entrepreneurs Association



Dr. Suliadi Firdaus Sufahani, from Universiti Tun Hussein Onn Malaysia, won the IPITEX Big Prize for his invention: Technical Gaps: A Descriptive Analysis of Non- Operational and Operational Electric Vehicle, with Prof Leong Wai Yee



Ms Jayagowri (Right) from Embassy of Malaysia in Bangkok, Thailand, with Prof. Leong Wai Yee

UTAR MINDS Inspires Students with 'Ideation & Teamwork' Event

On 26th February 2025, UTAR MINDS organized an engaging and thought-provoking event titled "Ideation & Teamwork" at UTAR Kampar. The event was designed to encourage greater student participation in UTAR MINDS, a dedicated chapter of MINDS, which was established in 2023 to cultivate creativity and innovation among UTAR students. The event received strong support from several key figures, including Tan Sri Augustine Ong, President of MINDS, as well as Miss Moon and Alice from UTAR's Department of Student Affairs (DSA). The invaluable guidance of the Perak Chapter of MINDS, especially its chairman, Mr. Tan Kim Seng, was instrumental in ensuring the event's success. Their encouragement and expertise provided the necessary foundation to make this initiative impactful.

UTAR MINDS successfully conducted two events in 2024. These included a visit to an oil palm estate, made possible by the generosity of Tan Sri Lee Ooi Hean of KLK Estates, and a visit to ITEX 2024. Unfortunately, due to low membership engagement, no Annual General Meeting (AGM) was held that year. To address this, EXCo members Xin Ru (Chairperson) and Xu Rei (Secretary), with input from advisors Dr. Emmy Chin and Dr. Nagara, identified a fundamental issue: many students believed that joining MINDS required them to present fully developed designs or inventions, which they feared might interfere with their academic commitments. This misconception had discouraged participation and needed to be corrected.

The "Ideation & Teamwork" event was strategically crafted to dispel this misunderstanding and to re-define student involvement. The focus was shifted towards "Ideation"- encouraging students to observe everyday challenges, identify problems, and develop creative solutions without the immediate pressure of execution. Building on this foundation, "Teamwork" was introduced as the next crucial step, reinforcing the concept that collaboration makes innovation more achievable. By promoting the idea that groundbreaking innovations begin with simple ideas and collective effort, the event sought to inspire students to engage without hesitation.

A key highlight of the event was the presence of distinguished MINDS members who shared their experiences and success stories. Ms. Teng Yu Mein captivated the audience with her presentation on a simple yet effective water filtration system, an invention that has significantly improved the lives of underprivileged communities worldwide. Mr. Bao Kiew Wu delivered an insightful talk on his Ocean Wave Power system, demonstrating a unique and innovative approach to harnessing renewable energy. Mr. Alex Selvam showcased cutting-edge drone technology, explaining its increasing applications across various industries. These speakers exemplified the essence of "Ideation & Teamwork," proving that creative thinking and collaboration can lead to remarkable achievements.

Building on the momentum of this event, UTAR MINDS has laid out ambitious plans to boost membership and engagement. A "Competition for Ideas" will be launched, with the winners to be announced at the AGM in July 2025. This initiative aims to further inspire students to think creatively and work together towards innovative solutions. The event was a remarkable success, and UTAR MINDS extends its heartfelt appreciation to all speakers, guests, and members of MINDS, particularly the Perak Chapter, for their unwavering support. Their contributions have helped strengthen the foundation of UTAR MINDS and pave the way for a more vibrant and active community. Thank you, UTAR MINDS!



Attendees at UTAR Kampar



Tan Sri Augustine Ong with EXCO members and Speakers



Madam Teng Yu Mein presenting her captivating water filtration system



Mr. Bao Kiew Wu (right) delivering a talk on his innovative ocean wave power system.

HONG KONG INTERNATIONAL STUDENT INNOVATION INVENTION CONTEST (HKISIIC) 2025

Malaysian Students shone at the HK Exhibition International Student Innovation Invention Contest held from 13th to 16th March, 2025. Representing Malaysia under the banner of MINDS, a delegation led by Major Munusamy participated in this prestigious event, making a strong impression on the international stage.

The delegation, consisting of 11 students, 5 teachers/mentors, and several supportive parents, received a warm welcome from the Organizing Committee upon arrival at Hong Kong International Airport. Ms. Grace, a dedicated guide, was assigned to assist the team throughout their stay, ensuring a smooth and enriching experience.

The programme kicked off with an educational visit to the Hong Kong Productivity Council, where students were given an insightful tour of the facility, allowing them to gain first-hand exposure to innovative technologies and industrial advancements. A key highlight of the visit was a media interview with Major Munusamy, conducted by journalist Ms. Conne Leung. The interview covered various aspects of MINDS, including its role as an NGO, the dedication of its President, Tan Sri Augustine Ong, as well as MINDS' key activities such as ITEX and its bulletins. Special emphasis was placed on the representation of Malaysian students in such global platforms.

Following this, the delegation visited Yan Chai Hospital Lan Chi Pat Memorial Secondary School, where they were warmly received by Principal Mr. Lau Sai Chong. Students engaged in interactive activities such as designing and colouring their own keychains, building floating boats, and exploring the school's state-of-the-art resource center. This visit provided an opportunity for cultural exchange and hands-on learning.

On 15th March, the much-anticipated Exhibition and Competition took place. The event was well-organized, with smooth judging procedures and high participation from various international teams. The competition served as a platform for students to showcase their innovative projects, exchange ideas, and gain valuable exposure.

The event concluded with an award ceremony, where Major Munusamy had the honor of presenting awards to the winners. He also handed over five medals, a MINDS commemorative book, and five MINDS newsletters to the Organizing Committee, further strengthening ties between MINDS and the international innovation community. As a token of appreciation, the HK Exhibition Committee presented a special souvenir to MINDS. With this successful participation, MINDS continues to provide young Malaysian inventors with a global platform to present their ideas, fostering creativity and innovation on an international scale.

Details of the Malaysian innovations and participants are as follows

SJKC Chukai Kemaman

Tuang Ren An, Mok Wai Lok, Soh Yen Rui

FEAR -INDUCING FLEXBAND

Protecting Young Plants the Smart Way: Introducing the Fear-inducing Flexband

Gardeners and plant enthusiasts are all too familiar with the damage snails can inflict on young plants - chewed leaves, unsightly holes, and the unmistakable trail of slime they leave behind. Addressing this common yet persistent problem, an innovative solution has emerged: the *Fear-inducing Flexband*.

This clever invention uses a simple yet scientifically backed concept. The Flexband is a strip of fabric tape coated with salt residue, which is applied around plant containers. Research has shown that salt acts as a natural deterrent to snails, making it an effective and environmentally safe alternative to traditional metal or chemical-based barriers. What sets the Flexband apart is its focus on sustainability. By

reducing the need for chemical pesticides, this solution supports healthier gardening practices and aligns with the growing movement towards eco-friendly horticulture. Whether you're nurturing seedlings in a home garden or managing a small-scale nursery, the *Fear-inducing Flexband* offers a practical, cost-effective, and green approach to protecting your plants.

The innovation won the following awards:

- Gold medal
- Vietnam Special Award
- International Innovation Cup (Hong Kong)



The Malaysian and Vietnamese delegations during their visit to the Yun Chai High School pictured with the principal on the right.



HLPC, Hong Kong visit: Malaysian delegation with Major Munusamy



Getting ready to start the competition at Hong Kong Chua Hai College. Group photo with students and teacher



Gold medal-winning students on stage



Students on stage receiving the Vietnam Special Award



Winners of the International Innovation Cup (Hong Kong) with their teacher, Head of Delegation Major Munusamy, and the presenter.

SJKC YUK CHAI

Ong Jirng Ying, Jesslyn Tan Yee Jing, Ling Qian Ru

MEDIMATE

Revolutionizing Medication Management with IoT and AI

In an era where technology continues to reshape the healthcare landscape, *MediMate* stands out as a pioneering solution that redefines medication adherence through the integration of Internet of Things (IoT) and Artificial Intelligence (AI). Developed with a focus on reliability, accessibility, and innovation, MediMate offers a comprehensive system designed to ensure patients take the right medication at the right time.

At its core, MediMate features a smart tracking system equipped with IoT sensors that monitor medication schedules, including time, dosage, and frequency. This ensures that users follow prescribed treatments with precision. The system's AI component developed using Teachable Machine by Google performs real-time verification to confirm that the correct individual is taking the appropriate medication.

A BBC micro:bit microcontroller serves as the system's command centre, processing sensor data and activating alerts when medication is due. Users are notified via a smart wristband that vibrates or beeps as a reminder. Once the user presses a button to confirm their readiness, an AI-powered camera verifies the user's identity and medication intake. Upon successful verification, a Telegram-based IoT notification is instantly sent to caregivers, ensuring seamless real-time monitoring.

MediMate also features an IoT dashboard for remote oversight, allowing caregivers and medical personnel to track adherence patterns and intervene promptly if a dose is missed. The system is further equipped to analyze historical data, enabling healthcare providers to optimize treatment plans based on user behavior. In critical situations, MediMate sends emergency alerts to designated contacts if essential doses are missed or an overdose is detected. Designed to be user-friendly across age groups particularly for the elderly and individuals with chronic conditions, it offers a straightforward interface for ease of use.

By aligning with **UN Sustainable Development Goal (SDG) 3** (Good Health and Well-being) and **SDG 9** (Industry, Innovation, and Infrastructure), MediMate promotes better health outcomes through smart healthcare solutions. Its energy-efficient design ensures continuous connectivity while minimizing power consumption. With its AI-enhanced verification, real-time alerts, and robust monitoring capabilities, *MediMate* represents a significant step forward in the future of healthcare - delivering safety, assurance, and peace of mind for users and caregivers alike.

The innovation clinched the following awards:
 Senior Primary Category Silver Award
 Macau Leading Innovation Award
 Yan Chai Hospital HKISIIC Special Award



SJKC Yuk Chai students Tan Yee Jing, Ling Qian Ru, Ong Jirng Ying guided by mentor Mr. Ong Wee Seng (right) and accompanied by Vice Headmistress Madam Cheng Yi Wen (left).



Team SJKC YUK CHAI with Major Munusamy Head of Delegation for the Malaysian Team from MINDS

SJKT Rawang

Sanjaanaa Jegathesvaran, Laxshan A/L Shanmuganathan

2-IN-1 FOLLIAR FERTILIZER & BUG REPELLANT

A Natural Revolution in Gardening: 2-in-1 Foliar Fertilizer & Bug Repellent

Maintaining a thriving garden often comes with a familiar challenge: safeguarding plants from pests without compromising environmental or personal health. Traditional chemical pesticides may offer temporary relief, but they carry significant long-term risks. Addressing this concern, the **2-in-1 Foliar Fertilizer & Bug Repellent** introduces an innovative, eco-friendly solution that promotes plant vitality while naturally repelling pests.

This groundbreaking product combines the natural pest-repelling properties of **basil leaves** with the nutrient-rich benefits of a foliar fertilizer. Basil emits a strong, distinctive aroma that effectively deters common garden pests, offering a chemical-free approach to protection.

The foliar fertilizer component is crafted from a blend of everyday organic waste materials:

- **Onion peels:** Supply potassium, magnesium, copper, and calcium - key elements for plant development.
- **Used tea leaves:** Provide essential nitrogen, phosphorus, and potassium, supporting robust foliage.
- **Eggshells:** Deliver calcium to fortify cell walls and enhance overall plant structure.

Preparation is both simple and sustainable. Gardeners can collect the above ingredients, sun-dry them thoroughly to remove moisture, and grind them into a fine powder. When mixed with water, this powder transforms into a sprayable solution that nourishes plants and keeps pests at bay naturally.

This dual-action formula not only accelerates plant growth and health but also eliminates the need for synthetic pesticides, making it especially suitable for organic gardening enthusiasts, environmentally conscious households, and educational gardening initiatives.

In essence, the **2-in-1 Foliar Fertilizer & Bug Repellent** offers a safe, cost-effective, and sustainable solution to two of gardening's greatest challenges: plant nutrition and pest control. Say goodbye to chemicals and hello to greener, healthier gardens naturally.

The innovation received the Gold Medal and Hong Kong Special Award



At the competition booth, Sanjaanaa Jegathesvaran and Laxshan A/L Shanmuganathan presented their innovative project under the guidance of Mr. Shan Romanazan, the founder of Young Scientists



Sanjaanaa Jegathesvaran and Laxshan A/L Shanmuganathan proudly displaying the Hong Kong Special Award certificate and plaque at the Yan Chai Hospital Hong Kong International Youth Science and Technology Innovation Expo 2025

SJKT Rawang

Divina A/P Perabakaran, Pavisha Prata A/P Kumar, Tivesha A/P Gunalan

Seed Bomb

Seed Bomb: A Smart Solution for Smarter Farming

Choosing the right crop for a specific soil type is one of the most crucial decisions in agriculture. However, mismatches between crop selection and soil suitability often result in failed harvests, wasted resources, and farmer frustration. For instance, a farmer may enthusiastically plant chili peppers, only to discover that the soil is incompatible with their growth whereas tomatoes might have thrived. Such trial-and-error methods not only drain time and energy but can also discourage long-term cultivation efforts.

Introducing the **Seed Bomb**, an innovative agricultural tool designed to take the guesswork out of planting. This simple yet powerful invention consists of a compact mixture of **soil, clay, and essential nutrients**, wrapped around a variety of seeds. It functions like a self-contained ecosystem, ready to be activated upon contact with the earth.

How it works is both clever and sustainable: The Seed Bomb is tossed onto the ground, where it breaks open on impact. The surrounding materials nurture the seed within, facilitating optimal growth conditions. Uniquely, each Seed Bomb contains **multiple types of seeds**, and only those compatible with the local soil will successfully germinate. This ensures that only the most suitable plants take root, eliminating the need for costly and time-consuming soil testing or repeated crop failures. Beyond its practical application, the Seed Bomb promotes **biodiversity**, simplifies the planting process, and empowers farmers, particularly those in rural or resource-constrained areas to experiment with confidence.

It also supports sustainable agriculture by reducing dependency on synthetic inputs and encouraging natural selection based on soil compatibility.

In conclusion, the **Seed Bomb** represents a transformative approach to modern farming. By aligning nature's processes with innovative thinking, it offers a low-cost, high-impact solution that could reshape the way crops are introduced and cultivated, contributing to a more resilient and productive agricultural landscape.

The innovation won the following awards:

Silver Medal

Macao Special Award

Most Active Teacher Participation Award



Divina A/P Perabakaran, Pavisha Prata A/P Kumar, and Tivesha A/P Gunalan confidently showcasing their innovative project at the competition booth during the Hong Kong Science Innovation Competition 2025, under the dedicated guidance of Young Scientists founder Mr. Shan and Teacher Lila.



Young Scientists Teacher Lila of team SJKT Rawang proudly honoured with the Most Active Teacher Participation Award at the Hong Kong Science Innovation Competition 2025.

Enriching Experiences Across Borders: A Glimpse into Our Hong Kong Science Innovation Journey

Our students had an unforgettable experience participating in the **Hong Kong Science Innovation Competition**, where they engaged with international peers and showcased their innovative projects. The competition was more than just a platform for science - it was a celebration of creativity, cultural exchange, and hands-on learning.

Students had the opportunity to visit several local schools in Hong Kong, each offering unique and exciting insights. From advanced **STEM labs** to **3D printing facilities**, the visits exposed our students to cutting-edge educational environments and inspired them with new learning approaches.

At the **Hong Kong Productivity Council**, students toured high-tech laboratories and gained valuable exposure to real-world applications of scientific research and development. These visits deepened their understanding of how Hong Kong nurtures young innovators. Beyond academic experience the trip was filled with meaningful interactions and joyful moments. Our students made new friends from different

countries, exchanged ideas, and experienced the vibrant culture of Hong Kong. The warm hospitality, engaging activities, and well-organized events made the entire journey both educational and enjoyable.

SMK Seksyen 3 Bandar Kinrara Shines at the 44th Beijing Youth Science Competition

A team of three young inventors from SMK Seksyen 3 Bandar Kinrara recently made Malaysia proud by clinching the Second Prize at the Youth Science and Technology Innovation Achievements category at the prestigious 44th Beijing Youth Science Competition (BYSCC) 2025 in China.

The team, comprising Khor Wei Fung, Matthias Neo David, and Kaylee Chua Li Yen, was mentored by Ms. Jevetha A/P Letchumanan. Their invention, titled “The Accessibility Desk”, aims to enhance the learning experience for students with Attention Deficit Hyperactivity Disorder (ADHD) through a unique and inclusive design.

THE ACCESSIBILITY DESK

An Innovative Solution for a Common Challenge

The Accessibility Desk addresses one of the most pressing challenges faced by ADHD students – maintaining focus in the classroom. With features like a live-streaming camera, tablet integration, customisable QR code menus, and a calm-inducing black-and-white colour scheme, the desk supports both visual engagement and mental comfort. Additional features such as a sliding board for safe fidgeting and a collapsible frame for portability make the desk a highly practical solution for modern classrooms.

The invention impressed the BYSCC panel for its thoughtful, student-centered design and potential to create meaningful impact in education settings globally.

A Journey of Discovery and Global Connection

The team’s experience in Beijing was more than just a competition - it was a journey of cultural discovery, scientific exchange, and personal growth. Their visit began with an intercultural programme at the historic Temple of Heaven, where participants from across the globe shared traditions, stories, and aspirations. This exchange fostered an atmosphere of global friendship and respect for diversity. The team also toured the Forbidden City and the Beijing Arts Museum, where it learned about China’s rich cultural and technological heritage. One of the highlights was a trip to the Great Wall of China, which served as a fitting finale to the intense yet exhilarating days of presentations and judging. These visits provided valuable context on how ancient civilizations applied scientific thinking in architecture and daily life.

Celebrating Innovation on a Global Stage

Setting up their booth among international peers, the students presented their project and engaged in meaningful discussions with judges and fellow participants. The symposium segment, where one of the team members also presented on “AI in Science Education for All Students,” further enriched their exposure to cutting-edge scientific dialogues.

Though only one team could claim top honours, the students returned home with valuable insights, international friendships, and a renewed passion for science and innovation. The success of SMK Seksyen 3 Bandar Kinrara’s team at BYSCC 2025 is a proud moment for the school and Malaysia, showcasing the potential of youth-driven innovation and the importance of inclusive educational tools in a diverse learning environment.



A grand start to a meaningful journey: The Opening Ceremony marked the official launch of the event, uniting students and guests in a celebration of purpose, passion, and participation.



Proudly representing Malaysia: A Nation of Unity, Culture, and Innovation on the Global Stage.



Shining with pride: A glimpse of our silver medalists



A moment to remember – proudly representing Malaysia with fellow performers from Beijing at the 44th Beijing Youth Science Creation Competition.



Teachers and students of SMK SEKSYEN 3 BANDAR KINRARA visited Tan Sri Augustine Ong, President of MINDS at the MINDS office. From left: Teacher Nor Syukriah binti Khalid, Sweta a/p Balakrishnan, Khor Wei Fung, Tan Sri Augustine Ong, Teacher Jevetha a/p Letchumanan, Matthias Neo David, Kaylee Chua Li Yen, Wong Siong Yu

LADYMINDS

6TH NATIONAL CONFERENCE ON CONTRIBUTIONS TO NATIONAL DEVELOPMENT BY MALAYSIAN WOMEN SCIENTISTS AND INVENTORS WEBINAR 2025

Celebrating Excellence

The 6th National Conference on Contributions to National Development by Malaysian Women Scientists and Inventors Webinar 2025 was successfully held on 8th March 2025, in celebration of International Women's Day. Sponsored by Silverlake Axis Sdn Bhd and supported by Technological Association Malaysia and MOSTI, the conference provided a distinguished platform for knowledge exchange and intellectual engagement among a diverse audience of academics, scientists, technologists, engineers, professionals, and students from upper secondary to postgraduate levels.

Empowering Women in Science and Innovation

The primary objective of the conference was to highlight the exceptional contributions of Malaysian women in science, technology, and innovation. By showcasing impactful research and breakthrough innovations, the webinar aimed to foster inspiration, collaboration, and capacity-building among current and future leaders in STEM.

The event commenced with an opening speech by Datuk Dr. Choo Yuen May, who addressed participants on behalf of Academician Tan Sri Emeritus Prof. Dr. Augustine S.H. Ong, President of MINDS, who was unable to attend due to health reasons.

Distinguished Speakers and Award Honorees

The Conference featured a distinguished lineup of speakers from various scientific domains:

- Datin Paduka Prof. Dr. Teo OBE, Founder and Leader of Cancer Research Malaysia, delivered the keynote address titled *"Breast Cancer in Asians: From Research to Saving Lives."* In recognition of her groundbreaking contributions, she was presented with the MINDS Lifetime Scientific Research Achievement Award 2025. Her citation was delivered by Dr. Ravigadevi, MINDS EXCO Member.
- Prof. Dr. Joy Jacqueline Pereira, FASc, Principal Research Fellow at SEADPRI-UKM and Co-Chair of the IPCC Working Group III, spoke on *"Advancing Inclusivity, Integration, and Actionable Scientific Findings to Combat Climate Change."*
- Assoc. Prof. Dr. Sarva Mangala Praveena of Universiti Putra Malaysia presented her research journey in *"Tackling Microplastics Pollution: A Journey Through Research, Academia, and Public Outreach."*
- Ir. Ts. Dr. Serene Lock Sow Mun, Senior Lecturer at Universiti Teknologi PETRONAS and recipient of the MINDS Young Woman Scientist Award 2025, presented on *"Multiscale Simulation for Advancing."* Her award citation was delivered by Prof. Lee, MINDS EXCO Member.
- Dr. Fatimah Rubaizah Mohd Rasdi, Director at the Technology and Engineering Division of the Malaysian Rubber Board (MRB), shared insights on *"The Role of Emerging Technologies in Shaping a Sustainable Malaysian Rubber Industry."*
- Madam Teng Yu-Mein, Founder and CEO of Efinity Social Enterprise, presented *"Clean Water Comes Easy."*

The Conference was chaired by Datuk Dr. Choo Yuen May, Organizing Chair and Vice President of MINDS, with Prof. Leong, Honorary Secretary of MINDS, serving alongside her.

The webinar attracted strong participation, with 90 of the 105 registered attendees joining the session. The average attendance duration was 83.2 minutes, reflecting the high level of engagement. The Q&A segment further demonstrated active interaction, with attendees posing thoughtful and relevant questions to the speakers.

The 2025 edition of the conference reaffirmed the crucial role of Malaysian women in national development through their contributions to science and innovation. The organizing committee extends heartfelt appreciation to all speakers, panelists, participants, sponsors, and supporters for their dedication and commitment.

Award Recipients

MINDS Lifetime Scientific Research Achievement Award 2025

Datin Paduka Prof. Dr. Teo OBE, Founder and Leader of Cancer Research Malaysia Breast cancer in Asians: from research to saving lives



Breast cancer is the most common cancer in women globally, and incidence and mortality are rising rapidly in the Asian population.

A true trailblazer, Datin Paduka Teo has dedicated her career to bridging critical gaps in cancer research, particularly for Asian populations. She founded the Malaysian Breast Cancer Genetic Study (MyBrCa) in 2003, revolutionizing national clinical guidelines and contributing to global studies involving 130,000 women. She didn't just identify a problem - she built solutions. Recognizing that existing genetic risk models were largely based on Western data, she developed the Asian Risk Calculator, or ARiCa for short to provide more accurate risk assessment for Asian women.

Her impact extends even further. In 2011, she launched the Malaysian Mammographic Density Study (MyMammo), demonstrating that breast cancer risk tools designed for European populations do not translate well for Asian women. Through global collaborations such as the Breast Cancer Association Consortium (BCAC) and the USA NIH-funded CONFLUENCE project, she has been

at the forefront in redefining the genetic understanding of breast cancer.

Datin Paduka Teo's work on ovarian cancer has been equally game-changing. Through the Malaysian Ovarian Cancer Genetic Study (MyOvCa), she uncovered the staggering reality that 1 in 9 ovarian cancer patients carries a BRCA mutation - leading to policy changes that significantly expanded access to genetic counselling and testing.

Beyond genetics research, she is at the forefront of cutting-edge cancer therapeutics. She established one of Asia's largest tumour banks and discovered that 60% of Asians inherit APOBEC3B germline alterations, a key driver of cancer mutations. Her findings have directly shaped clinical trials in **immunotherapy**, advancing personalized cancer treatments for Asian patients.

With over 23,000 citations and publications in top medical journals, including the *New England Journal of Medicine*, Datin Paduka Teo ranks among Malaysia's most highly cited medical scientists. Her outstanding contributions have earned her numerous accolades, including the Order of the British Empire or OBE from Queen Elizabeth II, and the Top Research Scientist of Malaysia Award.

When she's not shaping the next frontier of cancer research, Prof. Teo is busy mentoring the next generation of scientists, several of whom are already making waves. As **Chairman of the Medical and Health Sciences Discipline at the Academy of Sciences Malaysia**, she's influencing national healthcare policies and championing a future where scientific innovation translates into real-world impact

MINDS Young Woman Scientist Award 2025

Ir. Ts. Dr. Serene Lock Sow Mun, Senior Lecturer at Universiti Teknologi PETRONAS



Multiscale Simulation for Advancing Environmental Sustainability and Clean Energy Solutions

Ir. Ts. Dr. Serene Lock Sow Mun is currently working as a senior lecturer at Universiti Teknologi PETRONAS (UTP), Malaysia, with interest on developing computational inventions and digital solutions to resolve climate, sustainability and education issues that align with Industrial 4.0 demand. Her research work is related to the United Nation SDGs 13: Climate Action, 7: Affordable and Clean Energy, 6: Clean Water and Sanitation and 4: Quality Education using her interdisciplinary interests in process modelling and simulation, software programming and engineering. She has been actively involved in multiscale simulation for membrane, whereby it involves integration of designed materials from atomistic structures adapting molecular modelling and up to evaluation of their performances in process design using engineering approaches and simulation tools. Serene's research work is also related to process and material design with enhanced separation performance in order to remove contaminants for environmental sustainability and safety. During her 5 year - career, she has successfully secured 11 international/industry/national research grants with a cumulative worth of >USD 3 million as principal investigator, which are devoted to environmental preservation and sustainability for clean energy transition. She has also led and pioneered computational inventions, which have been commercialized and translated to successful implementation within the energy industries for sustainable practices. The success of bridging novel computational inventions for decarbonization has garnered international and national acclamations within the Asia, Europe, Middle-East, North America and North-Africa & Mediterranean regions, including recently being conferred as the winner of the Egypt Energy Show Nex Gen Female of the Year 2024 Award, Asian Downstream Summit Female Engineer of the Year 2024 and Carbon Capture Canada Emerging CCUS Leader 2023 Award that acknowledge women leadership in championing clean energy.



Group photo of attendees

ACADEMY OF TROPICAL AGRICULTURAL SCIENCES ASSOCIATION (ATAS)

PAKAR PERTANIAN EXPO 2025 / RECENT ADVANCEMENTS IN AGRICULTURE INDUSTRY (RAAI 2025)

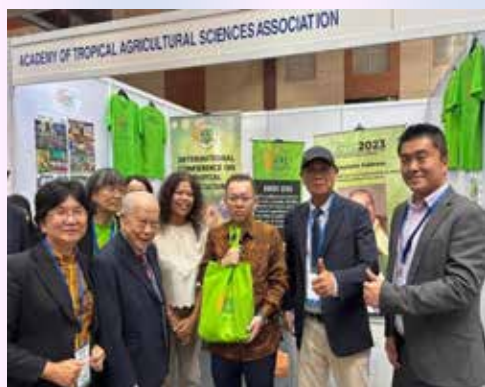
The Pakar Pertanian Expo 2025 / Recent Advancements in Agriculture Industry (RAAI 2025) was successfully held at MAEPS Serdang from 20-22 February 2025, bringing together industry leaders, researchers, academics, and students to discuss advancements in agriculture. The event attracted **171** delegates over the three-day programme, reflecting strong engagement and interest in addressing Malaysia's agricultural challenges.

The programme was attended by executive committee members of the Academy of Tropical Agricultural Sciences Association (ATAS) - Academician Tan Sri Emeritus Prof. Datuk Dr. Augustine S. H. Ong, President of ATAS; Academician Tan Sri Emeritus Prof. Dato' Dr. Syed Jalaludin bin Syed Salim, ATAS Patron; Academician Prof. Emeritus Datin Paduka Setia Dato' Dr. Aini Ideris, ATAS EXCO; and Dato' Ghazali Mohd Yusof, ATAS EXCO. Their presence underscored the importance of the discussions and initiatives presented at the event.

RAAI 2025 focused on six key modules, covering the **Cocoa, Rice, Poultry, Aquaculture, Future, and Coconut Industries**. These sessions provided valuable insights into industry trends, challenges, and innovations. In the Future Industries module, Mr. Chor Chee Hoe from Qarbotech highlighted the use of nanocarbon technology to enhance photosynthesis, resulting in increased rice yields. Meanwhile, in the Aquaculture Industry module, En. Fariz presented on the MASS system for tilapia production (100 metric tons of livestock supply monthly), showcasing advancements in sustainable aquaculture practices.

ATAS was allocated 10 booths, with participation from Nonosugar, Qarbotech, Life Origin, Malayan Flour Mills Berhad, Hai Seng Huat Marine Sdn Bhd, UPM, and ARC Berkat Agro Food Sdn Bhd. These exhibitors introduced cutting-edge agricultural technologies and sustainable farming solutions, enriching the expo experience.

In conclusion, RAAI 2025 successfully fostered discussions on agricultural innovation and sustainability. The strong participation and support from industry players, researchers, and students emphasized the importance of continuous collaboration to advance Malaysia's agricultural sector. ATAS remains committed to promoting research, innovation, and industry engagement to drive positive change in tropical agriculture.



ATAS Committee Members



Representatives from Nongyeh, and YB Datuk Chan Foong Hin posing together at the ATAS exhibition booth during the event

ATAS Fundraising Dinner

The ATAS Fundraising Dinner 2024 was held on 18 December 2024 at the Royal Lake Club, Kuala Lumpur, from 7:00 P.M. to 10:00 P.M. The event welcomed esteemed guests with pre-dinner cocktails, followed by a welcome address by the President of ATAS, Academician Tan Sri Emeritus Prof. Datuk Dr. Augustine S. H. Ong.

The evening featured a formal dinner, entertainment, and the presentation of appreciation certificates to Platinum, Gold, Silver, and Bronze donors. A special recognition was given to the Platinum Sponsor. The programme concluded with a thank-you speech by Madam Jessica Liew, Chairperson of the ATAS Foundation.

The event successfully brought together supporters and stakeholders of ATAS in a night of appreciation, networking, and celebration of shared goals in advancing tropical agricultural sciences



A memorable moment with all the esteemed guests who attended the ATAS Fundraising Dinner 2024, held in support of advancing tropical agricultural sciences. The evening was graced by the presence of the Guest of Honour, YM Academician Datuk Dr. Tengku Mohd Azzman Shariffadeen.



MEMOIRS OF AN ENGINEERING LEGEND – ACADEMICIAN DATUK IR. HONG LEE PEE

-Written by daughter Ms. Hong Cin Yee

Not long after my Dad, Datuk Ir Hong Lee Pee, passed away at the end of December 2024, I received an invite to write a little something about him and his achievements for the MINDS newsletter. Coincidentally I had just completed a short biography on Dad as well for an eBook that Dad's Universiti Malaya (UM) Class of 73 university mates had initiated. There was just so much that Dad had achieved during his heydays as an engineer and entrepreneur. I think it would be impossible to try and pen it all down here, but will definitely try my very best to have the important milestones recorded.

Humble Beginnings

Dad came from a small town in Malaysia called Port Dickson. Born into a poor family of 7 siblings, Dad was the second youngest. Because of his humble beginnings and after witnessing utter disrespect

for his brothers when they were working as small-time contractors at construction sites back in those days, Dad had decided at an early age on embarking upon an ambition to become a successful Engineer. And against all financial odds, step by step, Dad graduated as a Civil Engineer from UM in 1973.

His Education Journey

Even though Dad had a very logical mind and was outstanding in Science subjects especially Physics, he was extremely creative as well. During his high school days, he wrote an essay about how he had observed in the animal kingdom, that Roosters were better looking than Hens and Lions were more handsome than Lionesses, therefore his conclusion was in our human world – Males are prettier than Females! This was so very typical of Dad, always different in his thought process and perspective on things. He also participated in Science and Mathematics competitions back in his upper secondary school days and Dad won quite a few group as well as individual categories of these competitions.



1965 – Dad's best friend, Mum and Dad won a Science & Mathematics Group Competition

Dad then went on to study in Kuala Lumpur's Technical College before taking up a Civil Engineering degree in UM. During his final university year of studies, Dad's thesis was about deep foundation. Mum shared with me that he chose to specialize in piling and foundation because he wanted to become Malaysia's pioneer soil expert. This was his dream, which he successfully achieved during his career later on in life.

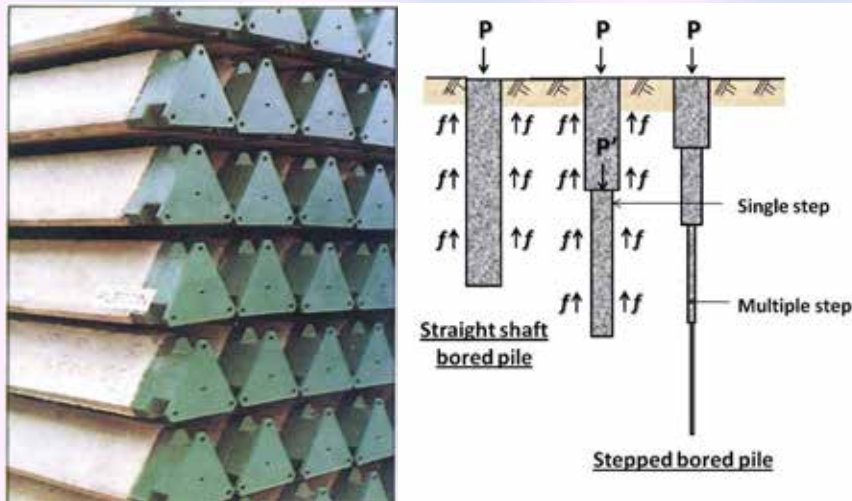
The Career

After Dad graduated from UM, he served in the Public Works Department (JKR) Seremban for 2 years as an Engineer. He then joined S.E.A Drillers Malaysia, a piling company as Project Engineer, Project Manager and then became its General Manager within a short period of time.

In the year of 1980, Dad founded Pilecon Engineering. His vision was to build a contractor's company that would become the ultimate dream company for all Engineering graduates to want to apply for a job at and to work in. He used to tell me back in those days, not many engineering fresh graduates would want to join a contractor's firm and their first preference would always be to join consultancy companies. Dad had a vision to turn this around, to build a professionally run contractor's company. And he did. Within a span of just 4 years, Dad led his team of pioneer partners, engineers and team to win many engineering job contracts and Pilecon Engineering was successfully listed onto Malaysia's Stock Exchange (Main Board) in 1984.

Using his engineering knowledge coupled with his strong sense of creativity, he had invented several new piling methods and systems during his career, alongside with his fellow partners in Pilecon

Engineering; for eg Tripile, Stepped Bored Pile, IFP Penetrometer and so on. Dad was extremely innovative in his ways of foundation and retaining wall construction methods, applying his designs during Pilecon's construction projects of HSBC Kuala Lumpur, Lot 10 and Hotel Istana just to name a few, all of which led to massive time and cost savings.



Tripile and Stepped Bored Pile

His list of awards and recognition were also many, including:

Institution of Engineers Malaysia (IEM) Award Contribution to Engineering Profession in Malaysia – 1990

Fellow of Academy of Sciences Malaysia (ASM), which carries the title Academician – 1996

Honorary Fellow of ASEAN Federation of Engineering Organizations (AFEO) - 2006

Senior Fellow of ASM - 2014

Besides his professional work and contributions, Dad mentored quite a few young adults as well. I always used to wonder why he would take so many young graduates under his wings and mentor them, despite his super busy schedule. He shared with me another vision of his, which was to help and guide the aspiring young ones to achieve better in life and to become successful entrepreneurs in their own rights.

In Retirement

In 1998, Dad sold off all his shares in Pilecon Engineering Bhd and officially retired at the young age of 52. He had this life plan, where he would divide his years into three main sections – first 25 years of his life would be to study, next 25 years would be to work and he wanted to spend the rest of his remaining years giving back to society.

Right around retirement time, he was appointed as a visiting professor at Nanjing University of Science and Technology China in 1997. I remember him and mum travelling once a year to Nanjing, where Dad would speak to engineering students there not only about technical aspects, but more to inspire the students to think out of the box and to share with them the many possibilities that lie ahead.

And a few years later, not long into his retirement, Dad was appointed Chairman of PERKESO, also known as SOCSO. He served from 2001 to 2008. I asked Mum if she knew why Dad had agreed to take up this appointment. I thought he had wanted to retire, and everyone knew to head an organization like PERKESO is no easy task. Mum and I finally thought maybe this was Dad's way of giving back to our country.

From 2009 to 2016, Dad became the President of the ASEAN Academy of Engineering and Technology (AAET). He was deeply committed to education, particularly in the fields of Science, Technology, Engineering, and Mathematics (STEM). In 2013, as AAET President, he spearheaded the creation of the Kuala Lumpur Engineering Science Fair (KLESF) in collaboration with some educational institutions. The inaugural KLESF was held in 2014, aiming to inspire primary and secondary school students

to explore the significance of STEM. And this went on to become an annual affair. In between his busy retirement activities, in 2012 Dad fulfilled another dream. He wrote and published his very first book – Engineer’s Way to Success.



2012 – Book Launch with VIPs and some of Dad’s good friends

Dad held key leadership roles in The Associated Chinese Chambers of Commerce & Industry of Malaysia (ACCCIM). As part of his commitment to giving back to the Chinese business society, he traveled nationwide to Chinese high schools during his tenure as STI Committee Chairman in ACCCIM, delivering talks to inspire interest in STEM among students.

Dad also served as a Council Member and a Member of the Planning and Development Committee (PDC) at Universiti Tunku Abdul Rahman (UTAR) from 2017 to 2024 where he actively engaged with industries and educational institutions across Malaysia, ASEAN countries, China, India and Australia, fostering greater awareness and participation in STEM education initiatives. In addition, as a member of the Planning and Development Committee (PDC), Dad contributed to UTAR’s physical and infrastructural development, particularly the UTAR Hospital project.

As we can see from the above, Dad led an extremely busy retirement life indeed! Fulfilling his goals and aspirations of serving society in areas that he had always been very passionate about.

As we remember him...

Dad was a man with great vision and legendary in his ways. People who have had the chance to cross paths with him would definitely agree that he had touched the lives of many and had helped even more. Although he is no longer physically with us now; I believe his spirit, teachings and presence shall always remain.

I would like to thank my Dad’s former Personal Assistant Dr Fok Kuk Fai for co-writing parts of Dad’s retirement activities and my Mum for filling me in on certain details and information especially on when certain events had taken place in Dad’s life. And I am grateful to Tan Sri Augustine Ong for presenting me this opportunity to write about my Dad and for us to remember him this way. My Dad, Datuk Ir Hong Lee Pee shall forever be in our hearts, in loving memory of his selfless contributions to our family, society and country.

UPCOMING EVENTS

ITEX 2025: The Power of STEAM and AI Unleashed

The International Invention, Innovation & Technology Exhibition (ITEX) 2025 is set to make a grand return, uniting global minds under the theme "The Power of STEAM and AI Unleashed." This year's theme highlights the dynamic synergy between Science, Technology, Engineering, Arts, and Mathematics (STEAM) and the groundbreaking impact of Artificial Intelligence (AI) in shaping future innovations.

Organized by the Malaysian Invention and Design Society (MINDS), ITEX 2025 will welcome over 800 participants from across the globe. Among the participating countries are Malaysia, Indonesia, Qatar, Saudi Arabia, Taiwan, Thailand, Oman, Kuwait, Hong Kong, and Iran - each contributing to a vibrant exchange of ideas, culture, and cutting-edge advancements.

This annual event not only serves as a platform to showcase remarkable inventions and pioneering research, but also fosters cross-border collaboration in advancing solutions to global challenges through innovation. ITEX continues to celebrate creativity, encourage interdisciplinary partnerships, and inspire future generations of innovators.

We look forward to an exciting showcase of global ingenuity at ITEX 2025, where the power of STEAM and AI will be fully unleashed.

ITEX'25
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29 & 30
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31 MAY 2025
Awards Presentation Ceremony

KLCC
KL Convention Centre, Malaysia

Concurrent Exhibition:

WYIE WORLD YOUNG INVENTORS EXHIBITION

AYIE ADULT YOUNG INVENTORS EXHIBITION

MYIE MALAYSIAN YOUNG INVENTORS EXHIBITION

Digital Platform: **ITEX ONLINE**

An Official Event of: **ACIA** ASSOCIATION OF CREATIVITY & INNOVATION

Jointly Organised by: **MINDS** MALAYSIAN INVENTION AND DESIGN SOCIETY (MINDS)

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MINDFUL PUZZLES

1. Jack is looking at Anne. Anne is looking at George. Jack is married, George is not, and we don't know if Anne is married. Is a married person looking at an unmarried person?
2. A man has 53 socks in his drawer: 21 identical blue, 15 identical black and 17 identical red. The lights are out, and he is completely in the dark. How many socks must he take out to make 100 percent certain he has at least one pair of black socks?

3. The day before two days after the day before tomorrow is Saturday. What day is it today?
4. Five people were eating apples. A finished before B, but behind C. D finished before E, but behind B. What was the finishing order?

Answers

1. **Yes.** If Anne is married, then she is married and looking at George, who is unmarried. If Anne is unmarried, then Jack, who is married, is looking at her. Either way, the statement is correct.
2. **40 socks.** If he takes out 38 socks (adding the two biggest amounts, 21 and 17), although it is very unlikely, it is possible they could all be blue and red. To make 100 percent certain that he also has a pair of black socks he must take out a further two socks.
3. **Friday.** The "day before tomorrow" is today; "the day before two days after" is really one day after. So if "one day after today is Saturday," then it must be Friday.
4. **CABDE.** Putting the first three in order, A finished in front of B but behind C, so CAB. Then, we know D finished before B, so CABD. We know E finished after D, so CABDE.





ITEX'25

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