KEMENTERIAN PENDIDIKAN TINGGI

# Festival IDEA @Pulau Pinang

**MADANI:SPARK IDEAS, SHAPE FUTURES**

24th & 25th OCTOBER 2025

**PWCC**
PENANG WATERFRONT
WATERFRONT CENTRE

# PROGRAMME BOOK

foipng.usm.my

Organized by:

MINISTRY OF HIGHER EDUCATIO

Coordinated by:

UNIVERSITI SAINS MALAYSIA

APEX®

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# FOREWORD

**Assalamualaikum warahmatullahi wabarakatuh,**
**Warm greetings and Salam Malaysia MADANI.**

Alhamdulillah, all praise and gratitude be to Allah SWT. With His grace and permission, Universiti Sains Malaysia (USM) has been entrusted by the Ministry of Higher Education (MoHE) to lead the organisation of the Festival of Ideas (FOI) at the state level, known as FOI@Penang 2025, as the main coordinator. This responsibility is deeply meaningful as it reflects the recognition of USM's capability and commitment in strengthening the ecosystem of knowledge, innovation, and creativity at both state and national levels.

As Vice-Chancellor, I am truly proud of the significant role entrusted to USM in realising this initiative. FOI@Penang 2025 is not merely a festival of ideas, but a manifestation of the University's spirit in transforming knowledge into action and innovation into global well-being. It embodies USM's aspiration as a University with a heart, one that continues to uphold the agenda of impactful, sustainable, and inclusive higher education.

With the theme "MADANI: Spark Ideas, Shape Futures," this festival serves as a strategic platform that brings together thinkers, researchers, students, government agencies, industries, and communities. Through a variety of programmes including SDG innovation competitions INNOZILLA, interactive STEAM activities, health screenings, arts and cultural showcases, together with industry collaborations, the festival stands as an inclusive arena uniting ideas, knowledge, and inspiration for the common good. It creates opportunities to integrate science, technology, humanities, and the arts in shaping a progressive, resilient, and human-centred future.

The organisation of this festival also reflects the spirit of collaboration and synergy among various institutions and agencies. I would like to convey my highest appreciation to the Penang State Government, UiTM Penang Branch, Politeknik Balik Pulau, the State Education Departments of Penang and Perak, as well as to our industry

partners, local communities, USM staff, and volunteers who have worked hand in hand to make this event a success.

It is my hope that FOI@Penang will serve as a catalyst for the emergence of a knowledgeable, critical-thinking, and innovative society, one that continues to contribute to the nation's advancement and the well-being of the global community.

Thank you.

**Professor Dato' Seri Ir. Dr. Abdul Rahman Mohamed, FASc.**
Vice-Chancellor
Universiti Sains Malaysia

# FOREWORD

**Assalamualaikum warahmatullahi wabarakatuh,**
**Greetings and Salam Malaysia MADANI.**

Praises be to Allah the Almighty, for with His grace and blessings, Universiti Sains Malaysia (USM) has been entrusted by the Ministry of Higher Education (MoHE) to serve as the Lead Coordinator for the Festival of Ideas (FOI) at the Penang state level for the year 2025. This appointment is indeed a great honour for USM, particularly in reinforcing the university's role as a hub of knowledge and innovation that remains grounded in values, sustainability, and global well-being.

As the Deputy Vice-Chancellor for Research and Innovation, I view the organisation of FOI@Penang as an important platform for cultivating critical thinking, exploring new knowledge, and fostering the exchange of ideas. This programme not only serves to nurture interest in science, technology, and innovation but also to strengthen the role of the university as a catalyst for knowledge-based societal advancement.

The festival also provides opportunities for researchers, innovators, students, and the community to work together in developing relevant solutions to current and future challenges. This approach is in line with the theme of FOI@Penang, "MADANI: Spark Ideas, Shape Futures," which emphasises the aspiration to build a sustainable innovation ecosystem that benefits all layers of society. FOI@Penang is an initiative that focuses on research, innovation, and STEAM (Science, Technology, Engineering, Arts, and Mathematics) activities, intellectual forums, and community engagement in support of the nation's higher education agenda.

FOI is not merely an intellectual festival but a manifestation of our openness and readiness to listen, discuss, and innovate collectively. It reflects the spirit of Malaysia MADANI—where knowledge and creativity form the foundation in building a progressive and inclusive nation.

I would like to express my deepest appreciation and congratulations to all involved, especially the dedicated USM community for their commitment to ensuring the success of FOI@Penang. My highest appreciation also goes to the Penang State Government, UiTM Penang Branch, Politeknik Balik Pulau, and the Penang State Education Department for their invaluable collaboration in making FOI@Penang a success. May this programme leave a lasting impact and serve as a catalyst for a more sustainable and transformative research and innovation ecosystem.

Thank you.

**Prof. Dr. Habibah A. Wahab**
Deputy Vice-Chancellor (Research and Innovation)
Universiti Sains Malaysia

# FOREWORD

**Warm greetings and Salam Malaysia MADANI.**

With utmost gratitude, I extend my sincere appreciation to the Ministry of Higher Education (MOHE) for entrusting Universiti Sains Malaysia (USM) with the responsibility as the lead coordinator of the Festival of Ideas@Penang (FOI@Penang) 2025. This appointment is not merely an institutional mandate but a meaningful opportunity to ignite innovation and strengthen the culture of knowledge within our community.

As Co-Chairperson, I wish to express heartfelt thanks to the USM top management, my fellow Co-Chair, the working committee members, and all volunteers for their dedication, perseverance, and unwavering spirit of teamwork in ensuring the success of this festival. Their collective effort has been the driving force that turned this vision into reality.

FOI@Penang is more than just a gathering of ideas, it is a movement of knowledge and inspiration that connects researchers, students, government agencies, industries, and the wider community across generations. With over 150 entries in the INNOZILLA SDG Innovation Competition, 30 interactive STEAM activities, health and knowledge zones, and a collaboration zone featuring more than 30 companies, this festival stands as an inclusive platform where ideas come alive and create real impact.

Guided by the theme “MADANI: Spark Ideas, Shape Futures,” the festival serves as a catalyst for collective engagement towards building a sustainable, innovative, and competitive future grounded in human values and societal well-being.

I would also like to record my deepest appreciation to all strategic partners, government agencies, industries, local communities, as well as the USM family and participating institutions for their strong commitment and steadfast support in making FOI@Penang 2025 a success.

May this festival not only be an event, but an inspiration, a spark that encourages us all to continue innovating, exploring knowledge, and creating meaningful value for the benefit of society and the nation.

Thank you.

**Professor Ir. Dr. Srimala Sreekantan**
Co-Chairperson, Festival of Ideas Penang 2025
Director, Centre for Innovation and Consultancy
Universiti Sains Malaysia


# Welcome To Festival of Ideas (FOI) Pulau Pinang 2025

The Festival of Ideas (FOI) Pulau Pinang is all about making Penang a hub for fresh ideas, strategic thinking and global innovation. This exciting festival will bring together thinkers, policymakers, industry leaders, and the public from across the Northern region to brainstorm and shape solutions for the challenges of tomorrow, whether for Penang, Malaysia, or the world.

FOI Pulau Pinang 2025 will feature the involvement of ministries, agencies, and industries working hand-in-hand under a "whole of government" approach. The aim is simple: to spark meaningful discussions, showcase innovation, and share ideas that can make a real difference to people's lives.

The focus of FOI 2025 is on synergy and collaboration, showing how working togetheracross sectors and borders can drive continuous progress, development, and prosperity for all.

# PROGRAMME OBJECTIVES

To establish Penang as a Regional City of Ideas.

To elevate the culture of knowledge as the core foundation for national progress.

To mainstream innovation across all sectors.

To empower the intellectual leadership of young people.

To shape a future-forward ecosystem of thought.

# PROGRAMME SCHEDULE

| Time | Hall 4 | Hall 5 | Foyer Hall 5 |
|---|---|---|---|
| **24 OCTOBER 2025** FRIDAY | | | |
| 0800 - 0900 | **Registration** | | |
| 0830 - 0900 | **Judges Briefing** | | **INTERACTIVE SESSION**<br><br>**STEM ZONE (S001-S008)**<br>1. Recreational Math, School of Mathematical Sciences, USM<br>2. Snap Circuit & Drone Program, CEDEC USM<br>3. Plastic Circularity Kiosk, School of Materials & Mineral Resources Engineering, USM<br>4. Microscale Chemistry (MyChem Kit), School of Chemical Sciences, USM<br>5. Discover Drone Technology and Flight Innovation, School of Aerospace Engineering, USM<br>6. Virtual Reality, PTPM USM<br>7. Math Is Fun, Polytechnic Balik Pulau<br>8. Math Interactive – SMK Seri Permai<br><br>**HEALTH ZONE (H001-H012)**<br>1. Health Screening & Medication Awareness, IPPT USM<br>2. Health Check & Medical Awareness, School of Pharmaceutical Sciences, USM<br>3. Smart Prescription Medication Labels for the Elderly, Faculty of Pharmacy, UiTM<br>4. Mental Health Screening, UiTM<br>5. Fitness Assessment, UiTM<br>6. Exploring the Power of Radiation, IPPT USM<br>7. Let's Do Nutrition!, IPPT USM<br>8. Heads Up! A Journey through Your Senses and Smile, IPPT USM<br>9. Dental Anatomy, IPPT USM<br>10. Genetics and Heredity, IPPT USM<br>11. Toxicity Trails: Mapping Contaminant Sources in Our Community, IPPT USM<br>12. Human Blood And Anatomy, IPPT USM<br><br>**KNOWLEDGE ZONE (K001-K002)**<br>1. Hamzah Sendut Library<br>2. USM Press<br><br>**COMMUNITY & CULTURE ZONE (C001-C002)**<br>1. Zakat Pulau Pinang and KITAB (move to IE)<br>2. Science for Communities, BJIM USM<br>3. Culture, Cuisine, Celebration, IMCC USM<br><br>**COLLABORATION ZONE (B001-B010)**<br>1. TalentCorp Space<br>2. Innovator–Industry Connect 2025, BJIM USM<br>3. Archeo<br>4. INOR<br>5. PPK AWAM<br><br>**CHILDREN'S ZONE (2–6 years) & VISITOR INTERACTIVE ACTIVITIES**<br>1. Careers of the Future<br>2. FOI Passport Stamp Collection<br>3. Lucky Draw<br>4. Competitions and Quizzes<br>5. Face Painting |
| 0900 - 1230 | **Drawing Contest (at Kids Zone, Foyer Hall 4)** | **INNOZILLA 2025 INNOVATION & COMPETITION JUDGING** | |
| 1230 -1430 | **Friday Khutbah and Prayer by Dr. Haji Joohari Ariffin, Director of Al-Hady Centre** | | |
| 1445-1500 | • **OPENING CEREMONY**<br>• **Product Launching** | **INNOZILLA 2025 INNOVATION & COMPETITION JUDGING** | |
| 1500-1600 | **FORUM 1: From Idea to Impact: Accelerating Innovation Commercialisation for Sustainable Growth**<br><br>**Moderator:**<br>**Prof. Patricia Chung Wei Leng**<br>President, IIPCC Malaysia<br><br>**Panelist:**<br>• **YB. Datuk Ts. Dr. Mohd Nor Azman Hassan**<br>Deputy Secretary General (Management and Development), Ministry of Higher Education<br>• **Dato' Muhamad Khizri Abu Kasim**<br>Member of the Board of Governors, USM<br>• **Dato' Ong Bee Leng**<br>CEO, Penang Women's Development Corporation Sdn. Bhd.<br>• **Dato' Dr. Ooi Kee Beng**<br>Executive Director, Penang Institute | | |

# PROGRAMME SCHEDULE

| Time | Hall 4 | Hall 5 | Foyer Hall 5 |
|---|---|---|---|
| **25 OCTOBER 2025** SATURDAY | | | |
| 0800 - 0900 | **Registration** | | |
| 0900 - 1000 | **TALK: Incentives for Internship under ILHAM KESUMA by TalentCorp**<br><br>**Speaker:**<br>Ms. Siti Noratikah Kasmoi<br>Vice President, Head of Industrial Training Facilitation Unit, TalentCorp | **INNOZILLA 2025 INNOVATION** | **INTERACTIVE SESSION**<br><br>**STEM ZONE (S001-S008)**<br>1. Recreational Math, School of Mathematical Sciences, USM<br>2. Snap Circuit & Drone Program, CEDEC USM<br>3. Plastic Circularity Kiosk, School of Materials & Mineral Resources Engineering, USM<br>4. Microscale Chemistry (MyChem Kit), School of Chemical Sciences, USM<br>5. Discover Drone Technology and Flight Innovation, School of Aerospace Engineering, USM<br>6. Virtual Reality, PTPM USM<br>7. Math Is Fun, Polytechnic Balik Pulau<br>8. Math Interactive – SMK Seri Permai<br><br>**HEALTH ZONE (H001-H012)**<br>1. Health Screening & Medication Awareness, IPPT USM<br>2. Health Check & Medical Awareness, School of Pharmaceutical Sciences, USM<br>3. Smart Prescription Medication Labels for the Elderly, Faculty of Pharmacy, UiTM<br>4. Mental Health Screening, UiTM<br>5. Fitness Assessment, UiTM<br>6. Exploring the Power of Radiation, IPPT USM<br>7. Let's Do Nutrition!, IPPT USM<br>8. Heads Up! A Journey through Your Senses and Smile, IPPT USM<br>9. Dental Anatomy, IPPT USM<br>10. Genetics and Heredity, IPPT USM<br>11. Toxicity Trails: Mapping Contaminant Sources in Our Community, IPPT USM<br>12. Human Blood And Anatomy, IPPT USM<br><br>**KNOWLEDGE ZONE (K001-K002)**<br>1. Hamzah Sendut Library<br>2. USM Press<br><br>**COMMUNITY & CULTURE ZONE (C001-C002)**<br>1. Zakat Pulau Pinang and KITAB (move to IE)<br>2. Science for Communities, BJIM USM<br>3. Culture, Cuisine, Celebration, IMCC USM<br><br>**COLLABORATION ZONE (B001-B010)**<br>1. TalentCorp Space<br>2. Innovator–Industry Connect 2025, BJIM USM<br>3. Archeo<br>4. INOR<br>5. PPK AWAM<br><br>**CHILDREN'S ZONE (2–6 years) & VISITOR INTERACTIVE ACTIVITIES**<br>1. Careers of the Future<br>2. FOI Passport Stamp Collection<br>3. Lucky Draw<br>4. Competitions and Quizzes<br>5. Face Painting |
| 1000 - 1100 | **FORUM 2: Chips for Change: Enabling Smart Societies through Semiconductor Innovation**<br><br>**Moderator:**<br>**Prof. Dr. Asrulnizam Abd. Manaf**<br>Collaborative Microelectronic Design Excellence Center (CEDEC), USM<br><br>**Panelist**:<br>• **Dr. Kuan Yen Tan**<br>CTO and Co-founder of IQM Quantum Computers<br>• **Mr. Lee Chun Keat**<br>Oppstar Technology Sdn. Bhd.<br>• **Dr. Sazani Shafie**<br>Broadcom Global Distribution Hub | | |
| 1100 - 1200 | **FORUM 3: Smart Health for All: Driving SDG3 through Inclusive Innovation**<br><br>**Moderator:**<br>**Prof. Dr. Habibah A Wahab, FASc.**<br>Deputy Vice-Chancellor of Research & Innovation, USM<br><br>**Panelist:**<br>• **Dr. Goh Hin Kwang**<br>Director Hospital Pulau Pinang<br>• **Dr. Ishak Ibrahim**<br>Chief Executive Officer, Rayatech Sdn. Bhd.<br>• **Assoc. Prof. Ts. Dr. Kay Dora Abd Ghani**<br>Deputy Rector (Research, Industry Networking, Community & Alumni), Universiti Teknologi MARA, Penang Campus | | |

# PROGRAMME SCHEDULE

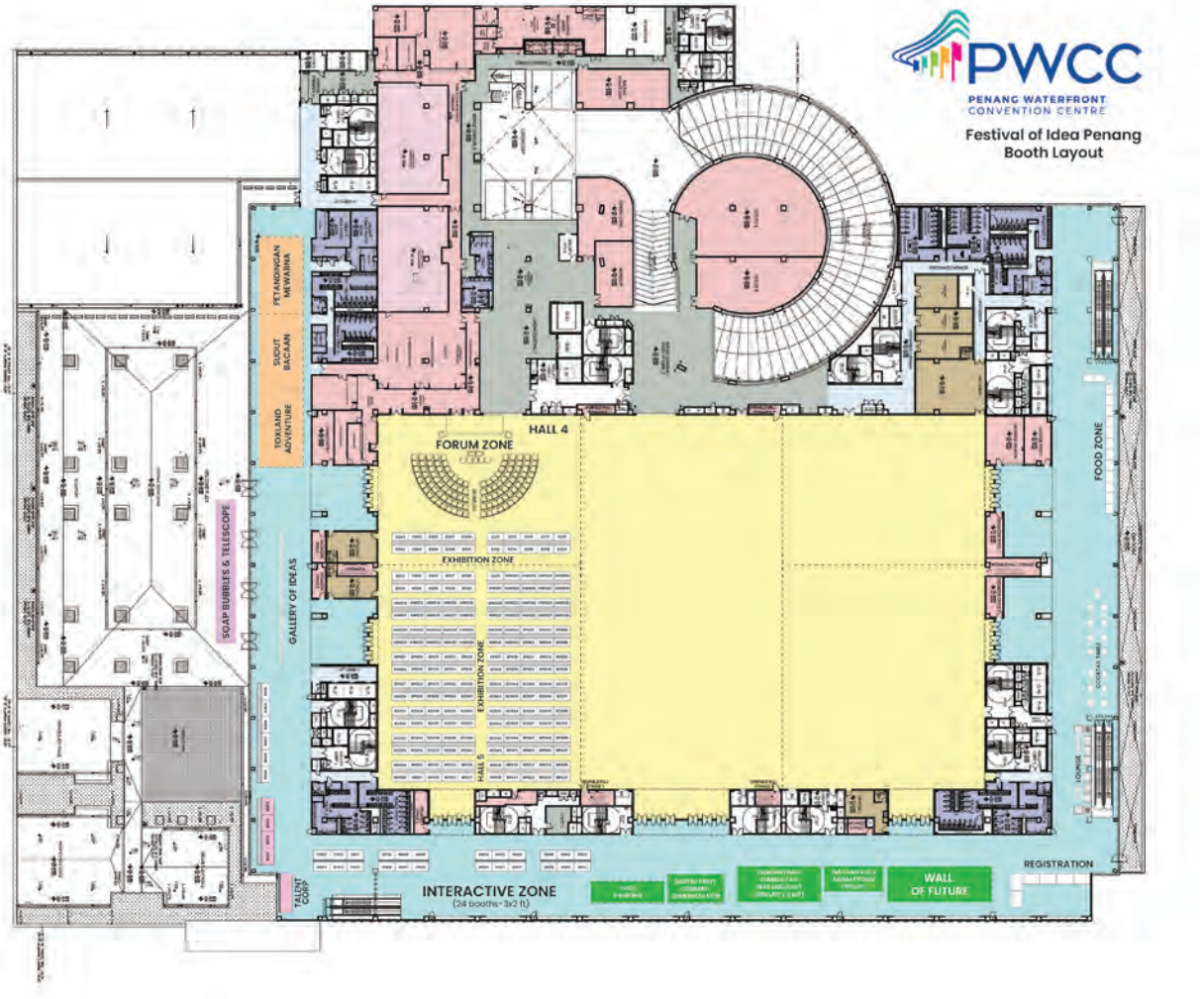
| Time | Hall 4 | Hall 5 | Foyer Hall 5 |
|---|---|---|---|
| 1200 - 1300 | **FORUM 4: Turning Ideas to Impact: Industry Meets Academia**<br><br>**Moderator:**<br>**Prof. Ir. Dr. Mariatti Jaafar**<br>Director, Engineering Campus<br>Universiti Sains Malaysia<br><br>**Panelist:**<br>• **Mr. Ramaness Parasuraman**<br>Founder, CEO & CTO Free The Seed Sdn. Bhd.<br>• **Assoc. Prof. Dr. Raa Khimi Shuib**<br>Founder, RAA Tech Sdn. Bhd.<br>• **Mr. Amir Hamzah Nawawi**<br>Managing Director of Sanmina-SCI Systems Sdn. Bhd. | **INNOZILLA 2025 INNOVATION** | **Special Session**<br><br>10:00 – 12:00: Cyber Security Career Talk (Level 3, PWCC) |
| 1300 - 1400 | **LUNCH HOUR** | | |
| 1400 - 1500 | **FORUM 5: Innovating Future Learning**<br><br>**Moderator:**<br>**Assoc. Prof. Ir. Dr. Syamsul Rizal Bin Abd Shukor**<br>Director<br>Centre for Development of Academic Excellence (CDAE), USM<br><br>**Panelist:**<br>• **Prof. Dato' Gs. Dr. Narimah Samat**<br>Deputy Vice-Chancellor of Academic and International, USM<br>• **Dr. Mohd Ikhmal Fadzil**<br>Head of the Centre for Institutional Development & Development & Sustainability, KITAB Penang<br>• **Ts. Ng Kwang Ming**<br>CEO, Digital Penang | **INNOZILLA 2025 INNOVATION** | |
| 1515 - 1630 | **AWARD PRIZE AND CLOSING CEREMONY**<br><br>**Officiated by:**<br>**YB DATO' DR. MOHAMAD BIN ABDUL HAMID**<br>Deputy Chief Minister I<br>State Exco for Islamic Development, Education, Higher Education and Social Unity, Penang | | |

*Programmes are subject to change without prior notice.*

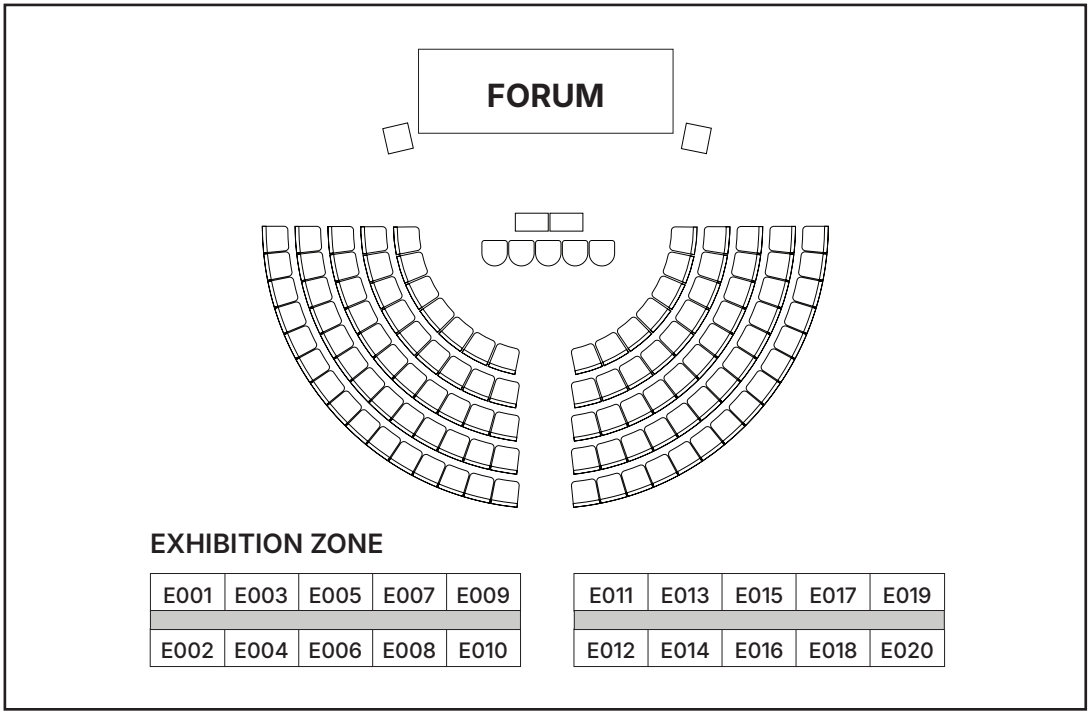
Festival IDEA @Pulau Pinang

# BOOTH LAYOUT

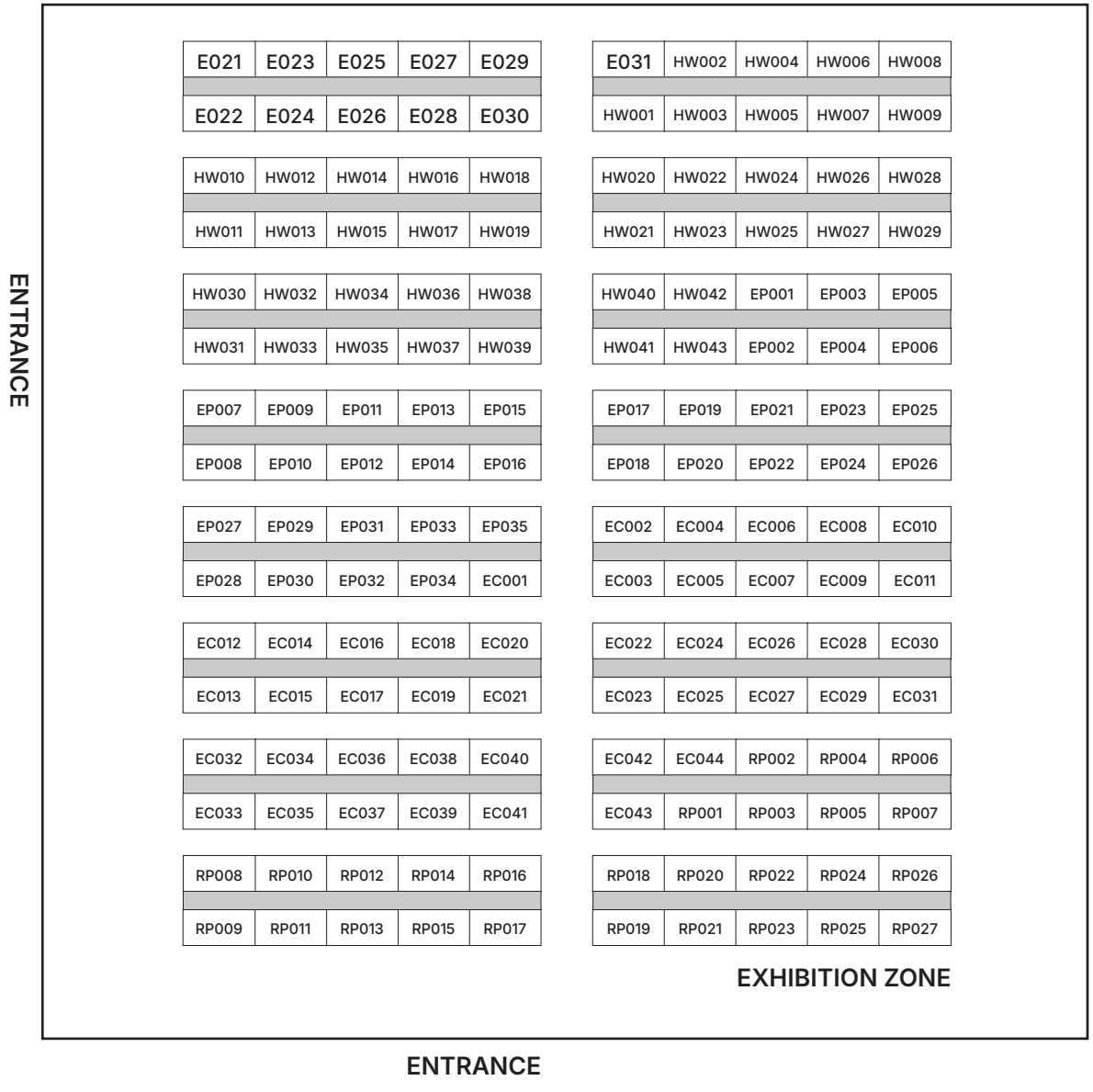
SEA VIEW

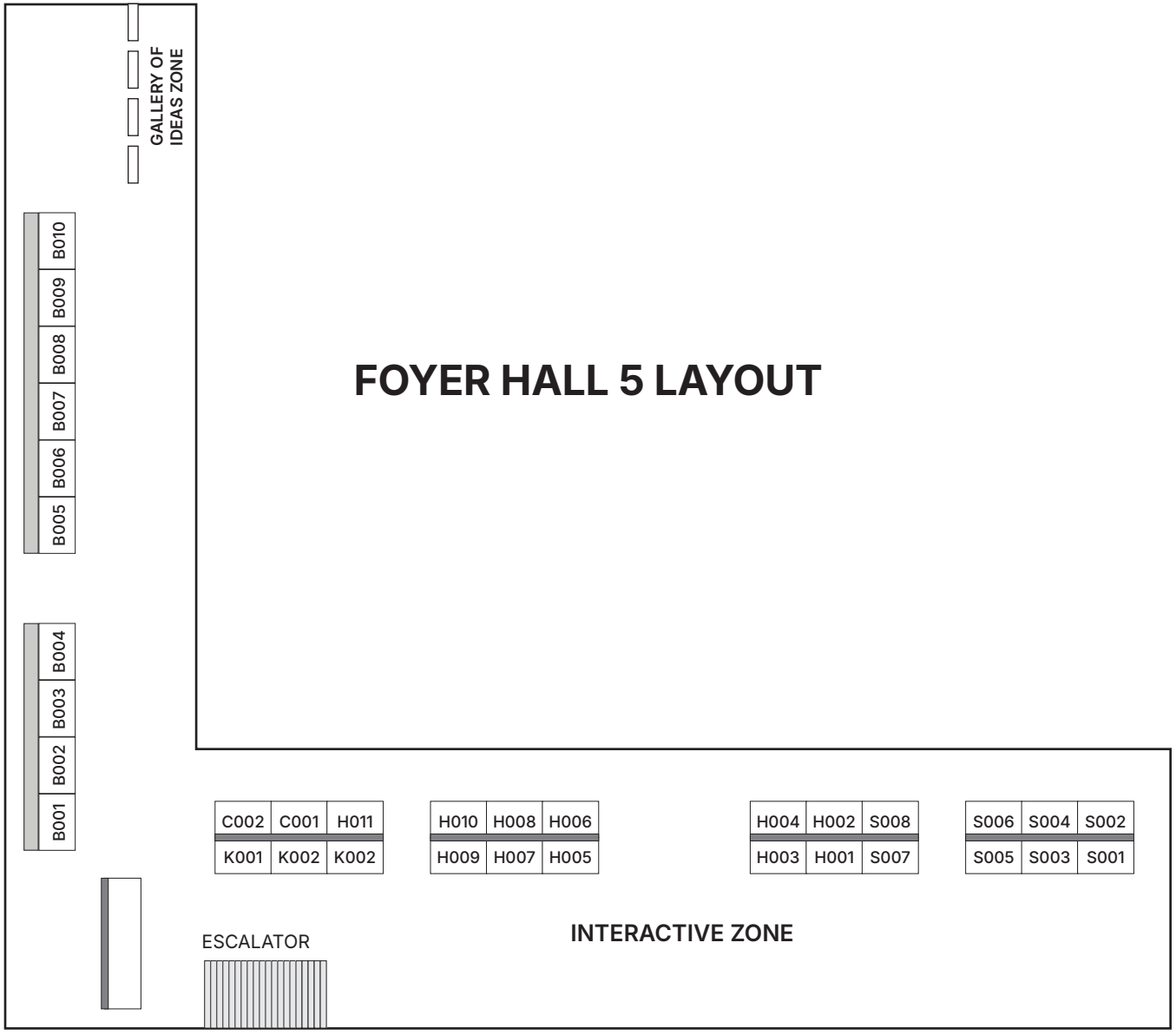

PWCC
PENANG WATERFRONT
CONVENTION CENTRE
Festival of Idea Penang
Booth Layout
PETANDINGAN MEWARNA
SLIDUT BACAAN
TOYLAND ADVENTURE
HALL 4
FORUM ZONE
EXHIBITION ZONE
EXHIBITION ZONE
HALL 5
GALLERY OF IDEAS
SOAP BUBBLES & TELESCOPE
FOOD ZONE
INTERACTIVE ZONE
(24 booths - 3x2 ft)
WALL OF FUTURE
REGISTRATION

# HALL 4 LAYOUT



# HALL 5 LAYOUT




GALLERY OF IDEAS ZONE
B010
B009
B008
B007
B006
B005
B004
B003
B002
B001
FOYER HALL 5 LAYOUT
C002
C001
H011
K001
K002
K002
H010
H008
H006
H009
H007
H005
H004
H002
S008
H003
H001
S007
S006
S004
S002
S005
S003
S001
ESCALATOR
INTERACTIVE ZONE

# LIST OF JURIES

## CHIEF OF JURIES

Prof. Dr. Khairunisak Abdul Razak

## ENERGY & ENVIRONMENT PROTECTION

1. Prof. Ir. Dr. Abdul Latif Ahmad
2. Prof. Dr. Norli Ismail

## EDUCATION & ENHANCING COMMUNITIES

1. Prof. Dr. Mageswary A/P Karpudewan
2. Assoc. Prof. Dr. Fadzilah Amzah

## HEALTH & WELL-BEING

1. Prof. Dr. Badrul Hisham Yahaya
2. Prof. Dato' Dr. Azhar Mat Easa

## RESPONSIBLE INDUSTRY & PARTNERSHIP

1. Prof. Ts. Chm. Dr. Ahmad Zuhairi Abdullah
2. Prof. Dr. Hazwan Hussin

## ICAP MEMBERS

1. Mr. Mohamad Nasrul Abdul Satar
2. Mr. Chin Shou Pei
3. Dr. Tang Enya Kong
4. Mr. Daniel Yap
5. Ts. Mohammad Syukur Md Noh
6. Dr. Mohammad Zulfikar Bin Ishak
7. Dr. Shahrul Yazid Yahaya
8. Dr. Boey Kok Hoong
9. Mrs. Mashitah Mohd Mokhtar
10. Mr. Fan Eng Chang

# LIST OF EXHIBITORS

| NO. | INDUSTRY NAME | BUSINESS NATURE | BOOTH NO. |
|---|---|---|---|
| 1. | Neptrix Sdn. Bhd. | Neptrix was founded in 2012 by manufacturing and IT experts with a mission to revolutionise efficiency through smart technology. Over the years, Neptrix has partnered with manufacturers of all sizes, driving significant improvements in processes through data. Recognising a gap in MES and ERP systems where cost and productivity often misalign. Neptrix expanded from consultancy system, empowering manufacturers to fully embrace Industry 4.0. This cutting edge system has since helped over 35 manufacturers, from SMEs to Fortune 500 giants, achieve Smart Factory success and significantly boost productivity with ease. | **E001** |
| 2. | Enviro Group | Enviro Group delivers the best total solutions in Indoor Environmental Technologies and Engineering Services to ensure a healthier and safer indoor environment. ENVIRO Group Asia is an indoor engineering and air quality service provider providing integrated services to clients across all industries. We are the region's leading turnkey indoor environmental professionals and remediators, assisting you to streamline the reliable and efficient delivery of premium solutions and services. Our team of highly qualified professionals has over 20 years of market experience and can implement cost-effective solutions and strategies to prevent and manage indoor environmental hazards. Our professional team is available at your request to provide the most comprehensive and comprehensive services to the residential, commercial, and industrial markets. | **E002** |
| 3. | Creteart Design & Construction Sdn. Bhd. | CreteArt Design Studio has more than 30 years of experiences and strong advocates since 1978 in the construction industry. We aim to offer services where quality, efficiency and value are key fundamentals. To ensure our service quality, we had successful registered ourselves under Malaysia Construction Industry Development Board (CIDB) in as early as the 90's. Our ever-growing project team has been results of consistently delivering quality and professional works within schedule and budget on a high level of safety. Over the years, we have implemented management system to ensure that our projects progress under optimum safety, health and quality standard which are set to be continuously monitored and improved. We are now equipped with a team of professional designers and contractors for the perfect construction solution to suit with customers' needs. | **E003** |

# LIST OF EXHIBITORS

| NO. | INDUSTRY NAME | BUSINESS NATURE | BOOTH NO. |
|---|---|---|---|
| 4. | Axcell Solutions Sdn. Bhd. | At Axcell Solutions, we help businesses embrace digital transformation with IT consulting, digitalisation, business process automation, data analytics, training, and IT managed services. Our goal is to provide smart, scalable, and efficient technology solutions that drive growth and innovation. | **E004** |
| 5. | NIMS Adeliciousz Sdn. Bhd. | NIMS is a pioneer in the global snacking industry, redefining how people experience the joy of chocolate and cereals. Founded with a vision to create innovative and indulgent treats, NIMS introduced the world's first unique snack concept: crispy cereals generously coated in rich, velvety chocolate sauce, conveniently packed in a 250g tub. This breakthrough transformed everyday snacking into an indulgent, on-the-go experience loved by families, children, and chocolate enthusiasts worldwide. Building on the success of our signature product, NIMS has expanded its portfolio to cater to diverse tastes and lifestyles. Today, we offer a wide range of product sizes and flavor variations, combining different cereals and chocolate sauces to suit every preference—from the light snacker to the chocolate connoisseur. With a commitment to quality, creativity, and global appeal, NIMS continues to spread happiness across markets, bringing people together through the universal love of chocolate. | **E005** |
| 6. | Qawiun Smart Solutions | Kaxprint, managed by Qawiun Smart Solutions, operates from our design office located at Sri Sungai Nibong Complex, Penang. Our dedicated team of skilled staff specializes in both printing and design services, ensuring high-quality results for every project. We offer a comprehensive range of services, including branding, promotional materials, gifts and souvenirs, corporate identity development, digital and offset printing, as well as photography and videography. With years of experience in redefining brands, we specialize in diverse creative fields such as corporate logo design, graphic design, advertising, vehicle image design, consumer product design, interior design, exhibition design, signage design, and various other areas of innovative design. | **E006** |

# LIST OF EXHIBITORS

| NO. | INDUSTRY NAME | BUSINESS NATURE | BOOTH NO. |
|---|---|---|---|
| 7. | HBA Global Consultancy Sdn. Bhd. | HBA Global, based in Penang, Malaysia, is a growing accounting firm striving to rank among Malaysia's Top 10. We provide comprehensive professional services: accounting, tax, corporate secretarial, and financial advisory, designed to support diverse business needs. Our mission is to deliver trusted expertise while fostering lasting client relationships. | **E007** |
| 8. | Hong Leong Bank Berhad | Hong Leong Bank's Community Deposit Specialist is a sales and business development role focused on acquiring new customer and business accounts, primarily payroll accounts, by generating leads, providing product information, and following up with clients to secure deposits and identify opportunities for other bank products. The role emphasizes sales activities, client relationship management, and market research within a sales-driven environment, working towards acquisition goals and supporting the bank's overall business growth. | **E008** |
| 9. | Safetyware Sdn. Bhd. | Safetyware Group Berhad is a leading integrated safety and health solutions provider with over 20 years of experience in the field. As a public listed company on the LEAP Market of Bursa Malaysia, we are committed to ensuring the well-being of its customers through the provision of high-quality products and services. Our commitment to excellence is reflected in our certifications to quality management systems including ISO 9001, ISO 13485, and GMP. In addition, our factories are equipped with state-of-the-art automated machinery, ensuring high quality and consistency in our manufacturing processes. | **E009** |
| 10. | SME Bank Berhad | Small Medium Enterprise Development Bank Malaysia Berhad, commonly known as SME Bank, is a Malaysian small and medium enterprise banking company owned by Minister of Finance Incorporated. The bank's main activity is to provide financial assistance and expertise to small and medium enterprises. In terms of careers, SME Bank offers a wide range of career aspects from business administration, economic researcher, legal advisor to corporate communications and etc. Begin your career with SME Bank Berhad today! | **E010** |

# LIST OF EXHIBITORS

| NO. | INDUSTRY NAME | BUSINESS NATURE | BOOTH NO. |
|---|---|---|---|
| 11. | Teras Megamaju Sdn. Bhd. | TERAS MEGAMAJU SDN. BHD. is incorporated in Malaysia on 28 July 2004. Is a combination of four related companies which Specialist in Design and Build the supply, Installation, Testing, Commissioning, Servicing & Maintenance of The Air Conditioning and Ventilation System. The scope of installation inclusive the Healthcare, Hospitality, Medical lab, Pharmaceutical, Commercial, Institution and Industrial building. Our company believe its role of fulfilling the demand and needs by providing the highest level of professionalism approach on Quality Control and Quality Management System ISO 9001:2015. As the company was support by well experiences teams, we believe that the TERAS MEGAMAJU SDN. BHD. will give the best performance, back-up support (after services) and knowledge to fulfill the satisfaction of the client. | **E011** |
| 12. | Star Mealz Sdn. Bhd. | STAR MEALZ SDN BHD is shaping the future of Malaysian convenience food through innovation, craftsmanship, and passion for excellence. We specialize in Ready-to-Eat meals and signature pastries that fuse authentic Malaysian flavours with modern culinary technology. Each creation reflects our dedication to quality, freshness, and consumer satisfaction. By combining advanced retort processing with creative food design, we deliver products that are safe, nutritious, and irresistibly delicious. With a steadfast commitment to innovation and continuous improvement, Star Mealz is not just serving meals — we are redefining how Malaysians experience convenient dining, positioning the brand as a dynamic force in the modern food industry. | **E012** |
| 13. | GMT Machinery Sdn. Bhd. | Founded in 2004, GMT Machinery Sdn. Bhd. is a Malaysian-based engineering company specializing in the design and manufacturing of custom F&B machinery — including biscuit cutters, rotary moulds, dough sheeters, fryers, and other bakery production equipment. With over 20 years of industry experience, GMT has earned a strong reputation for innovation, quality craftsmanship, and problem-solving in machine design and fabrication. | **E013** |

# LIST OF EXHIBITORS

| NO. | INDUSTRY NAME | BUSINESS NATURE | BOOTH NO. |
|---|---|---|---|
| 14. | Samurai Yakiniku Sdn. Bhd. | At GMT, we combine mechanical engineering, electronics, and automation to create efficient production systems tailored for local and international clients across Asia. Our machines are proudly used in factories across Malaysia, Vietnam, Indonesia, and the Middle East. | **E014** |
| 15. | Uji Fesyen® | Uji Fesyen®, a women-led Malaysian brand founded in 1989, specializes in bespoke tailoring, modern heritage wear, and premium textile products. With over 35 years of expertise, it empowers women through fashion training, apprenticeships, and entrepreneurship, blending heritage, innovation, and sustainability in the fashion and lifestyle industry. | **E015** |
| 16. | Biotenova Sd. Bhd. | At Biotenova, we truly understand these pain points faced by industry players in the food and beverages, supplements, and cosmetics sectors. We decided to take the less travelled pathway to venture into a relatively new biologic raw material - postbiotic, which is still not well-known to Malaysian and ASEAN markets. We believe that the unique and versatile properties of Lassica K014 allows the market players to reimagine their product formulations. With postbiotics, the brand owners and manufacturers can enjoy the best of both worlds - producing a stable product that works like probiotics and fulfilling the increasing needs of their customers for safe, natural and effective ingredients. | **E016** |
| 17. | BioG Expert Sdn. Bhd. | BioG Expert Sdn. Bhd. offers M-PAK TRAP & BIOGEL BAIT, biopolymer hydrogel beads that provide a novel and effective delivery system for liquid traps with low concentrations of biocides to control mosquitoes and other pests. | **E017** |

# LIST OF EXHIBITORS

| NO. | INDUSTRY NAME | BUSINESS NATURE | BOOTH NO. |
|---|---|---|---|
| 18 | De-Eco Sr.Hygiene Sdn. Bhd. | DESH is a deep-tech company committed to advancing hygiene, health, and environmental sustainability. Our work in hygiene technologies focuses on creating safer environments through innovative solutions. Alongside hygiene solutions that kills virus and microbes, we are advancing biodegradable and oxo-degradable eco-materials that address global plastic waste by converting agro-waste into sustainable alternatives. These innovations help reduce pollution, combat white waste, and contribute to a greener, cleaner earth. In agriculture, our research into nano-fertilizers and plant-based green pest repellents supports food security by enriching soil fertility, improving crop yield, and reducing reliance on chemical inputs. At the same time, our healthcare research is pioneering non-PVC blood bags, addressing long-standing safety concerns linked to conventional plastics. By uniting science, technology, and sustainability, De Eco SR Hygiene is building solutions that protect human health, reduce environmental burdens, and nurture the planet, shaping a cleaner, safer, and more sustainable future for generations to come. | **E018** |
| 19. | RAA Tech Sdn. Bhd. | RAA Tech Sdn. Bhd. specializes in the development and production of innovative rubber and gum materials, including its flagship Puncture Proof Self-Healing Tyre technology. This advanced material is engineered with the ability to automatically seal punctures and restore functionality without requiring manual repair or detection. The self-healing mechanism enhances safety, durability, and convenience for vehicle users by minimizing downtime and maintenance costs. RAA Tech's product range includes puncture-proof tape designed for application on existing tyres and a self-healing rubber inner liner tailored for integration into new tyres. Through this technology, the company aims to revolutionize the tyre industry by providing sustainable, resilient, and maintenance-free tyre solutions that improve road safety and extend product lifespan. | **E019** |

# LIST OF EXHIBITORS

| NO. | INDUSTRY NAME | BUSINESS NATURE | BOOTH NO. |
|---|---|---|---|
| 20. | The Brainbow Sdn. Bhd. | The Brainbow Sdn. Bhd. is a spin-off company of USM, dedicated to advancing research, training, and education in the field of special needs education within Malaysia and beyond. We specialised in evidence-based research and development for culturally tailored tools, interventions, and resources in special needs education.<br>Our goal is to empower professionals, educators, and caregivers with innovative solutions that cater to diverse learners, bridging the gap between research and practical application for inclusive learning environments. | **E020** |
| 21. | BitRanger Sdn. Bhd. | BitRanger Sdn Bhd is a cybersecurity company specializing in managed Security Operations Center (SOC) services, threat intelligence, vulnerability management, and digital forensics. It provides proactive monitoring, detection, and response solutions to help organizations, especially SMEs, safeguard their digital assets, ensure regulatory compliance, and strengthen overall cybersecurity resilience against emerging threats. | **E021** |
| 22. | EPCONC Sdn. Bhd. | EPCONC Sdn. Bhd. is a pioneering company commercializing eco-friendly concrete solutions. It specializes in upcycling industrial by-products to create low-carbon binders and cementless concrete. This innovative approach significantly reduces the carbon footprint of construction materials, paving the way for sustainable construction. | **E022** |
| 23. | Pestify Sdn. Bhd. | Pestify Sdn. Bhd. was established with the goal of developing innovative biological solutions for pest control, particularly targeting termite infestations. Its flagship product, Bio-BacChi™, is a bio-based formulation containing the Bacillus licheniformis strain USMW10IK, which was isolated from a mixture of termite gut and colloidal chitin derived from shrimp shells. This eco-friendly product offers an alternative to chemical pesticides by utilizing naturally occurring microorganisms to suppress termite populations effectively. Through its scientific approach and sustainable formulation, Pestify Sdn. Bhd. aims to contribute to environmentally responsible pest management while promoting the use of biotechnology in agriculture and structural protection. | **E023** |

# LIST OF EXHIBITORS

| NO. | INDUSTRY NAME | BUSINESS NATURE | BOOTH NO. |
|---|---|---|---|
| 24. | Dhaya Maju Infrastructure (Asia) Sdn. Bhd. | Dhaya Maju Infrastructure (Asia) Sdn. Berhad proudly celebrates its 28th anniversary since its inception in 1996. Holding the esteemed "PKK Class A" Bumiputera and CIDB G7 Contractor status, our commitment revolves around delivering exceptional contract and construction management services. We dedicate ourselves to each project by deploying top-tier personnel, expertise,skills, and resources. Our dedication to excellence is underscored by our adherence to ISO MS 1722:2011, ISO 14001:2015, ISO 9001:2015 and ISO 45001:2018 standards, demonstrating our unwavering commitment to quality. As a testament to our capabilities, we currently hold PETRONAS SWEC licenses ,empowering us to advance our presence into the energy sector. | **E024** |
| 25. | Keysight Technologies Malaysia | Keysight empowers innovators to bring world-changing technologies to life. As an S&P 500 company, we deliver market-leading design, emulation, and test solutions across the product lifecycle. We're a global innovation partner enabling customers in communications, automotive, semiconductor, and other markets to accelerate innovation to connect and secure the world. | **E025** |
| 26. | M.E.I. Architects & Engineers Sdn. Bhd. | Since 1988, M.E.I. Architects & Engineers Sdn. Bhd., M.E.I. Consultants Sdn. Bhd., and M.E.I. Project Engineers Sdn. Bhd. have delivered integrated Civil, Structural, Architectural, Mechanical, Electrical, and Process & Instrumentation (CSA, M&E, P&I) solutions through EPCM and EPC services. Committed to GBI and LEED sustainability, M.E.I. leverages cutting-edge technology and collaboration to provide innovative, efficient architectural and engineering solutions. Our portfolio spans semiconductor, EMS, healthcare, life sciences, photovoltaic, F&B, chemical, manufacturing, and logistics sectors. | **E026** |

# LIST OF EXHIBITORS

| NO. | INDUSTRY NAME | BUSINESS NATURE | BOOTH NO. |
|---|---|---|---|
| 27. | Digital Penang | Digital Penang, a government-linked company owned by the State of Penang, began operations in April 2020 with the mission of accelerating Penang's digital economy. We drive initiatives to capture opportunities in the digital economy and foster a digitally engaged society, bridging innovation and inclusive growth for the state. Our efforts span across digital adoption, innovation, and talent development — empowering businesses, startups, and communities to embrace digital transformation. Through strategic collaborations with industry players, academia, and government agencies, Digital Penang continues to build a vibrant and sustainable digital ecosystem that positions Penang as a leading digital hub in the region. | **E027** |
| 28. | MRI3 BJIM USM | Digital Penang, a government-linked company owned by the State of Penang, began operations in April 2020 with the mission of accelerating Penang's digital economy. We drive initiatives to capture opportunities in the digital economy and foster a digitally engaged society, bridging innovation and inclusive growth for the state. Our efforts span across digital adoption, innovation, and talent development — empowering businesses, startups, and communities to embrace digital transformation. Through strategic collaborations with industry players, academia, and government agencies, Digital Penang continues to build a vibrant and sustainable digital ecosystem that positions Penang as a leading digital hub in the region. | **E028** |
| 29. | GLEMOR Fragrance | **Your Scent, Your Story**<br><br>Glemor was born from the belief that everyone deserves to feel elegant every day. Crafted with emotion and intention, each fragrance expresses identity and confidence. From quiet mornings to unforgettable nights, Glemor invites you to tell your story—one scent at a time. | **E029** |

# LIST OF EXHIBITORS

| NO. | INDUSTRY NAME | BUSINESS NATURE | BOOTH NO. |
|---|---|---|---|
| 30. | SilTerra Malaysia Sdn. Bhd. | We are a Global Semiconductor Foundry. We are continuously innovating to bring leading-edge semiconductor solutions that will transform the world. Globally ranked 19th by IC Insights in the category of pure-play foundries in 2023, SilTerra strives to provide outstanding technologies and services to our customers. Our leadership in advanced semiconductor wafer processing sets the stage to bring transformation in consumer electronics, next generation data communications networks, industrial, medical technologies and mobility. SilTerra is a strategic investment of Dagang NeXchange Berhad ("DNeX") and Beijing Integrated Circuit Advanced Manufacturing and High-End Equity Investment Fund Center (Limited Partnership) ("CGP Fund"). | **E030** |
| 31. | Shanghai Jiao Tong University (SJTU) | Founded in 1896, Shanghai Jiao Tong University (SJTU) is a prestigious national university directly administered by China's Ministry of Education and situated in Shanghai. Ranking among the world's top 100 institutions, SJTU spans six campuses and offers a wide array of academic disciplines through its 40 schools to over 45,000 students. Known for its research excellence, evidenced by 99 national awards, as well as its innovation and distinguished alumni, SJTU is committed to realizing its vision of becoming a comprehensive, innovative, and internationally recognized world-class university. | **E031** |

# STEM INTERACTIVE ACTIVITY


**BOOTH: S001**

School of Mathematical Sciences
Universiti Sains Malaysia

https://math.usm.my/

## Recreational Math

Challenge your mind with four exciting activities - the Container Scheduling Challenge, Sudoku, KenKen, and Tangram. Designed to boost logical thinking, creativity, and problem-solving skills, these activities are perfect for primary and secondary students, and even adults!

**BOOTH: S002**

Collaborative Microelectronic Design Excellence Center
Universiti Sains Malaysia

https://cedec.usm.my/

## Snap Circuit & Drone Programing

Explore STEM hands-on with Snap Circuits® and drone programming! Build real circuits, code drones with DroneBlocks and Tello, and bring engineering, robotics, and automation concepts to life in fun, interactive ways.

**BOOTH: S003**

School of Materials & Mineral Resources Engineering
Universiti Sains Malaysia

https://material.eng.usm.my/

## Plastic Circularity Kiosk

Dive into fun, eco-smart kiosks with recycling hacks, zero-waste tips, and brain-teasing games like Sudoku and container challenges-empowering you to turn sustainability into impact and opportunity!

# STEM INTERACTIVE ACTIVITY



**BOOTH: S004**

School of Chemical Sciences
Universiti Sains Malaysia

https://chem.usm.my/

## MyChem Kit

MyChem Kit makes science fun and safe! A hands-on teaching tool for chemistry, inspiring students with real experiments anytime, anywhere-using minimal chemicals, reducing waste, and saving teachers' time.

**BOOTH: S005**

School of Aerospace Engineering
Universiti Sains Malaysia

https://aerospace.eng.usm.my/

## Drone Technology and Flight Innovation

Step into the thrilling world of aerospace and STEM where young minds explore flight through hands-on activities including paper helicopters DIY drones' simulators and exciting dual rotor demonstrations.


**BOOTH: S006**

Centre for Instructional Technology and Multimedia
Universiti Sains Malaysia

https://ptpm.usm.my/

## Virtual Reality

Explore how Virtual Reality transforms learning into an adventure! Dive into the human body, explore outer space, and experience lessons through immersive play. Discover how VR makes education fun, interactive, and truly unforgettable.

# STEM INTERACTIVE ACTIVITY



**BOOTH: S007**

Politeknik Balik Pulau
Pulau Pinang

https://pbu.mypolycc.edu.my/

## Math is Fun

Discover Mathable, the ultimate equation board game, race through lightning-fast Mathematical Game, and master Shut the Box where dice and strategy decide champions in these thrilling interactive math challenges.


**BOOTH: S008**

Science and Technology Centre
Penang Tech Centre

https://www.techdomepenang.org/

## AI Tools

To engage students and demonstrate how AI works through interactive examples using AI learning tools.

# STEM INTERACTIVE ACTIVITY



**BOOTH: H001**

Advanced Medical and Dental Institute
Universiti Sains Malaysia

https://www.amdi.usm.my/

## Power of Radiation

Discover the fascinating world of radiation through fun, hands-on activities that spark curiosity and creativity. Explore its types, uses, safety, and real-life impact in health and the environment.

**BOOTH: H002**

School of Pharmaceutical Sciences
Universiti Sains Malaysia

https://pha.usm.my/

## Medical Awareness (MedMinds)

Discover **Store it Right, Dispose it Wise**, an interactive exhibition inspiring smart medication storage and safe disposal. Learn practical tips, join fun activities, and pledge for a healthier, safer community.


**BOOTH: H003**

Universiti Teknologi MARA
Pulau Pinang

https://penang.uitm.edu.my/

## Smart Prescription Labels

Discover **SmartMed360** – a pharmacist-led programme empowering communities with safe medicine use, personalised counselling, and eco-friendly disposal practices to prevent harm, improve health outcomes, and promote medication safety for all.

# STEM INTERACTIVE ACTIVITY

HEALTH

**BOOTH: H004**

Advanced Medical and Dental Institute
Universiti Sains Malaysia

https://www.amdi.usm.my/

## Health Screening

Join our **Health Screening and Medication Awareness** Programme promoting SDG 3 Good Health and Well-being with free check-ups interactive demos cancer awareness quizzes fun activities lucky draws and lifestyle tips.

**BOOTH: H005**

Universiti Teknologi MARA
Pulau Pinang

https://penang.uitm.edu.my/

## Mental Health Screening

Discover your mental wellbeing with our **OT-led Mental Health Screening**. Identify stress, anxiety, and daily challenges early, learn coping strategies, and reclaim balance in work, study, self-care, and life.

**BOOTH: H006**

Universiti Teknologi MARA
Pulau Pinang

https://penang.uitm.edu.my/

## Fitness Assessment

Discover your health potential with our fitness assessment featuring strength and lung tests, posture screening, corrective strategies, and expert lifestyle tips led by physiotherapy students for healthier living.

# STEM INTERACTIVE ACTIVITY



**BOOTH: H007**

Advanced Medical and Dental Institute
Universiti Sains Malaysia

https://www.amdi.usm.my/

## Let's Do Nutrition!

Step into a fun, hands-on journey exploring nutrition, VR fitness, and career pathways, designed to inspire secondary students with interactive games, real-life applications, and exciting health science discoveries.

**BOOTH: H008**

Advanced Medical and Dental Institute
Universiti Sains Malaysia

https://www.amdi.usm.my/

## Senses and Smile

Discover the wonders of your five senses through fun, hands-on stations where students explore vision, hearing, smell, taste and touch while learning fascinating facts, practicing skills and applying real-life knowledge.

**BOOTH: H009**

Advanced Medical and Dental Institute
Universiti Sains Malaysia

https://www.amdi.usm.my/

## Discover Dental Science

Discover dentistry like never before through exciting STEM stations where students explore dental anatomy, label teeth, discuss oral health, and test precision skills in a thrilling hands-on Save the Nerve challenge.

# STEM INTERACTIVE ACTIVITY



**BOOTH: H010**

Advanced Medical and Dental Institute
Universiti Sains Malaysia

https://www.amdi.usm.my/

## Genetics and Heredity

Step into the world of genetics through fun hands-on activities exploring DNA, gene inheritance, human disorders, and even the mystery of calico cats designed to spark curiosity and discovery.

**BOOTH: H011**

Advanced Medical and Dental Institute
Universiti Sains Malaysia

https://www.amdi.usm.my/

## Toxicity Trails

Discover Toxicity Trails, an engaging STEM activity where students investigate lead contamination, test real samples, gain hands-on scientific skills, and raise awareness for healthier, safer communities through impactful environmental research.

# STEM INTERACTIVE ACTIVITY


**BOOTH: K001**

Universiti Sains Malaysia Publisher

https://penerbit.usm.my/

## USM Press

For more than five decades, the Universiti Sains Malaysia Press (USM Press) has developed a corpus of knowledge and disseminated it to all levels of society through the publication of high-quality books, journals, and scholarly materials. As a visionary academic publisher, USM Press is committed to strengthening research, guiding authors, planning innovative publications, and expanding the reach of knowledge to the global stage — in line with the University's mission as an APEX institution with global impact.

**BOOTH: K002**

Library
Universiti Sains Malaysia

https://lib.usm.my/

## Let's Explore Knowledge@Library

Discover innovation at our booth with smart systems, Anatomy Metaverse, USM Digital Archives, AI-powered games, puzzles, and lucky rewards. Explore, learn, and win exciting prizes—don't miss out!

KNOWLEDGE

# STEM INTERACTIVE ACTIVITY

BOOTH: C001

Division of Industrial & Community Network
Universiti Sains Malaysia

https://icn.usm.my/

## Science for Communities

Hosted by the Division of Industrial & Community Network, USM, this dynamic platform - powered by INNO4C - unites researchers, innovators, industry, and community leaders in shaping solutions that matter. Beyond showcasing innovation and partnerships, it amplifies the Community Program for Sustainable Impact Mission (COMPASSION) - a framework that transforms challenges into opportunities, stabilises households, empowers communities, and charts bold pathways toward resilient, sustainable futures.

BOOTH: C002

International Mobility & Collaboration Centre (IMCC)
Universiti Sains Malaysia

https://imcc.usm.my/

## Culture, Cuisine, Celebration

Embrace traditional attire, creative expressions, and stories that celebrate the richness of global diversity. Experience national festivals and performances that promote intercultural understanding and global unity in the USM spirit of We Lead. Savour signature dishes and sustainable cultural delicacies that reflect shared heritage and community spirit.

# STEM INTERACTIVE ACTIVITY

FOYER HALL 2&3

Museum and Arts Gallery
Universiti Sains Malaysia

https://mgtf.usm.my/

## Wayang Kulit Animatronik

The animatronic puppet performance combines robotic technology with elements of traditional puppetry. Characters are mechanically operated to produce realistic movements. This activity offers a new experience in appreciating traditional performing arts with a modern, interactive, and entertaining twist.

FOYER HALL 2&3

Museum and Arts Gallery
Universiti Sains Malaysia

https://imcc.usm.my/

## Shadow Puppet Character

Visitors will have the opportunity to witness the process of creating shadow puppet characters firsthand — from initial sketches to intricate carvings on leather. This activity showcases the delicate craftsmanship of heritage artists and provides deeper insight into the symbolism and cultural values embedded in each character.

# STEM INTERACTIVE ACTIVITY

**BOOTH: B001 - B004**

MOHE Research and Industry-Infused Incubator

https://mri3.usm.my/

## The Go-To Talent Hub for Malaysian, by Malaysian

With a focus on a talent solution, MyNext by TalentCorp empowers individuals through industry-driven initiatives, supporting TalentCorp's mission of optimising Malaysian talent. MyNext's intuitive platform bridges education and future employability, helping students and professionals identify their strengths and employable traits while providing opportunities for growth through meaningful internship and other TalentCorp-endorsed programmes. Additionally, MyNext aims to support the nation's graduate employability agenda by fostering productive curricula development at the institutional level.

**BOOTH: B006**

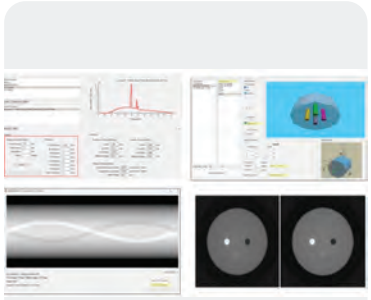
Centre for Global Archaeological Research
Universiti Sains Malaysia

https://arkeologi.usm.my/

## 3D Scanning and Digital Reconstruction in Archaeology

One of the major challenges in archaeological conservation is the restoration of damaged artifacts such as ancient pottery and human remains as well as the headless Buddha statue from the Bukit Choras site in the Bujang Valley. Conventional restoration methods often pose the risk of further deterioration, making advanced technologies like 3D scanning and digital reconstruction increasingly essential. Using laser, structured light or photogrammetry, 3D scanners capture an object's shape, size and surface details to produce accurate digital models for documentation, analysis, and preservation.

# STEM INTERACTIVE ACTIVITY



**BOOTH: B007**

School of Physics
Universiti Sains Malaysia

https://fizik.usm.my/

## Physics in Medicine: Do it Yourself!

Step into the fascinating world where physics meets medicine! Discover how the science of photons, photoelectric absorption, kinetic energy, and Compton scattering plays a vital role in modern medical imaging. You will get hands-on experience in creating your own CT imaging simulations. Learn how X-rays interact with tissues, explore the principles behind image contrast and noise, and see how physics enables life-saving diagnostics like CT scans. Whether you're a curious mind or a future scientist, this interactive experience will deepen your understanding of how physics powers advancements in healthcare. Don't miss this chance to visualize the invisible and uncover the science behind medical imaging!


**BOOTH: B010**

Penang International Islamic College of Technology (KITAB)

https://kitab.edu.my/

## *Waqaf* Prototype

Prototype exhibition of the KITAB Bandar Cassia project based on waqaf (Islamic endowment).

COLLABORATION

# STEM INTERACTIVE ACTIVITY

Penang International Islamic College of Technology (KITAB)

**BOOTH: B010**

https://kitab.edu.my/

## Penang Islamic Digital Library (PIDL)

Exhibition on the KITAB Higher Education Development Waqf (Batu Kawan). Penang Islamic Digital Library (PIDL), and quiz & simple questions related to KITAB – bring along a softboard

MOHE Research and Industry-Infused Incubator

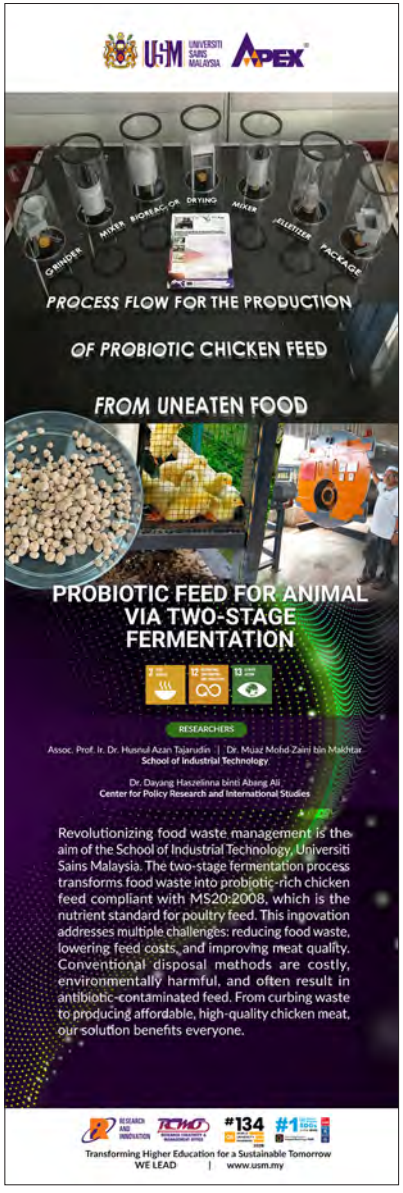
**BOOTH: E028**

https://mri3.usm.my/

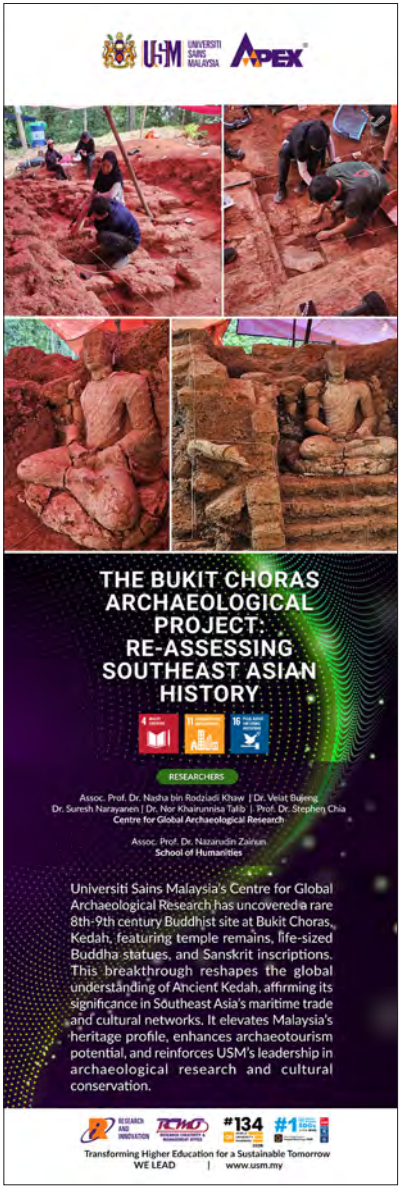
## MOHE Research & Industry-Infused Incubator (MRI3 Programme)

The **MOHE Research & Industry-Infused Incubator (MRI3)** is a national initiative that brings together Malaysian public universities and industry to accelerate talent development and research-industry collaboration. Over its three-year implementation, MRI3 has engaged **more than 200 public university students**, supported by **19 public universities** under the E&E Consortium and **27 agencies/ industry partners.**

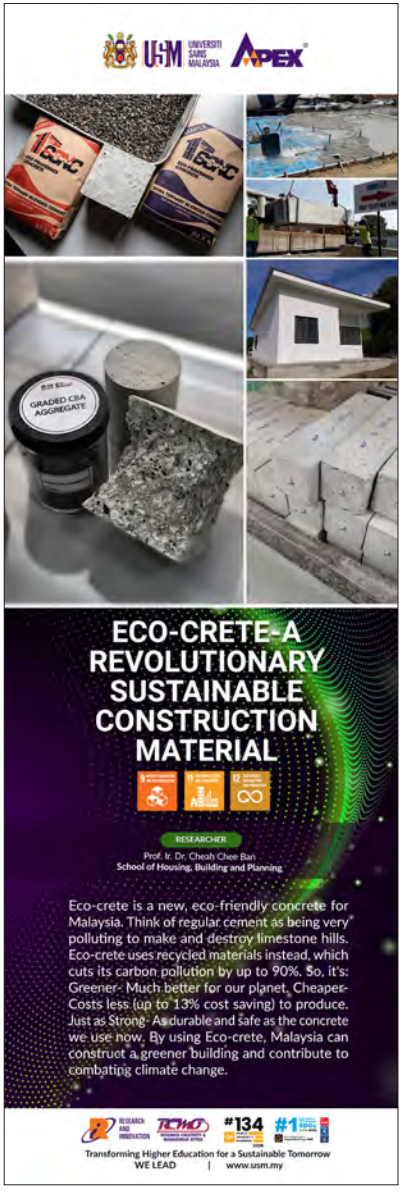
# GALLERY OF IDEAS








USM UNIVERSITI SAINS MALAYSIA APEX
DELASA: AN ENZYME-LINKED APTASORBENT ASSAY FOR THE RAPID DETECTION OF DENGUE
RESEARCHERS
Assoc. Prof. Dr. Citartan Marimuthu
Prof. Dr. Tang Thean Hock
Assoc. Prof. Dr. Ch'ng Ewe Seng
Dr. Siti Aminah Ahmed
Advanced Medical and Dental Institute
The current strategies for dengue diagnostics are tedious, time-consuming, unsuitable for early detection, and expensive. As a possible solution to this, DELASA offers a rapid and cost-effective detection strategy for dengue. DELASA can potentially enhance dengue diagnostics, boost economic growth through reduced diagnostic expenses, and intensify academic exploration/research on aptamers.
#134
#1
Transforming Higher Education for a Sustainable Tomorrow
WE LEAD | www.usm.my


USM UNIVERSITI SAINS MALAYSIA APEX
GRADED CBA AGGREGATE
ECO-CRETE-A REVOLUTIONARY SUSTAINABLE CONSTRUCTION MATERIAL
RESEARCHER
Prof. Ir. Dr. Cheah Chee Ban
School of Housing, Building and Planning
Eco-crete is a new, eco-friendly concrete for Malaysia. Think of regular cement as being very polluting to make and destroy limestone hills. Eco-crete uses recycled materials instead, which cuts its carbon pollution by up to 90%. So, it's: Greener- Much better for our planet, Cheaper- Costs less (up to 13% cost saving) to produce. Just as Strong- As durable and safe as the concrete we use now. By using Eco-crete, Malaysia can construct a greener building and contribute to combating climate change.
#134
#1
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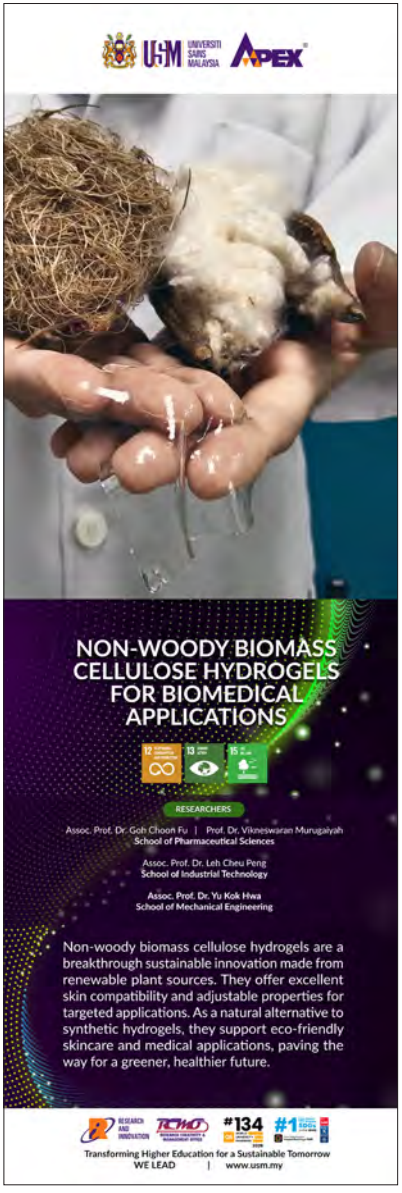
USM UNIVERSITI SAINS MALAYSIA APEX
N
Projek Penuaian Air Hujan
FRAMEWORK FOR ASSESSING SOUTHEAST ASIA HYDRO-CLIMATIC DROUGHT
RESEARCHERS
Assoc. Prof. Gs. Dr. Tan Mou Leong | Prof. Dr. Wan Ruslan bin Ismail
Prof. Dr. Chan Ngai Weng
School of Humanities
Prof. Dr. Zulkifli Yusop
Centre for Environmental Sustainability and Water Security (IPASA), Universiti Teknologi Malaysia
Assoc. Prof. Dr. Liew Ju Neng | Prof. Dr. Fredolin Tangang Tajudin bin Mahmud
Faculty of Science and Technology (FST), Universiti Kebangsaan Malaysia
Researchers from Universiti Sains Malaysia, in collaboration with Universiti Kebangsaan Malaysia and Universiti Teknologi Malaysia, have developed a holistic framework to better understand how hydro-climatic patterns in Southeast Asia may change in the future. The framework integrates high-resolution climate projections from multiple models under the Coordinated Regional Climate Downscaling Experiment–Southeast Asia (CORDEX-SEA) and the widely used Soil and Water Assessment Tool (SWAT) to produce more reliable projections. These science-based findings contribute to improved drought management and enhanced climate resilience across the region.
#134
#1
Transforming Higher Education for a Sustainable Tomorrow
WE LEAD | www.usm.my

# GALLERY OF IDEAS



USM UNIVERSITI SAINS MALAYSIA APEX
8/10/2023 | HV | WD | det | spot | mag
2:45:36 PM | 15.00 kV | 10.0 mm | ETD | 3.0 | 1 000 x
100 µm
GAMMA DAY 14 TOP
SLITUP© COMPOSITE FILM PATCH FOR SOFT TISSUE REGENERATION
RESEARCHER
Prof. Dr. Siti Noor Fazliah Mohd Noor
Advanced Medical and Dental Institute
SLITUP© Composite Film Patch is a revolutionary, resorbable bioactive solution for soft tissue regeneration. It eliminates drawbacks of traditional non-resorbable patches like removal discomfort and waste. Sterilized via gamma irradiation, SLITUP promotes healing without removal, enhances patient comfort, cost reduction making it ideal for chronic, non-healing ulcers. SLITUP drives Malaysia's wound dressing industry through job creation, IP, and collaborations, improving quality of life and a healthier future.
#134
#1
Transforming Higher Education for a Sustainable Tomorrow
WE LEAD | www.usm.my


USM UNIVERSITI SAINS MALAYSIA APEX
FACTORY
LEVEL 4
LEVEL 3
LEVEL 2
LEVEL 1
GROUND
NEXT-GEN REAL-TIME SIMULATION & DIGITAL TWIN FOR AUTOMATED HANDLING IN SEMICONDUCTOR OPERATIONS
RESEARCHERS
Dr. Azman Bin Ab Malik
School of Computer Sciences
Mohd Naim Afifi
Exiatec Technology Sdn Bhd
Introducing the Next-Generation Digital Twin for Automated Handling Management System (AHMS) a platform transforming the semiconductor industry and beyond. It brings together real-time simulation, AI-powered predictions, and IoT data to spot issues early, boost productivity, and keep operations running smoothly. Built on a plug-and-play platform, it connects easily to different machines without complex setup. Engineers can quickly create smart tools using visual interfaces and no heavy coding required. Starting in Malaysia's strong semiconductor sector, this innovation is ready to scale globally, driving factories toward fully automated, intelligent, and resilient operations.
#134
#1
Transforming Higher Education for a Sustainable Tomorrow
WE LEAD | www.usm.my


USM UNIVERSITI SAINS MALAYSIA APEX
Before
After
LIGNO-XP PRIMER: GREEN PRESERVATIVE FOR CORROSION PREVENTION
RESEARCHERS
Prof. Dr. Mohd Hazwan Hussin | Prof. Dr. Mohamad Nasir Mohamad Ibrahim
Dr. Pandian Bothi Raja
School of Chemical Sciences
Prof. Dato Dr. Makhtar Saidin
Centre for Global Archaeological Research
Introducing LIGNO-XP PRIMER, a green innovation revolutionizing archaeological metal preservation. Leveraging Malaysia's oil palm fronds waste, it utilizes lignin, a biodegradable treasure, as a sustainable primer. Traditional coatings fall short in durability and eco-friendliness. LIGNO-XP PRIMER offers a groundbreaking solution by utilizing lignin's unique properties for long-term metal conservation. It is not limited to archaeological metals; it extends to industrial sectors, reducing corrosion issues, which cost billions in marine environments by up to 90%. LIGNO-XP PRIMER signifies the future of metal preservation, uniting green innovation with historical conservation and addressing corrosion issues that cost billions in marine environments.
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# GALLERY OF IDEAS




USM UNIVERSITI SAINS MALAYSIA APEX
INTEGRATED CMOS BIOCHIP WITH ENERGY HARVESTING FOR INTELLIGENT BIOSENSING
RESEARCHERS
Prof. Dr. Asrulnizam Abd Manaf | Assoc. Prof. Dr. Jagadheswaran Rajendran
Dr. Selvakumar Mariappan | Dr. Beh Khi Khim | Dr. Ruhaifi Bin Abdullah
Dr. Shukri Korakkottil Kunhi Mohd | Dr. Rafidah Bt Ahmad | Dr. Norhamizah Idros
Collaborative Microelectronic Design Excellence Centre
FILPAL (M) Sdn Bhd
Infinecs Systems Sdn Bhd
Current biosensing systems rely on multiple discrete analog and control components, increasing both cost and system complexity. This project uniquely integrates a Complementary Metal-Oxide Semiconductor (CMOS)-based potentiostat with built-in Analog-to-Digital Converter (ADC), Digital-to-Analog Converter (DAC), and energy-harvesting power management into a single System-on-Chip (SoC) Application-Specific Integrated Circuit (ASIC). Demonstrated through a dual-chip prototype, the solution reduces power consumption, enables portable and battery-less operation, supports scalable multi-channel biosensing, and establishes proprietary intellectual property (IP) for global competitiveness in intelligent diagnostic platforms.
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USM UNIVERSITI SAINS MALAYSIA APEX
PRODUCTION OF HIGH PURITY FUNCTIONALIZED MULTI-WALLED CARBON NANOTUBES (CNTs)
RESEARCHERS
Prof. Dato' Seri Ir. Dr. Abdul Rahman Mohamed, FASc.
School of Chemical Engineering
Dr. Pooya Lahijani
School of Aerospace Engineering
Dr. Khozema Ahmed Ali
School of Industrial Technology
There has been an increase in demand for Multi-Walled Carbon Nanotube (MWCNT) in Malaysia, and currently Malaysia imports MWCNT from abroad, either in functionalized or unfunctionalized forms. The cost of functionalized MWCNT is higher when imported from other countries. Therefore, local production is needed to reduce costs. At present, there are no local manufacturers capable of producing MWCNT on a large scale. MWCNT can be used in various industrial applications such as sensors, coatings, solar panels, electronic devices, and many more. Hence, a continuous supply of MWCNT is crucial to avoid raw material shortages during development work. Large-scale production of MWCNT (50 kg/year) will ensure sufficient supply for early-stage product or application development. Thus, NanoMalaysia Berhad (NMB) collaborates with Universiti Sains Malaysia (USM) with the aim to produce 50 kg/year of high-quality functionalized multi-walled carbon nanotubes (MWCNTs).
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USM UNIVERSITI SAINS MALAYSIA APEX
SYNTHETIC DNA-APTAMER BIORECEPTOR (TREHAPTAMERS) FOR STINGLESS BEE HONEY AUTHENTICATION
RESEARCHERS
Dr. Mohd Zulkifli Mustafa
Dr. Shazana Hilda Binti Shamsuddin
Yusuf Lukman
School of Medical Sciences
Dr. Siti Khatijah Abdul Razak
Brainey Sdn Bhd, Universiti Sains Malaysia, Health Campus
How do you know your Stingless bee (Kelulut) honey is authentic? Introducing Trehaptamers™, a novel bioreceptor designed to detect adulteration in Kelulut honey. Developed through in-silico engineered DNA Aptamers and precision molecular docking, Trehaptamers™ are ultra-specific to the unique trehalulose sugar and enzymes found in genuine Kelulut honey, empowering fabrication of biosensor kits for quality verification and integrity assurance.
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# GALLERY OF IDEAS

Festival IDEA @Pulau Pinang




USM UNIVERSITI SAINS MALAYSIA APEX
DRIVING SEMICONDUCTOR INNOVATION THROUGH INOR GALLIUM NITRIDE TEMPLATE
RESEARCHERS
Assoc. Prof. Dr. Norzaini Binti Zainal
Mr. Mohd Anas Bin Ahmad
Ts. Dr. Mohd Nazri Bin Abd Rahman
Institute of Nano Optoelectronics Research and Technology
The Institute of Nano Optoelectronics Research and Technology (INOR) has developed high-quality, affordable gallium nitride (GaN) templates for modern devices. Through INOR's unique process, the templates are produced about three times faster than standard industrial techniques and exhibit better quality than most commercial templates. The templates help reduce device production costs by at least 10%.
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USM UNIVERSITI SAINS MALAYSIA APEX
LIQ-SENS PD-L1 APTASENSOR POINT-OF-CARE TEST KIT FOR SERUM PD-L1 LEVEL IN CANCER PATIENT
RESEARCHERS
Dr. Noor Fatmawati Mokhtar | Dr. Mohd Khairul Mohd Fadzli Mastaffa
Ms. Nur Fathiah Mohd Zaidi | Ms. Mawaddah Mohd Azlan
Institute For Research In Molecular Medicine
Liq-Sens PD-L1 is a Malaysian innovation by the Institute for Research in Molecular Medicine (INFORMM), Universiti Sains Malaysia, that detects programmed death-ligand 1 (PD-L1) levels in cancer patients through a quick, reliable blood test. Using advanced aptamer technology, it delivers fast, accurate, and affordable results at the point of care, enabling real-time cancer monitoring and truly personalized treatment for better cancer patient outcomes.
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USM UNIVERSITI SAINS MALAYSIA APEX
Before Use
After Use
LASSICA K014™ POSTBIOTIC NEXT-GENERATION SOLUTION FOR GUT AND SKIN HEALTH
RESEARCHER
Assoc. Prof. Dr. Tan Joo Shun
School of Industrial Technology
Lassica K014™ is a clinically proven and patented natural postbiotic derived from a unique strain of Lactiplantibacillus plantarum K014™, containing manimate probiotic cells and beneficial metabolites. It supports microbiome health by restoring microbial balance, promoting beneficial bacteria, and suppressing harmful or antibiotic-resistant strains. Rich in over 30 bioactive compounds such as organic acids, short chain fatty acids, peptides, and natural antimicrobials, Lassica K014™ demonstrates over 90% antimicrobial, antifungal, and anti-inflammatory activity, and remains highly stable for use in skincare, supplements, and functional foods.
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# GALLERY OF IDEAS


**24 OCTOBER 2025 (Friday)**

**FORUM 1**

## From Idea to Impact: Accelerating Innovation Commercialisation for Sustainable Growth

**Venue:**

**Hall 4, PWCC**

**Moderator:**

Prof. Patricia Chung Wei Leng

**Panelist:**

- Datuk Ts. Dr. Mohd Nor Azman Hassan
- Dato' Muhamad Khizri Abu Kasim
- Dato' Ong Bee Leng
- Dato' Dr. Ooi Kee Beng

**About the forum:**

This forum explores the critical journey from innovative ideas to market-ready solutions for sustainable economic growth. The discussion will unite experts from intellectual property, higher education policy, public policy, and institutional management. Panelists will delve into creating robust ecosystems that support the translation of research into commercial products, fostering university-industry collaborations, shaping evidence-based policies, and producing industry-relevant talent.

## Moderator Biography

**Prof. Patricia Chung Wei Leng**
**President**
**IIPCC Malaysia**

An expert in intellectual property (IP) management and commercialisation, she focuses on bridging the gap between academia and industry to translate innovative ideas into marketable products and services that foster a competitive economic environment.

## Panelist Biography

**Datuk Ts. Dr. Mohd Nor Azman Hassan**
**Deputy Secretary-General**
**(Management and Development) Ministry of Higher Education (MOHE)**

As Deputy Secretary-General at Malaysia's Ministry of Higher Education, Datuk Ts. Dr. Mohd Nor Azman Hassan is a key technologist shaping the nation's academic landscape. He is instrumental in enhancing research, fostering university-industry collaborations, and driving the commercialisation of academic innovations for national growth and talent development.

**Dato' Muhamad Khizri Abu Kasim**
**Member of the Board of Governors**
**Universiti Sains Malaysia**

Dato' Muhamad Khizri Abu Kasim was born in Kg. Masjid Jeneri Sik, Kedah in 1978. He went through his schooling days in the village. Subsequently, he continued his studies at Universiti Sains Malaysia in 1997 and was actively involved in student activism. Currently, he is a businessman and serves as Chairman to several private and public listed companies, as well as GLCs (Government-Linked Companies) under the Ministry of Rural and Regional Development. He is very interested in fields focusing on education for the younger generation.

**Dato' Ong Bee Leng**
**Chief Executive Officer**
**Penang Women's Development Corporation Sdn. Bhd.**

As CEO of the Penang Women's Development Corporation (PWDC), Dato' Ong Bee Leng is a key advocate for gender equality and women's empowerment. She leads initiatives to advance women's roles in the economy and leadership, championing inclusive policies and social programs for all community segments in Penang.

**Dato' Dr. Ooi Kee Beng**
**Executive Director**
**Penang Institute**

As the Executive Director of Penang Institute, Dato' Dr. Ooi Kee Beng is a highly respected academic and public intellectual. Holding a PhD in Sinology, his expert analysis on socio-political issues shapes evidence-based policies for Penang's sustainable growth, making him a key voice in regional public discourse.

**25 OCTOBER 2025 (Saturday)**

**FORUM 2**

## Chips for Change: Enabling Smart Societies through Semiconductor Innovation

**Venue:**

**Hall 4, PWCC**

**Moderator:**

Prof. Dr. Asrulnizam Abd. Manaf

**Panelist:**

- Dr. Kuan Yen Tan
- Mr. Lee Chun Keat
- Dr. Sazani Shafie

**About the forum:**

This presentation explores how semiconductor innovation is the foundational driver for creating smart societies. It will delve into the critical role that advanced microchips play in powering the technologies of tomorrow, from 5G connectivity and the Internet of Things (IoT) to artificial intelligence and autonomous vehicles. The session will highlight how next-generation semiconductors are enabling unprecedented efficiency, processing power, and connectivity. By discussing recent breakthroughs and future trends, the talk will illustrate how these tiny “chips for change” are not just components, but the essential building blocks for a more intelligent, sustainable, and connected future.

## Moderator Biography

**Prof. Dr. Asrulnizam Abd. Manaf**
**Collaborative Microelectronic Design Excellence Center (CEDEC)**
**Universiti Sains Malaysia**

As Director of CEDEC at Universiti Sains Malaysia, Professor Dr. Asrulnizam Abd. Manaf is a leading expert in microelectronics and RFIC design. He spearheads advanced semiconductor research, fostering crucial industry-academia collaborations to nurture top talent and advance Malaysia's position as a global leader in the field.

## Panelist Biography

**Dr. Kuan Yen Tan**
**CTO and Co-founder**
**IQM Quantum Computers**

Dr. Kuan Yen Tan is the Malaysian-born co-founder and CTO of IQM Quantum Computers, a European leader in the field. A pioneer in engineering quantum processors and hardware, his work is at the forefront of the quantum revolution, driving deep-tech innovations that are reshaping global industries and technologies.

**Mr. Lee Chun Keat**
**Engineering Director**
**Oppstar Technology Sdn. Bhd.**

Lee Chun Keat is an Engineering Director at Oppstar with 29 years of experience in semiconductor IC design. He leads high-performing, multidisciplinary teams in delivering various advanced chip solutions. His strengths include digital IC design, architectural development, SoC integration, and design methodology, driving innovation across complex, high-impact semiconductor projects.

**Dr. Sazani Shafie**
**Director**
**Broadcom Global Distribution Hub**

As Director of the Broadcom Global Distribution Hub, Dr. Sazani Shafie is an expert in global logistics and supply chain management. His specialty involves managing the complex, worldwide distribution networks for high-tech semiconductor products, focusing on operational efficiency and ensuring timely delivery across a vast international market.

**25 OCTOBER 2025 (Saturday)**

**FORUM 3**

## Smart Health for All: Driving SDG3 through Inclusive Innovation

**Venue:**

**Hall 4, PWCC**

**Moderator:**

Prof. Dr. Habibah A Wahab, FASc.

**Panelist:**

- Dr. Goh Hin Kwang
- Dr. Ishak Ibrahim
- Assoc. Prof. Ts. Dr. Kay Dora Abd Ghani

**About the forum:**

This forum explores how inclusive innovation in smart health can accelerate progress towards Sustainable Development Goal 3 (SDG3). The discussions will focus on leveraging technologies like AI, telemedicine, and the Internet of Things (IoT) to create more accessible, efficient, and equitable healthcare systems. Experts from technology, public health, and policy will examine strategies to overcome barriers such as the digital divide and ensure new solutions reach vulnerable populations. By championing a human-centered approach, the forum aims to forge pathways for deploying smart health technologies that actively reduce health disparities and make 'Good Health and Well-being for All' a reality.

## Moderator Biography

**Prof. Dr. Habibah A Wahab, FASc.**
**Deputy Vice-Chancellor (Research & Innovation)**
**Universiti Sains Malaysia**

As Deputy Vice-Chancellor (Research & Innovation) at USM and a Fellow of the Academy of Sciences, Professor Dr. Habibah A Wahab is a leading pharmaceutical chemist. She champions high-impact research in computational drug design, fostering industry collaborations to translate scientific innovation into accessible and inclusive healthcare solutions.

## Panelist Biography

**Dr. Goh Hin Kwang**
**Director**
**Hospital Pulau Pinang**

Dr. Goh Hin Kwang is a distinguished Public Health Physician and the Director of Penang General Hospital. His expertise lies in family health development and disease control, with a significant focus on public health program management. His greatest achievement includes his instrumental role in managing state-wide health crises and strengthening Penang's public health infrastructure.

**Dr. Ishak Ibrahim**
**Chief Executive Officer**
**Rayatech Sdn. Bhd.**

As the CEO of Rayatech Sdn. Bhd., Dr. Ishak Ibrahim is a visionary leader with over 25 years of industry experience. He is dedicated to driving the company forward through a commitment to innovation and excellence in the field of digital health.

**Assoc. Prof. Ts. Dr. Kay Dora Abd Ghani**
**Universiti Teknologi MARA**
**Pulau Pinang**

Associate Professor Ts. Dr. Kay Dora Abd Ghani is a civil engineering expert at UiTM Pulau Pinang. Her research primarily focuses on structural and earthquake engineering, including seismic assessment and performance of reinforced concrete buildings. She previously served as Deputy Rector, contributing to research and industry linkage development.

**25 OCTOBER 2025 (Saturday)**

**FORUM 4**

## Turning Ideas to Impact: Industry Meets Academia

**Venue:**

**Hall 4, PWCC**

**Moderator:**

Prof. Ir. Dr. Mariatti Jaafar

**Panelist:**

- Mr. Ramaness Parasuraman
- Assoc. Prof. Dr. Raa Khimi Shuib
- Mr. Amir Hamzah Nawawi

**About the forum:**

This forum is dedicated to bridging the crucial gap between academic research and industry application to transform innovative ideas into real-world impact. The sessions will explore the synergy created when university-led discovery meets corporate expertise and market knowledge. Key discussions will focus on effective models for collaboration, including technology transfer, joint R&D ventures, and building a future-ready talent pipeline. The ultimate goal is to foster a dynamic ecosystem where pioneering research is successfully commercialized, driving economic growth and creating solutions to today's most pressing challenges.

## Moderator Biography

**Prof. Ir. Dr. Mariatti Jaafar**
**Director, Engineering Campus**
**Universiti Sains Malaysia**

As Director of USM's Engineering Campus, Professor Ir. Dr. Mariatti Jaafar excels at turning ideas into impact. She masterfully bridges academia and industry through strategic collaborations, transforming research into tangible solutions. Her leadership cultivates innovation and addresses industrial challenges, shaping a future-ready workforce for Malaysia and beyond.

## Panelist Biography

**Mr. Ramaness Parasuraman**
**Founder, CEO & CTO**
**Free The Seed Sdn. Bhd.**

Mr. Ramaness is a Malaysian Greentrepreneur specializing in biodegradable packaging from agricultural biomass waste. With engineering experience from Siemens and Germany, he established a green factory and R&D lab. His innovations earned multiple UN and global awards. He's also a published researcher, patent holder, and UN COP climate speaker.

**Assoc. Prof. Dr. Raa Khimi Shuib**
**Founder**
**RAA Tech Sdn. Bhd.**

An academic-turned-entrepreneur, Associate Professor Dr. Raa Khimi Shuib is the founder of RAA Tech Sdn. Bhd. With a background in materials science from UniMAP, she successfully translated her research into a commercial venture, exemplifying innovation by bridging the gap between academia and industry in Malaysia.

**Mr. Amir Hamzah Nawawi**
**Managing Director**
**Sanmina-SCI Systems Sdn. Bhd.**

Mr. Amir Hamzah Nawawi is the Managing Director of Sanmina-SCI Systems Sdn. Bhd. in Penang. With extensive experience in the electronics manufacturing services (EMS) industry, he excels in operational management and strategic leadership. His key achievements include driving manufacturing excellence and leading Sanmina's growth in the Southeast Asian market.

**25 OCTOBER 2025 (Saturday)**

**FORUM 5**

## Innovating Future Learning

**Venue:**

**Hall 4, PWCC**

**Moderator:**

Assoc. Prof. Ir. Dr. Syamsul Rizal Bin Abd Shukor

**Panelist:**

- Prof. Dato' Gs. Dr. Narimah Samat
- Dr. Mohd Ikhmal Fadzil
- Ts. Ng Kwang Ming

**About the forum:**

This forum is dedicated to reimagining education for the digital age by exploring the innovations shaping future learning environments. The discussion will focus on integrating transformative technologies like artificial intelligence, virtual reality, and personalized learning platforms into the curriculum. Experts in education and technology will share insights on shifting from traditional instruction to more dynamic, student-centric models that emphasize critical thinking, creativity, and digital literacy. The goal is to outline actionable strategies for educators and institutions to create adaptive, engaging, and inclusive learning experiences that prepare students for the challenges of tomorrow's workforce.

## Moderator Biography

**Assoc. Prof. Ir. Dr. Syamsul Rizal Bin Abd Shukor**
**Director**
**Centre for Development of Academic Excellence (CDAE)**
**Universiti Sains Malaysia**

As Director of the Centre for Development of Academic Excellence (CDAE), Assoc. Prof. Ir. Dr. Syamsul Rizal Abd Shukor leads academic innovation and teaching excellence at Universiti Sains Malaysia (USM). A Chemical Engineering expert in process control and intensification, he champions outcome-based education, accreditation quality, and digital transformation to enhance engineering education and global academic leadership.

## Panelist Biography

**Prof. Dato' Gs. Dr. Narimah Samat**
**Deputy Vice-Chancellor (Academic and International)**
**Universiti Sains Malaysia**

As USM's Deputy Vice-Chancellor (Academic & International), Professor Dato' Gs. Dr. Narimah Samat leads the university's academic and internationalisation efforts. The Human Geography expert champions educational innovation, focusing on modern teaching, digital transformation, and global mobility to develop future-ready graduates with a global mindset.

**Dr. Mohd Ikhmal Fadzil**
**Head – Centre for Institutional Development & Sustainability**
**KITAB Penang**

As Head of Institutional Development at KITAB Penang, Dr. Mohd Ikhmal Fadzil leads strategic planning and quality assurance. He focuses on curriculum development and continuous improvement, integrating modern pedagogical approaches with Islamic values to produce innovative and well-rounded graduates who are aligned with future industry demands.

**Ts. Ng Kwang Ming**
**Chief Executive Officer**
**Digital Penang**

As CEO of Digital Penang, Ts. Ng Kwang Ming spearheads the state's digital transformation. He focuses on developing the local tech talent ecosystem, promoting widespread digital adoption among businesses and the community, and attracting high-value investments to build an innovative and inclusive digital economy.

**25 OCTOBER 2025 (Saturday)**

**TALK 1**

## Incentives for Internship under ILHAM KESUMA by TalentCorp

**Venue:**

**Hall 4, PWCC**

**Speaker:**

Ms. Siti Noratikah Kasmoi

**About the talk:**

This presentation explores the national incentives introduced under ILHAM KESUMA to encourage companies to invest in internship programmes to be structured, paid and quality internship. It will highlight key government initiatives led by TalentCorp, namely MySIP and LiKES, which provide significant financial support through double tax deductions and matching grants for internship-related expenses. The session will explain how these programmes enable employers to reduce operational costs while offering high-quality, work-integrated learning experiences to students. By outlining the framework for structured internships, the talk emphasizes how companies can build a robust talent pipeline, enhance graduate employability, and contribute to Malaysia's goal of developing a skilled, industry-ready workforce for sustainable economic growth.

**Ms. Siti Noratikah Kasmoi**
**Vice President – Head of Industrial Training Facilitation Unit**
**TalentCorp**

As a Vice President at Talent Corporation Malaysia (TalentCorp), Siti Noratikah Kasmoi is a key figure in developing the nation's talent pipeline. She leads initiatives that bridge the gap between education and employment by enhancing structured internship programs and fostering university-industry collaboration to create industry-ready graduates.

# LIST OF INVENTIONS

## HEALTH & WELL-BEING

| NO. | INVENTION TITLE | BOOTH NO. | ID NO. |
|---|---|---|---|
| 1. | LipoTrap Bamboo Charcoal: A Multifunctional Nanomaterial for Combating Harmful Cholesterol in Atherosclerosis | **HW001** | **EX2025-003** |
| 2. | Layer-by-Layer Electrochemical Immunosensor for Sensitive Interferon-γ (IFN-γ) Detection Toward TB Diagnostics | **HW002** | **EX2025-007** |
| 3. | Callisia - Skincare Polysaccharide for Anti-hyperpigmentation, Anti-acne, Anti-oxidant and SPF | **HW003** | **EX2025-010** |
| 4. | EXECOGIM A Precision Exercise Apps for People with Mild Cognitive Impairment | **HW004** | **EX2025-011** |
| 5. | Ergomotion: AI Based Ergonomics Assessment System | **HW005** | **EX2025-018** |
| 6. | Spectral Intelligence: Integrating FTIR and Machine Learning for Authenticating Herbal Medicine | **HW006** | **EX2025-019** |
| 7. | Aedes Larvae-Insect Resist RT-qPCR | **HW007** | **EX2025-023** |
| 8. | Gene Therapy - Precise Therapeutic Product to Eradicate HIV | **HW008** | **EX2025-027** |
| 9. | M-RPSD: Aplikasi Mudah Alih RPSD: Inovasi Digital Intervensi Krisis | **HW009** | **EX2025-029** |
| 10. | RADIANT: Radiation Dosimetry Innovation with Advanced Nanolayered TiO2 | **HW010** | **EX2025-030** |
| 11. | MAGNET: Multifunctional Advanced Green-synthesized Nanoparticles for Eco-friendly Theranostics | **HW011** | **EX2025-031** |
| 12. | ChewBee: A Chewable Dietary Supplement Comprising Stingless Bee Pot-Pollen and Potential for Obesity | **HW012** | **EX2025-033** |
| 13. | AP'DENT (Non-Alcohol Antibacterial Mouthwash with Andrographis paniculata Plant Extract) | **HW013** | **EX2025-034** |
| 14. | HACDx : Precise Aptamer-based diagnostic kit for HPV16-E6 detection | **HW014** | **EX2025-039** |
| 15. | AptBipD: Aptamer for Bip D Protein of Bukholderia pseudomallei | **HW015** | **EX2025-040** |
| 16. | Liq-SensPD-L1 Aptasensor Point-of-care Test Kit For Serum PD-L1 Level In Cancer Patient | **HW016** | **EX2025-041** |
| 17. | LTBReveal | **HW017** | **EX2025-043** |
| 18. | TREHAPTAMERS: Trehalulose-targeted Aptamer for Stingless Bee (Kelulut) Honey Authentication Detection | **HW018** | **EX2025-056** |

# LIST OF INVENTIONS

| NO. | INVENTION TITLE | BOOTH NO. | ID NO. |
|---|---|---|---|
| 19. | VDEN+ Smart Dengue Diagnostic Platform: Thermostable VNAR Antibodies Integrated with AI-Enhanced Lateral Flow Technology | **HW019** | **EX2025-061** |
| 20. | PleuroActiva+ Immunomodulatory Polysaccharides from Pleurotus pulmonarius: A Sustainable Innovation for Immune Health | **HW020** | **EX2025-062** |
| 21. | Flex EPG | **HW021** | **EX2025-064** |
| 22. | CARETum Rapid Test Kit | **HW022** | **EX2025-085** |
| 23. | AVS CCO1 Soothing Cream | **HW023** | **EX2025-093** |
| 24. | Targeted Gene Panels for Rapid Diagnosis of Severe Combined Immunodeficiency (SCID) in Malaysia | **HW024** | **EX2025-103** |
| 25. | Sawx - The Next Generation lightweight mechanized oil palm harvesting tool | **HW025** | **EX2025-107** |
| 26. | MBU Digital - #1 Digital Phonological-Based Dyslexia Assessment Innovation in Malaysia | **HW026** | **EX2025-108** |
| 27. | Novel Combined Bioactive Glass/Beta-TCP Promotes Osteoblast Cells Viability | **HW027** | **EX2025-109** |
| 28. | hCoV: DUAL SHIELD: A Multi-epitope Broad Spectrum Human Coronavirus Vaccine | **HW028** | **EX2025-113** |
| 29. | SCAg-Aptamer Lateral Flow Assay | **HW029** | **EX2025-117** |
| 30. | USM_AbVax: A Next-Gen Immunity Defence Against Hospital Acquired Superbugs | **HW030** | **EX2025-119** |
| 31. | Multi-Activity Virtual Reality Training System for Stroke Recovery | **HW031** | **EX2025-128** |
| 32. | FitNect | **HW032** | **EX2025-129** |
| 33. | Shiffa Gold : Herbal Synergy for Complete Body Wellness | **HW033** | **EX2025-137** |
| 34. | Kopi O Kulim: Taste the Difference, Feel the Health Benefits | **HW034** | **EX2025-139** |
| 35. | Kopi Ala Kazim | **HW035** | **EX2025-143** |
| 36. | ThriveTogether | **HW036** | **EX2025-172** |
| 37. | AmiDose: Personalized amikacin dosing from the first dose for high-risk neutropenic patients. | **HW037** | **EX2025-149** |
| 38. | Cervical-Dx: HLA Based Cervical Cancer Detection Using ELISA | **HW038** | **EX2025-151** |
| 39. | Triselicious Pop | **HW039** | **EX2025-053** |
| 40. | BUGBEGONE Balm | **HW040** | **EX2025-069** |
| 41. | Inovasi Syampu Cat KutuFree AVERRHOA BILIMBI | **HW041** | **EX2025-087** |

# LIST OF INVENTIONS

| NO. | INVENTION TITLE | BOOTH NO. | ID NO. |
|---|---|---|---|
| 42. | CARICA ALUM | **HW042** | **EX2025-090** |
| 43. | SMART IV Drip Monitoring System | **HW043** | **EX2025-118** |

## ENERGY & ENVIRONMENT PROTECTION

| NO. | INVENTION TITLE | BOOTH NO. | ID NO. |
|---|---|---|---|
| 1. | Green Lung City: Reimaging Taiping Lake Gardens: A Place for All | **EP001** | **EX2025-004** |
| 2. | HABs_AI@USM: Greening the Fight Against Harmful Algae | **EP002** | **EX2025-005** |
| 3. | Rapid Propagation of Fig Plants via Tissue-Culture | **EP003** | **EX2025-012** |
| 4. | AIDETOX | **EP004** | **EX2025-014** |
| 5. | Cellula Hydrogel Fertilizer: With water retention and slow release of nutrients | **EP005** | **EX2025-016** |
| 6. | LIGNOSYEN - Emulsifying Agent from Palm Oil Waste | **EP006** | **EX2025-017** |
| 7. | EcoGO: Bamboo-derived Graphene Oxide for Water Remediation | **EP007** | **EX2025-020** |
| 8. | VIBRIOtrace - eDNA Surveillance of Vibrio Pathogens in Aquaculture | **EP008** | **EX2025-024** |
| 9. | HYDROHEAL: Functional Clay-based Adsorptive Film For The Removal of Emerging Contaminants | **EP009** | **EX2025-038** |
| 10. | FLY Fusion: Dried Black Soldier Fly Larvae and Frass | **EP010** | **EX2025-063** |
| 11. | Graphene And Gel: Solar Revolution | **EP011** | **EX2025-066** |
| 12. | FEMICARE - Thermal Regulated Compact Napkin Incinerator | **EP012** | **EX2025-075** |
| 13. | BIOECODS@USM Sustainable Green Drainage System | **EP013** | **EX2025-078** |
| 14. | Poly-DisperMax | **EP014** | **EX2025-084** |
| 15. | ZwitAd: Zwitterionic Adsorbent Coating For Advanced Pollutant Removal | **EP015** | **EX2025-121** |
| 16. | CLINOPTILOCLEAN - Functional Zeolite For Clean and Clear Water | **EP016** | **EX2025-124** |
| 17. | Revolutionizing Storm Water Management With Subsurface Drain Technology For Flood Prevention | **EP017** | **EX2025-130** |
| 18. | AG-ENVITECH: In House Temperate Crop Controlled Environment Chamber | **EP018** | **EX2025-120** |
| 19. | Artificial Riffle Structure (ARS) For Urban River Rehabilitation | **EP019** | **EX2025-152** |

# LIST OF INVENTIONS

| NO. | INVENTION TITLE | BOOTH NO. | ID NO. |
|---|---|---|---|
| 20. | r-PolyKen | **EP020** | **EX2025-153** |
| 21. | Multi-Pond Constructed Wetland System (MPCWS) Design for Domestic Sewage Treatment | **EP021** | **EX2025-157** |
| 22. | Simultaneously Bioremediation of Chicken Manure and Bioelectricity Generation Using Microbial Fuel Cell Technology | **EP022** | **EX2025-146** |
| 23. | CitroSpark Biohybrid eco-friendly hybrid fire starter | **EP023** | **EX2025-048** |
| 24. | AlgaeNova: Eco Water Purifier System | **EP024** | **EX2025-057** |
| 25. | BALDWING | **EP025** | **EX2025-059** |
| 26. | CALOVERA Set | **EP026** | **EX2025-067** |
| 27. | Smart PawSense: A Humane Solution For Peaceful Coexistence | **EP027** | **EX2025-077** |
| 28. | ECOPUFF | **EP028** | **EX2025-091** |
| 29. | IOT Roof Tank Water Quality Monitoring System: A Safe Water For All | **EP029** | **EX2025-110** |
| 30. | Green Soundroofing | **EP030** | **EX2025-111** |
| 31. | ETAS (EcoTank Automation System) | **EP031** | **EX2025-136** |
| 32. | NEUROLYNX | **EP032** | **EX2025-160** |
| 33. | Automatic Solar Pump For Garden (ASPG) | **EP033** | **EX2025-169** |
| 34. | PSP Smart Lighting System V3 | **EP034** | **EX2025-173** |
| 35. | FLOWS SYSTEM | **EP035** | **EX2025-184** |

## EDUCATION & ENHANCING COMMUNITIES

| NO. | INVENTION TITLE | BOOTH NO. | ID NO. |
|---|---|---|---|
| 1. | SiSTeCATI - AI powered video interpretation and translation | **EC001** | **EX2025-001** |
| 2. | Z-NEUROTRACK: Cost-Effective Zebrafish-Based Platform for Preclinical Neurobehavioral Screening | **EC002** | **EX2025-008** |
| 3. | VRGEO@USM: Immersive VR for Geotechnical Engineering Education | **EC003** | **EX2025-009** |

# LIST OF INVENTIONS

| NO. | INVENTION TITLE | BOOTH NO. | ID NO. |
|---|---|---|---|
| 4. | Germs Eradication Mission For Education (GErMiE): Mobile Game App For Edutainment And Game-Based Learning | **EC004** | **EX2025-032** |
| 5. | Evergreen-Stem Virtual Lab: Virtual Lab Application In The Topic Of Environmental Sustainability For Secondary School Students | **EC005** | **EX2025-036** |
| 6. | BioNutri-MM: Virtual Lab Integrated with AI | **EC006** | **EX2025-037** |
| 7. | MAGIC RULER 2.0 | **EC007** | **EX2025-096** |
| 8. | Electrical Wiring Continuity And Polarity Tester (EWCP) | **EC008** | **EX2025-114** |
| 9. | MUSE | **EC009** | **EX2025-116** |
| 10. | PepperX - An Integrated Post-Harvest Processing Ecosystem for Pepper | **EC010** | **EX2025-122** |
| 11. | Kitab As An Educational Innovation Model For Human Capital Development of The B40 Group Through Zakat Instrument | **EC011** | **EX2025-123** |
| 12. | Lilin Harum Lestari (LiME) dan Sabun Seroja | **EC012** | **EX2025-125** |
| 13. | Little Lab – DNA Extraction Kit: Fruit DNA in Your Hands | **EC013** | **EX2025-126** |
| 14. | Braillight | **EC014** | **EX2025-127** |
| 15. | MA PENCIL: An Assistive Learning Tool to Improve Fine Motor and Writing Skills among Children with Autism Spectrum Disorder (ASD) | **EC015** | **EX2025-142** |
| 16. | EduHarvest | **EC016** | **EX2025-132** |
| 17. | EC-WRAP: Electrical Cable Wrapping | **EC017** | **EX2025-154** |
| 18. | R-THENA 2.0:  An R-Based Thematic And N-Gram Analyzer | **EC018** | **EX2025-167** |
| 19. | Gravify | **EC019** | **EX2025-175** |
| 20. | CostEdge | **EC020** | **EX2025-178** |
| 21. | Virtual Reality for IOT Simulation (VRIOTS) | **EC021** | **EX2025-182** |
| 22. | INTERVUE — Intelligent Large Language Model based Virtual Interview Experience | **EC022** | **EX2025-140** |
| 23. | Eithne Bench | **EC023** | **EX2025-144** |
| 24. | 14-IN-1 Rayruler Interactive Simulation | **EC024** | **EX2025-045** |
| 25. | COMBLOCK: A STEaM Companion | **EC025** | **EX2025-051** |
| 26. | MAGNEMATH PPKI | **EC026** | **EX2025-052** |

# LIST OF INVENTIONS

| NO. | INVENTION TITLE | BOOTH NO. | ID NO. |
|---|---|---|---|
| 27. | Victory King Game Board | **EC027** | **EX2025-058** |
| 28. | LET'S 2.0 - Leisure Explorace Terms in Space Version 2.0 | **EC028** | **EX2025-060** |
| 29. | PIFoUP (Prevention of Inappropriate Food and Unauthorized Personnel) | **EC029** | **EX2025-070** |
| 30. | An Automotive Security System (Car Anti Theft) | **EC030** | **EX2025-072** |
| 31. | Alcohol & Carbon Monoxide Detector | **EC031** | **EX2025-074** |
| 32. | Glideon is a solar-powered smart robotic chair that assists senior citizens in moving easily across public spaces. | **EC032** | **EX2025-076** |
| 33. | EQ-STRIP 2.0 | **EC033** | **EX2025-089** |
| 34. | MA-MI SET GAME | **EC034** | **EX2025-095** |
| 35. | MathVenture Intreractive Board Game | **EC035** | **EX2025-098** |
| 36. | MY SMART GEOBOARD | **EC036** | **EX2025-100** |
| 37. | Inovasi Sifir Sempoi Smart Kit | **EC037** | **EX2025-102** |
| 38. | AGRO Badawi Centre Description Efficiency Fertigation | **EC038** | **EX2025-112** |
| 39. | Astronomi Badawi Cemerlang dalam Explorasi Falak (Astronomi BCDEF) | **EC039** | **EX2025-115** |
| 40. | RECAB PH Test Kit | **EC040** | **EX2025-155** |
| 41. | Smart Angle Jig For Machining | **EC041** | **EX2025-159** |
| 42. | EDULEXIVERSE | **EC042** | **EX2025-176** |
| 43. | Short Film Production: Di Bawah Langit Yang Sama | **EC043** | **EX2025-180** |
| 44. | WBL Hub | **EC044** | **EX2025-185** |

## RESPONSIBLE INDUSTRY & PARTNERSHIP

| NO. | INVENTION TITLE | BOOTH NO. | ID NO. |
|---|---|---|---|
| 1. | PALM 3D-CRETE: Innovative Use of Oil Palm Waste in 3D Concrete Printing Materials | **RP001** | **EX2025-000** |
| 2. | Ai-SkiDex - Artificial Intelligence Image-based System For High Accuracy Pavement Skid Resistance Evaluation | **RP002** | **EX2025-000** |

# LIST OF INVENTIONS

| NO. | INVENTION TITLE | BOOTH NO. | ID NO. |
|---|---|---|---|
| 3. | Tito Box v2 | **RP003** | **EX2025-006** |
| 4. | CAMS- Commuting Safety Management System: A Data-driven Approach For Employers' Road Safety Management | **RP004** | **EX2025-013** |
| 5. | Affordable Tech. Excellent Choice (ATEC) | **RP005** | **EX2025-022** |
| 6. | Traffic Incident Reporting Enhancer (TIRE) System: Enhancing Targeted Solutions for Reducing Commuting Crashes to Workplaces | **RP006** | **EX2025-025** |
| 7. | Next Generation Real-Time Simulation and Digital Twin For Automated Handling Management System (AHMS) Towards Fully Automated Model for Semiconductor Operation | **RP007** | **EX2025-050** |
| 8. | BIO-POT : Pasu Mesra Alam | **RP008** | **EX2025-065** |
| 9. | DHABB Environment Heat-Activated Base (DEHAB) | **RP009** | **EX2025-080** |
| 10. | EvacSmart: Apps for Smart Evacuation and Emergency Response During Disasters | **RP010** | **EX2025-092** |
| 11. | LD-SPS : Light Dependent Safety Power Socket | **RP011** | **EX2025-097** |
| 12. | i-SunDryer | **RP012** | **EX2025-104** |
| 13. | L-TRACK: Logistics Management And Real-Time Tracking | **RP013** | **EX2025-148** |
| 14. | i-Mistroom | **RP014** | **EX2025-161** |
| 15. | TRACKIEY | **RP015** | **EX2025-162** |
| 16. | Reviving Heritage Through Technology: 3D Digital Reconstruction of the Bukit Choras Buddha Head | **RP016** | **EX2025-166** |
| 17. | FabricBRICK | **RP017** | **EX2025-179** |
| 18. | ECO MORIBITE - Pelet Ikan Lestari | **RP018** | **EX2025-054** |
| 19. | NeoFresh | **RP019** | **EX2025-068** |
| 20. | Egglow - Pencuci Tangan dan Pembasmi Kuman Semula Jadi daripada Kulit Telur | **RP020** | **EX2025-073** |
| 21. | Neoguardian- Your Guardian At All Times | **RP021** | **EX2025-082** |
| 22. | AETHERLINK: Signal Beyond Reach | **RP022** | **EX2025-094** |
| 23. | SMART PHARM: An innovative product that assists pharmacists. | **RP023** | **EX2025-099** |

# LIST OF INVENTIONS

| NO. | INVENTION TITLE | BOOTH NO. | ID NO. |
|---|---|---|---|
| 24. | FUELING GARDEN: Emergency Alarm System to prevent fire outbreak in a gas stations | **RP024** | **EX2025-105** |
| 25. | Pallet Pro | **RP025** | **EX2025-158** |
| 26. | FLOROSYNC | **RP026** | **EX2025-164** |
| 27. | Automatic Flood Car Lift | **RP027** | **EX2025-171** |

# INVENTION DETAILS

EX2025-001

**SISTEC AI Sdn. Bhd.**

**INVENTOR**:
Tang Enya Kong

**CO-RESEARCHER(s):**
- Tang Khang Wei

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**SiSTeCATI - AI Powered Video Interpretation and Translation**

SiSTeCATI leverages cutting-edge Large Language Models (LLMs) to deliver powerful, real-time video processing. Our platform provides two core capabilities which are a Multilingual Video Translation: Instantly translate any video in an educational library, making content rapidly accessible to a global audience. Second is a Real-Time Video Interpretation: Provide live, AI-powered interpretation during training sessions and webinars. The system generates highly accurate captions and synchronized audio in over 30 languages, with a dedicated focus on ASEAN languages, ensuring no student is left behind.


EX2025-003

**Advanced Medical and Dental Institute, Universiti Sains Malaysia**

**INVENTOR**:
Rafeezul Mohamed

**CO-RESEARCHER(s):**
- Abdullah Mutaman Hussein Abdullah
- Muhammad Mahyiddin Ramli

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**LipoTrap Bamboo Charcoal: A Multifunctional Nanomaterial for Combating Harmful Cholesterol in Atherosclerosis**

Lipotrap Bamboo Charcoal is a biomedical adsorbent made from renewable bamboo, designed to selectively remove harmful oxidized LDL (oxLDL) from blood. Its porous nanostructure traps oxLDL without affecting beneficial molecules, while the solid tablet form enhances strength, safety, and clinical usability. Eco-friendly and biocompatible, Lipotrap offers a sustainable, cost-effective, and safer alternative to conventional cholesterol-lowering treatments.

# INVENTION DETAILS

**EX2025-004**

**School of Housing, Building & Planning,**
**Universiti Sains Malaysia**

**INVENTOR**:
Massoomeh Hedayati Marzbali

**CO-RESEARCHER(s):**
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- Liu Chengqi
- Nurfarahin Roslan

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**Green Lung City: Reimaging Taiping Lake Gardens: A Place for All**

Green Lung City revitalizes Taiping through nature-based solutions and inclusive urban design. It restores water quality with rain gardens and wetlands, reconnects the lake and town via accessible paths and bridges, and adds cycling trails linking key attractions. The project enhances heritage identity with multilingual wayfinding, adaptive reuse, and small placemaking features. Safe lake edges and multimodal transport hubs promote sustainability, accessibility, and low-carbon mobility.

**EX2025-005**

**School of Chemical Sciences**
**Universiti Sains Malaysia**

**INVENTOR**:
Mohammad Anwar Mohamed Iqbal

**CO-RESEARCHER(s):**
- Roziawati Mohd Razali
- Mohamad Nasir Mohamad Ibrahim
- Srimala Sreekantan
- He Ranri

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**HABs_AI@USM: Greening the Fight Against Harmful Algae**

HABs_AI@USM is a biodegradable organoclay composite that removes up to 80% of harmful algal cells through electrostatic and chemical bonding. Eco-friendly and non-toxic, it works in both freshwater and marine systems without altering pH or leaving residues. Safe, cost-effective, and scalable, it supports sustainable aquaculture and aligns with Malaysia's Ekonomi MADANI agenda. The technology is protected by patent and copyright registrations.

# INVENTION DETAILS

**EX2025-006**

**School of Housing, Building and Planning, Universiti Sains Malaysia**

**INVENTOR**:
Muhamad Azhar Ghazali

**CO-RESEARCHER(s):**
- Mizan Adillia Ahmad Fuad
- Mohd Hafizal Mohd Isa
- Hanizam Awang

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**PALM 3D-CRETE: Innovative Use of Oil Palm Waste in 3D Concrete Printing Materials**

Optimizing the oil palm waste (POFA) in 3D Concrete Printing with optimal mixture proportioning will improve the flowability, buildability, and geometry conformity required in 3DCP technology. Properly processed POFA can improve rheology, physical, mechanical, and thermal properties. Improve compressive and tensile strengths at moderate replacement levels.

**EX2025-007**

**Institute for Research in Molecular Medicine, Universiti Sains Malaysia**

**INVENTOR**:
Lai Ngit Shin

**CO-RESEARCHER(s):**
- Tye Jgee Jun
- Gan Shin Yi

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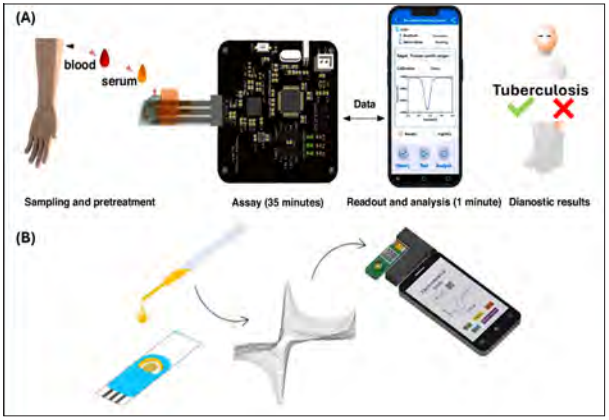
**Layer-by-Layer Electrochemical Immunosensor for Sensitive Interferon-_ (IFN-_) Detection Toward TB Diagnostics**

- A portable, label-free electrochemical immunosensor capable of detecting IFN-_
- Achieves ultrasensitive detection (LOD: 2.23 ng/mL) across broad dynamic range (0.0001–100 ng/mL).
- Detection can be done within 30 minutes.
- Offer a rapid TB immune screening tool aligned with global health priorities.



# INVENTION DETAILS

**EX2025-008**

**School of Pharmaceutical Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Fauziahanim Zakaria

**CO-RESEARCHER(s):**
- Sheikh Adnan Sakib,
- Ban En Yi
- Goh Yen Wei

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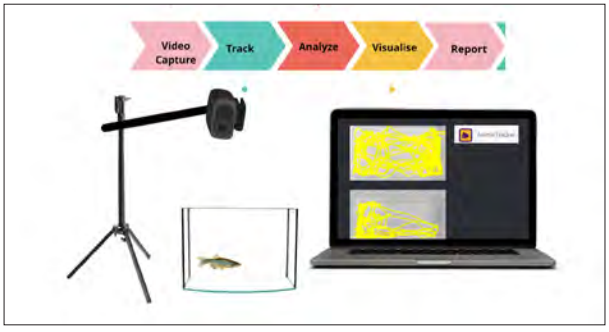
**Z-NEUROTRACK: Cost-Effective Zebrafish-Based Platform for Preclinical Neurobehavioral Screening**

Z-NeuroTrack provides an affordable, hands-on service for researchers starting zebrafish behavioural studies. Instead of selling costly hardware, it offers in-lab training, software setup, and technical support. Researchers learn to record and analyse behavioural data using open-source tools, overcoming high entry costs and technical challenges. This service promotes accessibility, flexibility, and reproducibility in zebrafish research.




**EX2025-009**

**School of Civil Engineering,**
**Universiti Sains Malaysia**

**INVENTOR**:
Mohd Ashraf Mohamad ISMail

**CO-RESEARCHER(s):**
- Fatin Nadhirah Ahmad Pauzi
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- Vynotdni Rathinasamy

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**VRGEO@USM: Immersive VR for Geotechnical Engineering Education**

VRGEO@USM is an immersive learning platform combining UAV photogrammetry and Virtual Reality to enhance geotechnical education and community awareness. It creates 3D digital twins of geological sites for safe, interactive exploration and analysis. Through pre-, field-, and post-learning cycles, students and communities can study slope conditions, assess risks, and reinforce understanding. Supporting SDG 4 and SDG 9, VRGEO@USM improves safety, engagement, and real-world learning experiences.

# INVENTION DETAILS

**EX2025-010**

**Analytical Biochemistry Research Centre, Universiti Sains Malaysia**

**INVENTOR**:
Gan Chee Yuen

**CO-RESEARCHER(s):**
- Tan Joo Shun
- Yap Pei Gee
- Li Cheng
- Gan Chee Yuen

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**Callisia - Skincare Polysaccharide for Anti-hyperpigmentation, Anti-acne, Anti-oxidant and SPF**

Callisia, a novel plant-derived skincare polysaccharide, which is a biodegradable 4-in-1 active ingredient that combats hyperpigmentation via inhibiting tyrosinase activities, fights acne with antimicrobial (Cutibacterium acnes) action, provides antioxidant protection, and enhances sunscreen efficacy. It enables potent, non-toxic, and sustainable skincare formulations in a single, natural molecule.


**EX2025-011**

**Advanced Medical and Dental Institute, Universiti Sains Malaysia**

**INVENTOR**:
Hazwani Ahmad Yusof@Hanafi

**CO-RESEARCHER(s):**
- Ahmad Munir Che Muhamed
- Muhammad Zulfadli Mohd Sobri

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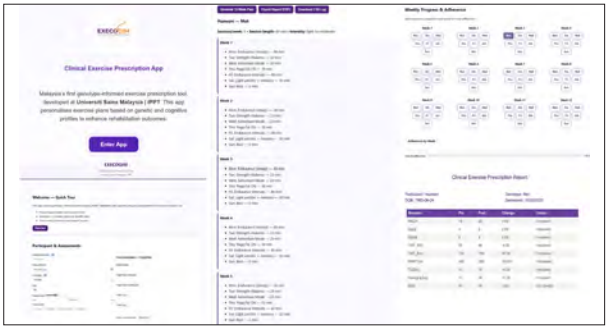
**EXECOGIM A Precision Exercise Apps for People with Mild Cognitive Impairment**

EXECOGIM is a precision-based digital exercise application designed for individuals with Mild Cognitive Impairment (MCI). It delivers personalized exercise programs based on the user's BDNF Val66Met genotype, optimizing neuroplasticity and cognitive resilience. The app integrates genetic profiling, real-time physiological monitoring, and adaptive exercise programming to continuously refine interventions. EXECOGIM promotes both cognitive and physical health, offering an evidence-based, scalable, and accessible solution for dementia prevention. By bridging precision medicine and digital health, it provides a practical strategy to slow cognitive decline, enhance quality of life, and expand access to dementia care, particularly in resource-limited settings.



# INVENTION DETAILS

**EX2025-012**

**School of Biological Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Chew Bee Lynn

**CO-RESEARCHER(s):**
- Sreeramanan Subramaniam
- Tan Li Vern
- Khor Soo Ping

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**Rapid Propagation of Fig Plants via Tissue-Culture**

The current invention establishes optimized culture media formulations and tissue culture techniques for the mass propagation of healthy fig plant stocks derived from selected novel cultivars that thrive and fruit under local tropical conditions. It also integrates DNA polymorphism analysis using molecular markers to verify the genetic fidelity of the propagated plants, ensuring they retain the desirable traits of the mother plant. Additionally, the invention includes efficient acclimatization protocols to achieve high survival rates in farm environments, thereby enabling the consistent supply of disease-free, high-quality fig plant stocks for the development of commercial fruit farms in Malaysia.

**EX2025-013**

**School of Civil Engineering,**
**Universiti Sains Malaysia**

**INVENTOR**:
Mohd Rosli Mohd Hasan

**CO-RESEARCHER(s):**
- Zhao Yu
- Mohd Fahmi Haikal Mohd Ghazali

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**Ai-SkiDex - Artificial Intelligence Image-based System For High Accuracy Pavement Skid Resistance Evaluation**

Ai-SkiDex is an AI-based asphalt skid-resistance evaluation system using the XGBoost algorithm and multiscale texture analysis. It integrates image processing for accurate macro- and micro-texture assessment through a user-friendly interface. Enhancing efficiency by over 50%, it reduces road closures and labor costs while achieving 98% prediction accuracy. Supporting sustainable transport and Vision Zero goals, Ai-SkiDex enables safer, data-driven road maintenance decisions.

# INVENTION DETAILS

EX2025-014

**National Poison Centre**
**Universiti Sains Malaysia**

**INVENTOR:**
Leong Yin Hui

**CO-RESEARCHER(s):**
- Wang Shir Li
- Ng Theam Foo

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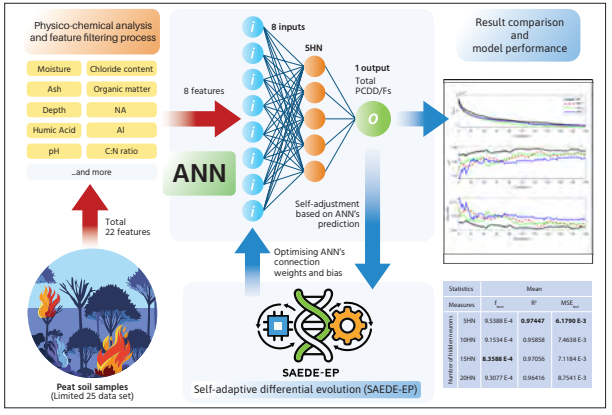
**AIDETOX**

AIDETOX is an AI-powered model that predicts dioxin levels in tropical peat soils using artificial neural networks optimized by evolutionary algorithms. By analyzing key soil parameters, it provides fast, cost-effective, and scalable dioxin risk assessments without costly lab tests. Deployable as user-friendly software, AIDETOX supports environmental monitoring, fire management, and health risk assessment, advancing environmental protection and public health safety.




EX2025-016

**School of Chemical Engineering,**
**Universiti Sains Malaysia**

**INVENTOR:**
Leo Choe Peng

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NONE

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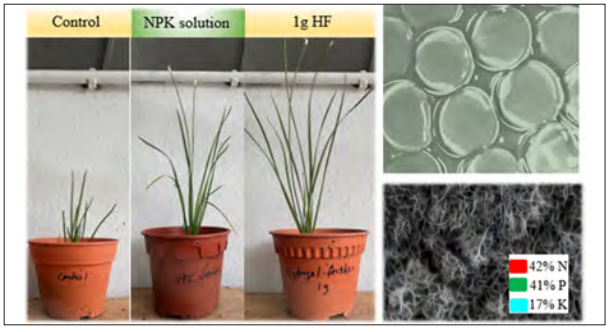
**Cellula Hydrogel Fertilizer: With Water Retention and Slow Release of Nutrients**

The hydrogel fertilizer, made from biodegradable cellulose-based polymers, absorbs and stores water and nutrients for gradual release based on soil and temperature conditions. It enhances moisture retention, boosts microbial activity, and reduces irrigation needs. Tested for performance and safety, it offers higher nutrient efficiency, less environmental impact, and greater crop resilience, making it scalable and suitable for commercial agriculture.



# INVENTION DETAILS

## EX2025-017

**School of Chemical Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Muhammad Taqi-Uddeen Safian

**CO-RESEARCHER(s):**
- Mohamad Nasir Mohamad Ibrahim
- Theresah Osei
- Nithieahvathiy
- Nur Azimah Rosdi

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**LIGNOSYEN - Emulsifying Agent from Palm Oil Waste**

LignoSyen is a HALAL-certified, plant-based nano-lignin emulsifier derived from oil palm empty fruit bunches. Produced through soda pulping and homogenization, it offers strong stability, biodegradability, and antioxidant properties for cosmetic, food, and pharmaceutical use. Proven safe through IFT, MTT, and OECD tests, LignoSyen reduces reliance on imports, lowers costs, and supports Malaysia's green and circular economy with a sustainable, multifunctional emulsifier.


## EX2025-018

**School of Computer Science,**
**Universiti Sains Malaysia**

**INVENTOR**:
Ahmad Sufril Azlan Mohamed

**CO-RESEARCHER(s):**
- Mohd Hafiidz Jaafar
- Muhammad Hariz Naim Mazlan
- Abhishek Kumar

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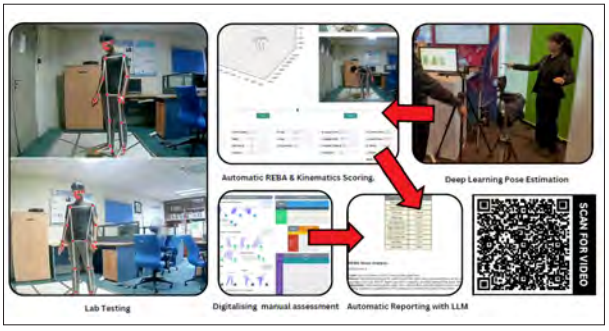
**Ergomotion: AI Based Ergonomics Assessment System**

ErgoMotion is an AI-powered, cross-platform desktop and web application that automates ergonomic risk assessment through advanced 3D pose estimation and deep learning. Using any standard camera, users can effortlessly perform REBA scoring, kinematic analysis, and generate OSHA-aligned ergonomic reports powered by an integrated Large Language Model (LLM). By eliminating the need for wearable sensors and manual observation, ErgoMotion delivers accurate, data-driven insights that enhance workplace safety, boost productivity, and reduce operational costs. Supporting Industry 4.0 initiatives and sustainable occupational health practices, ErgoMotion transforms traditional ergonomics into a smart, automated, and scalable solution for modern industries.



# INVENTION DETAILS

**EX2025-019**

**School of Pharmaceutical Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Yam Mun Fei

**CO-RESEARCHER(s):**
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- Low Chi Yuan
- Loh Hui Wei
- Tew Wan Yin

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**Spectral Intelligence: Integrating FTIR and Machine Learning for Authenticating Herbal Medicine**

Spectral Intelligence is an AI-powered platform combining FTIR spectroscopy with machine learning and CNNs for rapid herbal medicine authentication. It identifies spectral fingerprints to distinguish authentic from adulterated samples with high accuracy. Featuring a cloud-based interface and expanding spectral database, it enables real-time analysis and reporting. Outperforming traditional chemometric methods, the system is scalable, adaptable to multiple industries, and offers a cost-effective, user-friendly solution for quality assurance and regulatory compliance.

**EX2025-020**

**School of Industrial Technology,**
**Universiti Sains Malaysia**

**INVENTOR**:
Sumarni Mansur

**CO-RESEARCHER(s):**
- Muhammad Nidzhom Zainol Abidin
- Nur Izzaati Saharudin
- Mohamad Shazeli Che Zain
- Ali Hanafiah Muhammad
- Aidee Putera Kamal Suradee

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**EcoGO: Bamboo-derived Graphene Oxide for Water Remediation**

EcoGO is a sustainable bamboo-derived graphene oxide (BGO) adsorbent created through an eco-friendly process for water treatment. With a high surface area and active functional groups, it efficiently removes dyes, heavy metals, and contaminants. Offering a low-cost, renewable alternative to graphite-based graphene oxide, EcoGO is versatile, scalable, and compatible with existing systems—supporting Malaysia's bioeconomy, circular economy, and clean water initiatives.

# INVENTION DETAILS

**EX2025-022**

**School of Biological Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Hasber Salim

**CO-RESEARCHER(s):**
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- Mohamad Afif Farhan Adnan
- Harvish Thanasegar

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**Tito Box v2**

The Tito Box V2, developed by the Barn Owl & Rodent Research Group (BORG), is a research-based artificial nest box optimized for barn owl safety and breeding success. Featuring a raised entrance, open interior, perching platform, laminated wood body, and zinc roof, it mimics natural habitats while ensuring durability. DIY-friendly and cost-effective, it supports sustainable agriculture by enhancing barn owl populations for natural rodent control and reducing pesticide use.

**EX2025-023**

**Institute for Research in Molecular Medicine,**
**Universiti Sains Malaysia**

**INVENTOR**:
Nurulhasanah Othman

**CO-RESEARCHER(s):**
- Intan Haslina Ishak

**MOBILE:** 0124971705

**EMAIL:** nurulhasanah@usm.my

**Aedes Larvae-Insect Resist RT-qPCR**

Our RT-qPCR kit solves the problem of slow, non-specific temephos resistance detection by using newly designed primers targeting resistance-specific biomarkers. It enables rapid, sensitive, and quantitative identification of resistant larvae, streamlining surveillance and intervention. This molecular approach replaces labor-intensive bioassays with scalable, real-time diagnostics.

# INVENTION DETAILS

EX2025-024

**Centre for Chemical Biology,**
**Universiti Sains Malaysia**

**INVENTOR**:
Lau Nyok Sean

**CO-RESEARCHER(s):**
- Noorizan Miswan
- Rashidah Abdul Rahim

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**VIBRIOtrace - eDNA Surveillance of Vibrio Pathogens in Aquaculture**

VibrioTrace provides an innovative solution for early detection and monitoring of Vibrio pathogens in aquaculture through environmental DNA surveillance. It employs a duplex real-time polymerase chain reaction assay with species-specific primers and probes to simultaneously detect Vibrio parahaemolyticus and Vibrio alginolyticus directly from water samples. This non-invasive method eliminates the need for animal sampling and complex culturing, delivering results rapidly with high sensitivity and specificity. By enabling timely pathogen detection, VibrioTrace supports proactive disease management, reduces outbreak risk, improves biosecurity, and promotes sustainable aquaculture practices—offering a reliable tool for farmers, researchers, and regulatory monitoring agencies.


EX2025-025

**School of Management,**
**Universiti Sains Malaysia**

**INVENTOR**:
Lilis Surienty Abd Talib

**CO-RESEARCHER(s):**
- Mastura Azmi
- Ahmad Farhan Mohd Sadullah
- Hasrina Mustafa
- Kunitomo Asano

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**CAMS- Commuting Safety Management System: A Data-driven Approach For Employers' Road Safety Management**

The Commuting Safety Management System (CAMS), a collaboration between Universiti Sains Malaysia and Boon Siew Honda since 2019, promotes road safety through data-driven, community-based initiatives toward 'Zero Traffic Fatalities.' Recognized as a Penang State project in 2024, CAMS supports the Penang2030 vision by enhancing quality of life and road safety. Fourteen companies in Batu Kawan Industrial Park actively train motorcycle riders, with support from the Penang Police. The CAMS model has expanded to Honda Malaysia in Melaka and USM's main campus, where a new program with Bridgestone Tyre Sales begins in August 2024.

CAMS
COMMUTING SAFETY MANAGEMENT SYSTEM

# INVENTION DETAILS

**EX2025-027**

**Institute For Research In Molecular Medicine, Universiti Sains Malaysia**

**INVENTOR**:
Kumitaa Theva Das

**CO-RESEARCHER(s):**
- Muhammad Amir Yunus
- Nor Effa Syazuli Bt Zulkafli
- Tye Gee Jun
- Alwi Muhd Besari
- Vijay Kumar

**MOBILE:** 0135215873

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**Gene Therapy - Precise Therapeutic Product to Eradicate HIV**

This gene therapy prototype takes a novel approach of mimicking genetic features found in elite controllers, a unique group of people who live with HIV (PLHIV) with low viral load and high immune system in the absence of cART. Introducing their unique genetics into normal patient samples results in a similar viral control as elite controllers. Mimicking what happens naturally in a certain cohort demonstrates the feasibility and safety of this prototype. This will be the first locally produced genome-editing based gene therapy product to be developed in Malaysia. This product has enormous potential as a therapeutic tool, not only for HIV but also other diseases.


**EX2025-029**

**School of Educational Studies, Universiti Sains Malaysia**

**INVENTOR**:
Nor Shafrin Ahmad

**CO-RESEARCHER(s):**
- Rahimi Che Aman
- Aziah Ismail

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**M-RPSD: Aplikasi Mudah Alih RPSD: Inovasi Digital Intervensi Krisis**

Aplikasi Mudah Alih (M-RPSD) ialah platform digital intervensi krisis yang menyediakan sokongan psikologi, penilaian simptom, video relaksasi, panduan intervensi, serta direktori agensi bantuan. Boleh dimuat turun dari Google Play Store, ia direka untuk kaunselor dan orang awam melalui empat fasa intervensi: membina hubungan, menaksir krisis, memberi sokongan, dan membina daya tindak. M-RPSD meningkatkan akses kepada bantuan psikologi segera, terutama di kawasan tanpa khidmat kaunseling, dengan pendekatan mesra pengguna berasaskan model tempatan.

# INVENTION DETAILS

**EX2025-030**

**School of Physics,**
**Universiti Sains Malaysia**

**INVENTOR**:
Nik Noor Ashikin Bt Nik Ab Razak

**CO-RESEARCHER(s):**
- Ali Salleh Al-Kadeem
- Naser Mahmoud Ahmed
- Youssef. A. Abdulla

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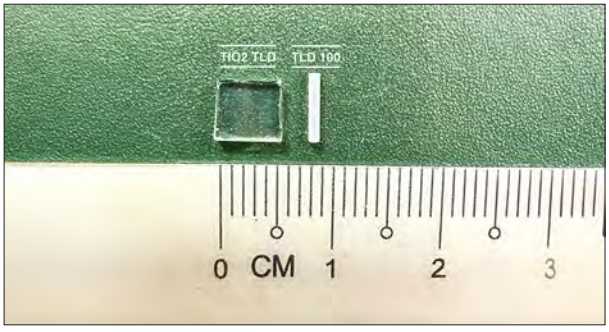
**EMAIL:** nnashikin@usm.my

**RADIANT: Radiation Dosimetry Innovation with Advanced Nanolayered TiO2**

RADIANT is a multilayer thin-film dosimeter with a $TiO_2$/Cu/$TiO_2$ nanostructure that improves charge trapping and signal stability. Ultra-lightweight, thermally stable, and reusable over nine cycles, it accurately detects both ionizing and non-ionizing radiation. Its scalable, cost-efficient fabrication makes it ideal for real-time, wearable, and environmental monitoring, offering a sustainable next-generation radiation detection solution.




**EX2025-031**

**School of Physics,**
**Universiti Sains Malaysia**

**INVENTOR**:
Nik Noor Ashikin Bt Nik Ab Razak

**CO-RESEARCHER(s):**
- Farhank Saber Braim
- Azlan Abdul Aziz
- Mohammed Ali Dheyab

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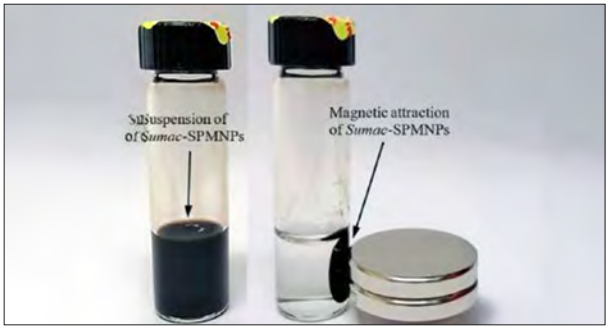
**MAGNET: Multifunctional Advanced Green-synthesized Nanoparticles for Eco-friendly Theranostics**

MAGNET is a green-synthesized nanoplatform using Sumac plant extract to produce biocompatible SPIONs coated with Chitosan and Bismuth for dual MRI/CT imaging. With strong magnetic responsiveness, high stability, and >70% cell viability, it offers safe, reusable, and eco-friendly imaging performance. MAGNET supports sustainable, low-cost medical diagnostics, targeted therapy, and green nanomedicine innovation.



# INVENTION DETAILS

**EX2025-032**

**National Poison Centre,**
**Universiti Sains Malaysia**

**INVENTOR**:
Sazaroni Md Rashid

**CO-RESEARCHER(s):**
- Nur Azzalia Kamaruzaman
- Mahiya Nabilla Rosaria Abdul Hamid
- Mohd Fadhli Razali
- Sulastri Samsudin
- Nur Afni Amir
- Khairil Anwar Jusoh
- Nor Asniza Ishak
- Sharifah Mashita Syed Mohamad

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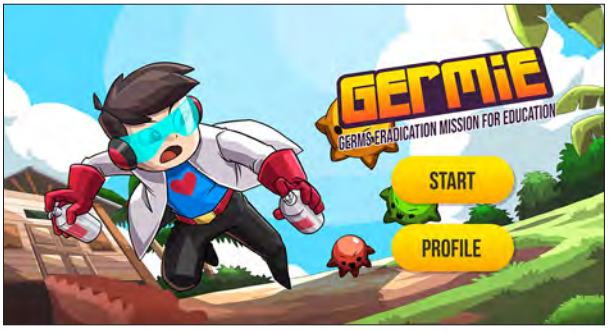
**Germs Eradication Mission For Education (GErMiE): Mobile Game App for Edutainment And Game-Based Learning**

GErMiE is an educational role-play game for ages 7–15 that educates players about infection prevention and antimicrobial resistance. It is used in USM's pharmacy course, funded by USM and ReACT, supported by MOH and Asian universities, internationally validated, award-winning, tax-incentive eligible, and holds three copyrights and a MyIPO trademark grant.




**EX2025-033**

**School of Medical Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Mahaneem Mohamed

**CO-RESEARCHER(s):**
- Wan Syaheedah Wan Ghazali
- Zaida Zakaria
- Zaidatul Akmal Othman

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**ChewBee: A Chewable Dietary Supplement Comprising Stingless Bee Pot-Pollen and Potential for Obesity**

This chewable tablet, formulated with Malaysian stingless bee pot-pollen, offers a nutritious and palatable dietary supplement rich in macronutrients, vitamins, minerals, and antioxidants. Safe and stable at room temperature, it demonstrates a 24% reduction in cholesterol and 67% reduction in fat cell size in obese models, showing strong potential for obesity management. It promotes overall health, supports stingless beekeepers, and provides an affordable, natural solution for improving quality of life.

# INVENTION DETAILS

EX2025-034

**School of Medical Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Tuan Noorkorina Tuan Kub

**CO-RESEARCHER(s):**
- Anis Amiera Muhamad Alojid
- Tuan Nadrah Naim Tuan Ismail
- Suharni Mohamad

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**AP'DENT (Non-Alcohol Antibacterial Mouthwash with Andrographis paniculata Plant Extract)**

AP'DENT is an alcohol-free, plant-based mouthwash formulated with Andrographis paniculata aqueous extract, renowned for its antimicrobial and anti-inflammatory properties. Proven to inhibit most oral pathogens as effectively as Colgate and outperforming Oral B and Listerine, AP'DENT uses only food-grade ingredients, including sorbitol, peppermint oil, Tween 20, and safe preservatives. It offers a gentle, effective, and safer alternative for promoting oral health without the side effects of harmful chemicals as conventional mouthwashes.


EX2025-036

**School of Educational Studies,**
**Universiti Sains Malaysia**

**INVENTOR**:
Nor Asniza Ishak

**CO-RESEARCHER(s):**
- Muaz Mohd Zaini Makhtar
- Nur Azzalia Kamaruzaman
- Mohamad Danial Shafiq

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**EVERGREEN-STEM Virtual Lab: Virtual Lab Application in the Topic of Environmental Sustainability for Secondary School Students**

EVERGREEN-STEM Virtual Lab is a 3D simulation and adaptive learning platform designed to deliver immersive, sustainable science experiments aligned with Malaysia's KSSM STEM and Green Technology curriculum. Featuring interactive modules and teacher support tools, it tailors learning to students' abilities, enhances engagement, and fosters self-efficacy in Science. Protected by patent and copyrights, EVERGREEN-STEM makes Science learning accessible, inclusive, and eco-conscious across Malaysian schools.

# INVENTION DETAILS

**EX2025-037**

**School of Educational Studies,**
**Universiti Sains Malaysia**

**INVENTOR**:
Nor Asniza Ishak

**CO-RESEARCHER(s):**
- Rafiza Rosli
- Muaz Mohd Zaini Makhtar

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**BioNutri-MM: Virtual Lab Integrated with AI**

BioNutri-MM is an AI-powered 3D virtual learning platform that transforms the study of Nutrition and the Human Digestive System (Form Four KSSM) into an interactive, immersive experience. Built on Unity 3D and guided by the Cognitive Theory of Multimedia Learning, it integrates AI assistants for personalized feedback and automatic lab report generation. Available in Malay and designed for both classroom and independent use, BioNutri-MM promotes eco-friendly, inclusive, and scalable STEM education aligned with SDG 4, supported by patent and copyright protections.


**EX2025-038**

**School of Chemical Enginering,**
**Universiti Sains Malaysia**

**INVENTOR**:
Suzylawati Ismail

**CO-RESEARCHER(s):**
- Muhamad Sharafee Shamsudin
- Basem Mohammed Al-Howri

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**HYDROHEAL: Functional Clay-based Adsorptive Film for the Removal of Emerging Contaminants**

1.Formulated with a designated ratio between biopolymer and modified clay.2. Targeted towards adsorbing emerging contaminants and high-polarity compounds.3. Utilizes low-cost raw materials, such as clay in the development of adsorbent films.4. Capitalizes on the high surface area and ion exchange potential of clay, adapting according to the targeted pollutant.5. Incorporates biodegradable biopolymers like alginate, ensuring the absence of secondary pollutants that easily degrade.6. Adsorption of HYDROHEAL stands out due to its ease of operation, simplicity, high efficiency, flexible design, and the non-toxic nature of the utilized adsorbent.

# INVENTION DETAILS

EX2025-039

**School of Medical Science,**
**Universiti Sains Malaysia**

**INVENTOR**:
Shazana Hilda Shamsuddin

**CO-RESEARCHER(s):**
- Mohd Zulkifli Mustafa
- Yusuf Lukman
- Anani Aila Mat Zin
- Pazuddin Ismail
- Teffanie Arputheraj
- Normayazi Mohemed Ali
- Ahmad Talha Mohamad Yunus

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**HACDx : Precise Aptamer-based Diagnostic Kit for HPV16-E6 Detection**

HACDx (HPV Aptamer Cancer Diagnostic) is a rapid, low-cost, and high-precision diagnostic kit developed using in silico DNA Aptamer technology for early detection of HPV oncoproteins in cervical cancer. Its synthetic bioreceptor enables superior molecular recognition, distinguishing transient from cancer-inducing infections—unlike conventional antibody-based tests. Validated with optical biosensor technology and clinical samples, HACDx ensures accuracy, scalability, and affordability, making it ideal for low-resource settings. Supporting Malaysia's health agenda and SDG 3, HACDx represents a major advancement in global cervical cancer diagnostics.


EX2025-040

**Institute For Research In Molecular Medicine,**
**Universiti Sains Malaysia**

**INVENTOR**:
Aziah Ismail

**CO-RESEARCHER(s):**
- Khairul Mohd Fadzli Mustaffa
- Kasturi Selvam
- Muhammad Fazli Khalid
- Muhammad Hafiznur Yunus
- Nor Dyana Zakaria

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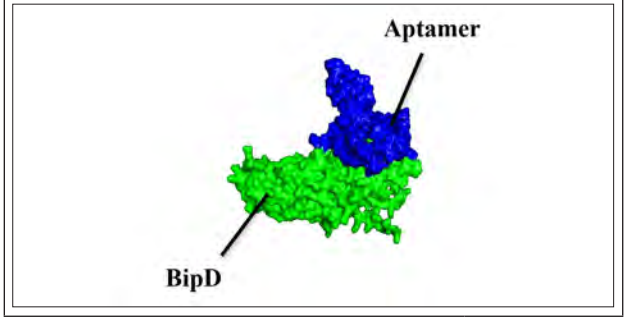
**AptBipD: Aptamer for Bip D Protein of Bukholderia pseudomallei**

This study presents a DNA aptamer-based biosensing technology for the rapid detection of Burkholderia pseudomallei, the pathogen responsible for melioidosis. The selected aptamers target BipD, a virulent and conserved protein, demonstrating high specificity, stability, and reproducibility. Unlike antibodies, these aptamers are low-cost, durable, and free from batch variation. They can be integrated into portable diagnostic tools such as lateral flow assays or electrochemical biosensors, enabling fast, reliable, and field-deployable melioidosis detection—particularly valuable for endemic and resource-limited regions.



# INVENTION DETAILS

**EX2025-041**

**Institute for Research in Molecular Medicine, Universiti Sains Malaysia**

**INVENTOR**:
Noor Fatmawati Mokhtar

**CO-RESEARCHER(s):**
- Muhammad Najmi Mohd Nazri
- Mawaddah Mohd Azlan
- Nur Fatihah Mohd Zaidi
- Nur Ayunie Mohamed
- Mohd Khairul Mohd Fadzli Mustaffa

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**Liq-Sens$^{PD-L1}$ Aptasensor Point-of-care Test Kit For Serum PD-L1 Level in Cancer Patient**

Liq-Sens$^{PD-L1}$ is an innovative aptamer-based electrochemical biosensor designed to overcome the drawbacks of conventional immunoassays like ELISA and IHC. By using synthetic, stable, and cost-effective aptamers instead of antibodies, it enables highly specific and reproducible detection of cancer biomarkers. Its electrochemical sensing mechanism provides ultra-sensitive, rapid, and label-free analysis, suitable for pointof-care applications. This portable and non-invasive platform supports real-time cancer monitoring, enabling personalized treatment strategies and improved patient outcomes.


**EX2025-043**

**Institute for Research in Molecular Medicine, Universiti Sains Malaysia**

**INVENTOR**:
Khairul Mohd Fadzli Mustaffa

**CO-RESEARCHER(s):**
- Nur Fatihah Mohd Zaidi
- Shankariswari Yadevan

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**LTBReveal**

LTBReveal is a next-generation diagnostic platform that combines DNA aptamer technology with electrochemical sensing to detect latent tuberculosis (LTB) rapidly, accurately, and affordably. It overcomes the limitations of traditional methods such as the Tuberculin Skin Test and Interferon-Gamma Release Assays by eliminating cross-reactivity, reducing cost, and enabling point-of-care testing. Portable and user-friendly, LTBReveal is ideal for deployment in resource-limited and high-burden regions. By identifying hidden TB infections early, it supports timely intervention, prevention, and improved public health outcomes—making LTB screening more accessible, scalable, and effective.

# INVENTION DETAILS

EX2025-045

**SMK Agama Kerian**

**INVENTOR**:
Abdul Halim Roslan

**CO-RESEARCHER(s):**
- Muhamad Ashraf Roslan
- Ahmad Ibrahim Putra Adlan
- Muhammad Ariq Iqbal Mohd Fairuz
- Muhammad Shazwan Amani Mohd Shahnul

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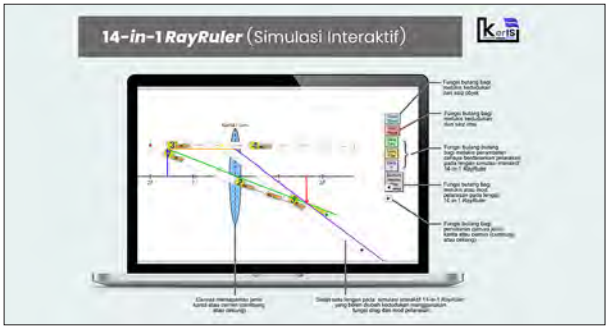
**14-IN-1 Rayruler Interactive Simulation**

The 14-in-1 RayRuler Interactive Simulation is a web-based physics learning tool built using p5.js that enables students to construct and manipulate 14 standard ray diagrams for lenses and mirrors in real time. By allowing users to drag objects and adjust distances, it provides immediate visualization of image formation, enhancing conceptual understanding beyond static textbook diagrams. Fully browser-based, it requires no installation, making it easy for teachers to integrate into lessons. RayRuler promotes active, paperless learning aligned with SDG 4 (Quality Education) and SDG 13 (Climate Action), while fostering critical thinking, engagement, and STEM skills among secondary students.




EX2025-048

**SMK Bagan Serai**

**INVENTOR**:
Suhana Mustapa

**CO-RESEARCHER(s):**
- Dania Qistina Natasya Mohamad Zamberi
- Nur Syazwani Zainuddin @Ramli
- Nur Ainul Qaisara Nor Azam

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**CitroSpark Biohybrid Eco-Friendly Hybrid Fire Starter**

CitroSpark BioHybrid offers an innovative and eco-friendly solution to outdoor survival challenges by combining a safe, reusable fire starter with a natural water filtration function. Made from sustainable materials like citronella essential oil, waste cooking oil, palm fiber, soy wax and coconut husk, it produces a long-lasting flame that repels mosquitoes without harmful emissions. Its leftover biochar can be reused as a natural water filter or organic fertilizer, promoting zero waste and environmental sustainability. Designed for hikers, campers, and eco-conscious users, CitroSpark BioHybrid enhances safety and convenience in wet or windy conditions while reducing environmental impact.

# INVENTION DETAILS

**EX2025-050**

**School of Management,**
**University Sains Malaysia**

**INVENTOR**:
Chan Tat Cheng

**CO-RESEARCHER(s):**
- Lee Jia Jun
- Tay Ping Hwee
- Tang Hui Xin
- Tang Khai Chie
- Aisyah Ismail

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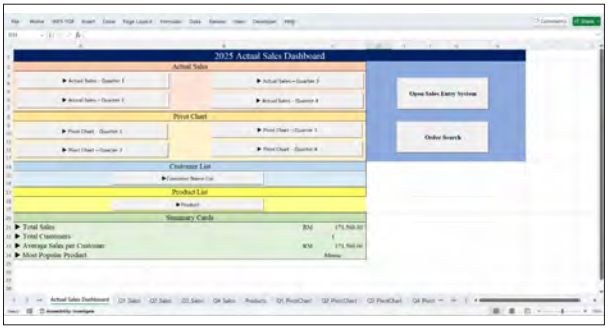
**EMAIL:** tatchengchan@gmail.com

**Affordable Tech. Excellent Choice (ATEC)**

ATEC (Affordable Tech. Excellent Choice) is an integrated financial management system designed for small businesses seeking a low-cost yet powerful alternative to ERP software. Combining the familiar interface of Microsoft Excel with the robust database functions of Microsoft Access, ATEC automates transaction recording, financial tracking, and reporting. Its VBA-powered navigation and real-time pivot charts turn raw data into actionable insights instantly. By utilizing widely available Microsoft tools, ATEC offers a centralized, error-free, and user-friendly financial solution that enhances productivity, supports informed decision-making, and ensures affordability for small enterprises.




**EX2025-051**

**SMK Raja Tun Uda**

**INVENTOR**:
Nor Hayati Abi Khallad

**CO-RESEARCHER(s):**
- Muhammad Alif Akmal Jaafar
- Mohamad Shakeel Shah Mohamed Sahar
- Muhammad Zulfahmi Rosli Zal
- Muhammad Alif Daniel Ahmad Shahbudin
- Sanjit Khalihasan

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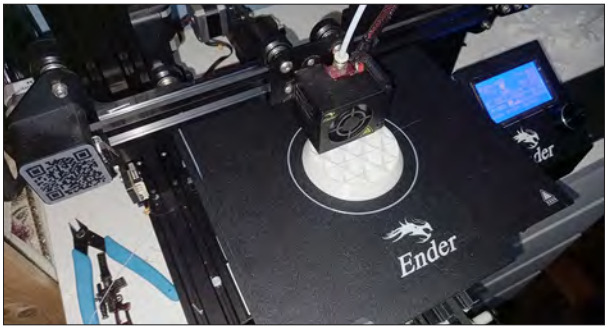
**COMBLOCK: A STEaM Companion**

Comblocks are 3D-printed educational models designed to enhance students' spatial understanding through hands-on learning. By using digital design tools and 3D printing technology, students learn to create and manipulate geometric forms while gaining practical experience in modern fabrication processes. This multidisciplinary approach strengthens spatial reasoning, promotes digital literacy, and connects design principles with real-world technological applications.



# INVENTION DETAILS

EX2025-052

**SMK Pondok Upeh**

**INVENTOR**:
Nurul Iliani Mustapha

**CO-RESEARCHER(s):**
- Muhammad Alif Hakim Hasbullah
- Muhammad Nazrin Mohd Aizam
- Muhammad Fauzan Hazim Faizol
- Muhammad Syahmi Mohd.Shukeri

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**MagneMath PPKI**

MagneMath PPKI is a 3D interactive learning kit that uses a magnetic whiteboard and movable number blocks to help students visualize subtraction, particularly the "borrowing" process. Based on the Concrete–Pictorial–Abstract (CPA) framework, it combines visual and kinesthetic learning for better comprehension. Tested in three schools—SMK Pondok Upeh, SMK Seri Balik Pulau, and SMK Seri Bayu—it achieved over 60% post-test improvement and full teacher approval. Affordable, replicable, and adaptable to other math operations, MagneMath PPKI promotes inclusive and effective math learning, with plans for a digital version and teacher training module for broader implementation.


EX2025-053

**MRSM Balik Pulau**

**INVENTOR**:
Mohd Faisal Fadzil

**CO-RESEARCHER(s):**
- Nurul `Aleeya Syarfa Nor Azwady
- Nur Amira Arissa Khalid
- Nur Hamizah Ahmad Husni

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**Triselicious Pop**

This innovation transforms dragon fruit peel—typically discarded as agricultural waste—into a natural, eco-friendly health product. Rich in nutrients, it offers a safe and chemical-free way to help reduce cholesterol and promote overall wellness. The production process preserves natural compounds through sustainable methods from drying to packaging. By repurposing waste into a valuable remedy, the product supports environmental conservation, sustainability, and innovation in the health and beauty industry, providing an effective natural alternative to chemical-based products.

# INVENTION DETAILS

**EX2025-054**

**SK Jawi**

**INVENTOR**:
Azizul Mohd Hasan

**CO-RESEARCHER(s):**
- Altamis Nurhan Azlan Shah
- Nur Naazneen Adifah Hamidi
- Nur Tasneem Akhtar Mohd Azrul

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**ECO MORIBITE - Pelet Ikan Lestari**

ECO MORIBITE ialah pelet ikan organik mesra alam yang dihasilkan daripada sisa pertanian dan makanan tempatan seperti sisa ikan, daun moringa, kulit pisang, hampas kelapa dan tepung ubi kayu. Diperkaya dengan probiotik semula jadi hasil fermentasi nasi lebihan, air basuhan beras dan molases, ia membantu meningkatkan imuniti serta pencernaan ikan. Formulasi berprotein tinggi ini sesuai untuk ikan air tawar seperti tilapia, dengan kos rendah dan mudah dihasilkan oleh penternak kecil. Inovasi ini mengurangkan sisa buangan organik, menurunkan kos makanan ternakan dan menyokong SDG 2, 12 dan 13 melalui pendekatan kitar semula dan teknologi hijau dalam akuakultur.


**EX2025-056**

**School of Medical Science,**
**Universiti Sains Malaysia**

**INVENTOR**:
Mohd Zulkifli Mustafa

**CO-RESEARCHER(s):**
- Shazana Hilda Shamsuddin
- Lokman Yusuf
- Siti Khatijah Abdul Razak

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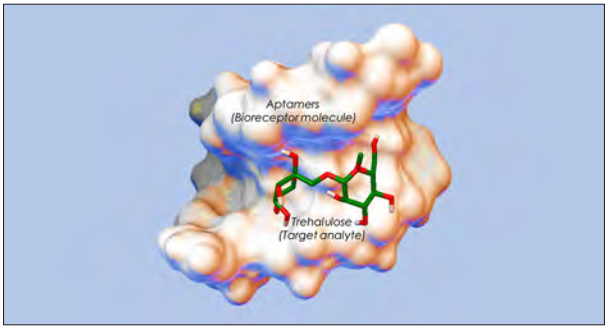
**TREHAPTAMERS: Trehalulose-targeted Aptamer for Stingless Bee (Kelulut) Honey Authentication Detection**

Trehaptamers™ is an innovative bioreceptor designed for rapid and precise authentication of genuine Kelulut honey using biosensor platforms, ELASA, and dot blotting assays. Developed through advanced in silico engineering and validated via Surface Plasmon Resonance (SPR), it exhibits strong affinity and specificity toward trehalulose and related enzymes, effectively distinguishing genuine honey from sugar adulteration. Beyond ensuring product integrity and consumer trust, Trehaptamers™ supports the beekeeping community by providing a reliable quality control tool that enhances market value, boosts income, and promotes bee conservation—contributing to both socioeconomic empowerment and ecological sustainability.



# INVENTION DETAILS

**EX2025-057**

**SMK Pondok Upeh**

**INVENTOR**:
Nurul Iliani Mustapha

**CO-RESEARCHER(s):**
- Khirthiken RavinDRan
- Muhammad Qaireen Danish Mohd Khirul Anuar
- Dani Harith Abdullah
- Syamil Hazim Shukri

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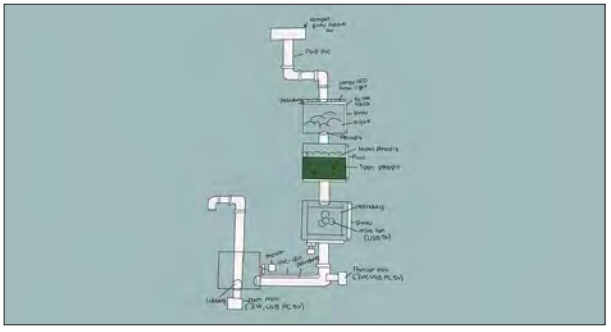
**AlgaeNova: Eco Water Purifier System**

The Algae Water Purifier System features a transparent, four-station glass filtration unit powered by a mini water pump and LED grow light to sustain algae growth. Each station performs a specific function: (1) sediment removal, (2) carbon absorption, (3) biological purification via algae and oyster shells and (4) recirculation for reuse. The system operates with renewable USB power, using recyclable materials such as PVC pipes, sponge filters, activated carbon and river sand. Unlike commercial chemical filters, this innovation merges biological + mechanical principles for a green biotechnology approach that is low-cost, safe and reusable. Designed as both a STEM learning model and practical purification prototype, it encourages students and communities to embrace sustainable, nature-based solutions for clean water.



**EX2025-058**

**SK Bukit Gambir**

**INVENTOR**:
Vivithraah Panneir Selvam

**CO-RESEARCHER(s):**
- Hajid Mohd Nasyriq Azam
- Mohamad Nazrin Arif Mohamad Nizam
- Muhammad Ammar Nazrulirwan
- Aqil Ariz Afirul

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**Victory King Game Board**

The Victory King Game Board is a game-based learning innovation that enhances students' mastery of basic mathematical operations—addition, subtraction, multiplication, division, and combined operations. Grounded in behaviorism and game-based learning principles, it promotes learning through repetition, motivation, and active engagement. Featuring dual tracks (fast and slow) and color-coded question cards, the game adds strategy and excitement to practice sessions. The inclusion of a "Victory Card" challenges players with combined operations, stimulating higher-order thinking. By turning traditional math drills into an enjoyable and competitive experience, the Victory King Game Board boosts student motivation, supports diverse learning levels, and provides teachers with an effective, interactive classroom assessment tool.

# INVENTION DETAILS

**EX2025-059**

**MRSM Balik Pulau**

**INVENTOR**:
Dr Maryam Sulaiman

**CO-RESEARCHER(s):**
- Zieyyad Anuar Azim Anuar
- Hazmi Nor Azam
- Muhammad Darwisy Norulakmal

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**BALDWING**

The BALDWING System is a four-stage water filtration and purification innovation designed for poultry farms to provide clean, pathogen-free drinking water for chickens. It combines coarse, fine, and ceramic filtration with UV sterilization to eliminate debris, sediments, and harmful microorganisms effectively. Compact, energy-efficient, and easy to install, the system integrates seamlessly into existing farm water lines and comes in various sizes for small to large operations. Using readily available components, BALDWING is low-cost, low-maintenance, and highly reliable, helping reduce poultry mortality rates, prevent disease outbreaks, and promote sustainable, ethical poultry farming practices.

**EX2025-060**

**SK Methodist Parit Buntar**

**INVENTOR**:
Nor Azalilah Mat Isa

**CO-RESEARCHER(s):**
- Sufiyya Syazruan
- Tun Nur Aafiyah Mohd Azime
- Rania Sofia Shahbani Azwar
- Hasmah Sharif

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**LET'S 2.0 - Leisure Explorace Terms in Space Version 2.0**

Projek ini bertujuan untuk: 1.Meningkatkan penglibatan aktif murid dalam proses PdP. 2.Mengaplikasikan kaedah pengajaran interaktif dan menyeronokkan. 3.Membantu murid memahami istilah atau konsep tertentu secara lebih kontekstual dan visual.4.Membentuk kemahiran kerjasama, komunikasi dan pemikiran kritis dalam kalangan murid.

# INVENTION DETAILS

**EX2025-061**

**Institute for Research in Molecular Medicine, Universiti Sains Malaysia**

**INVENTOR**:
Leow Chiuan Herng

**CO-RESEARCHER(s):**
- Leow Chiuan Yee
- Kok Boon Hui
- Lim Hui Ting
- Aziah Ismail
- Balakrishnan

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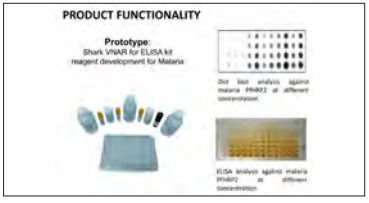
**EMAIL:** herng.leow@usm.my

**VDEN+ Smart Dengue Diagnostic Platform: Thermostable VNAR Antibodies Integrated with AI-Enhanced Lateral Flow Technology**

This innovation presents a smart dengue diagnostic platform combining thermostable shark VNAR single-domain antibodies and AI-enhanced lateral flow technology for rapid, highly sensitive detection. The ultra-small VNARs (~12 kDa)d hidden NS1 epitopes inaccessible to conventional antibodies, delivering unmatched sensitivity and reliability. Integrated into a capture-layer lateral flow immunoassay (CL-LFA), the VNARs are precisely oriented to optimize antigen capture and signal intensity. A built-in AI-powered smartphone interface automates result interpretation, minimizes human error, and enables real-time data sharing for outbreak surveillance. Thermostable and cold chain–independent, this next-generation diagnostic tool is ideal for early dengue detection in both clinical laboratories and resource-limited field settings, enhancing public health responsiveness and disease control.




**EX2025-062**

**Institute for Research in Molecular Medicine, Universiti Sains Malaysia**

**INVENTOR**:
Leow Chiuan Herng

**CO-RESEARCHER(s):**
- Leow Chiuan Yee
- Eng Wei Keat
- Li Meng
- Cynthia Lee Wun Hui
- Li Xinying

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**PleuroActiva+ Immunomodulatory Polysaccharides from Pleurotus pulmonarius: A Sustainable Innovation for Immune Health**

This innovation harnesses polysaccharides from the edible mushroom Pleurotus pulmonarius as a natural immunomodulatory bioactive with dual functions—enhancing immune defense and reducing inflammation. The bioactive compounds stimulate immune mediators such as TNF-α, IL-1β, and IL-6, while suppressing iNOS, NF-κB, and PD-L1 to maintain immune balance. Extracted through eco-friendly cultivation using agro-waste, this sustainable and scientifically validated product provides a safe alternative to synthetic immunomodulators. It offers vast potential for functional foods, nutraceuticals, and therapeutic formulations supporting immune health and managing inflammation-related diseases, infections, and cancers.

# INVENTION DETAILS

**EX2025-063**

**School of Biological Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Hadura Abu Hasan

**CO-RESEARCHER(s):**
- Yasir Azam
- Mohamad Ibrahim Mohamad Isa
- Norhakimah Soad

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**FLY Fusion: Dried Black Soldier Fly Larvae and Frass**

FLY Fusion is an innovative bioconversion system that transforms palm kernel expeller into valuable products using black soldier fly larvae (BSFL). The process produces two outputs: dried BSF larvae, a sustainable and nutritious alternative to fishmeal and soybean meal for poultry and pet food, and frass, an organic fertilizer that enhances soil health and crop yield. Utilizing microwave drying technology, the larvae retain optimal nutritional value and extended shelf life. With affordable packaging and scalable production, FLY Fusion promotes a circular, eco-friendly model that reduces agricultural waste, enhances food and soil security, and supports sustainable farming practices.


**EX2025-064**

**Advanced Medical and Dental Institute,**
**Universiti Sains Malaysia**

**INVENTOR**:
Fatanah Mohamad Suhaimi

**CO-RESEARCHER(s):**
- Syatirah Mat Zin
- Siti Noor Fazliah Mohd Noor
- Nur Fatehah Md Shakur

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**Flex EPG**

The Flex EPG System is a portable and wireless tool designed to detect tongue-to-palate contact during continuous speech. It comprises two main components: the Flex EPG hardware (a palate embedded with 30 silver electrodes connected to an electronic circuit) and the Flex EPG software for data visualization and analysis. The headset-like device captures tongue-palate contact patterns in real time, transmitting the data via Bluetooth to a computer for display and monitoring. This system assists speech-language therapists (SLTs) and patients in speech therapy, self-monitoring, and articulation training, providing an accurate and user-friendly platform for studying and improving speech production.

# INVENTION DETAILS

EX2025-065

**School of Management,**
**Universiti Sains Malaysia**

**INVENTOR**:
Lilis Surienty Abd Talib

**CO-RESEARCHER(s):**
- Ahmad Farhan Mohd Sadullah
- Mastura Azmi
- Puan Siti Salmah Md Kassim
- Mohammad Nishat Akhtar
- Ahmad Afif Mohd Faudzi

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**Traffic Incident Reporting Enhancer (TIRE) System: Enhancing Targeted Solutions for Reducing Commuting Crashes to Workplaces**

The Traffic Incident Reporting Enhancer (TIRE) System is a smart, ready-to-use platform designed to streamline traffic incident data collection and analysis. It consists of two key components: (i) mobile and web-based tools for fast, systematic data collection, and (ii) an analytic dashboard that provides real-time insights for targeted, data-driven safety interventions. Tested with companies in Batu Kawan, the TIRE System reduced reporting time by 71% and achieved 100% reduction in hand injury severity and zero accidents over 10 months among new riders. By enabling non-experts to easily capture and analyze essential data, the TIRE System empowers organizations to implement evidence-based road safety management and promote safer commuting practices.


EX2025-066

**School of Physics,**
**Universiti Sains Malaysia**

**INVENTOR**:
Nurhafizah Md Disa

**CO-RESEARCHER(s):**
- Fareezuan Abdul Aziz
- Nur Afzalina Badri

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**Graphene And Gel: Solar Revolution**

The proposed photoanode is the improvement from the marketed photoanode presently used where it has the ability form mechanically stable composite photoanode which can improve the electrical conductivity and sustaining the performance efficiency. This product can be proposed and marketed in industrial basis where this photoanode is designed to equip the usage of low power device and as electrical component with cheaper price for all consumers. The photoanode introduced graphene and gel, where it is more effective with the use of biopolymer and graphene-based materials where it can sustain longer electrical conductivity, cheaper price and most importantly it is environmentally friendly.

# INVENTION DETAILS

**EX2025-067**

**SM Sains Kepala Batas**

**INVENTOR**:
Nurul Syazwani Ismail

**CO-RESEARCHER(s):**
- Muhammad Afiq Naufal Ramli
- Muhammad Alif Irfan Mohd Zubir
- Muhammad Faris Irfan Syafaril Izam
- Arif Hakimi Suhaime

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**CALOVERA Set**

The Calovera Set is an innovative 5-in-1 organic fertiliser and natural pest–weed control solution that also provides mild herbicidal effects. Formulated from kitchen waste such as eggshells and onion skins, it enhances soil fertility, promotes healthy plant growth, and protects crops without harmful chemicals. By applying the "waste to wealth" concept, Calovera transforms food waste into a sustainable, affordable, and eco-friendly agricultural product suitable for all scales of farming. It reduces dependence on chemical fertilisers, preventing soil degradation, nutrient loss, and water pollution, while supporting sustainable agriculture and environmental conservation. Calovera aligns with SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 15 (Life on Land)—advancing green farming and food waste awareness.

**EX2025-068**

**SMK Sungai Ara**

**INVENTOR**:
Idris Ismail

**CO-RESEARCHER(s):**
- Rifky Ahmad
- Alesha A'shadieeyah Khoo Mohamad Riduan Khoo
- Resvenah ChanDRan
- Prevenaa ChanDRan

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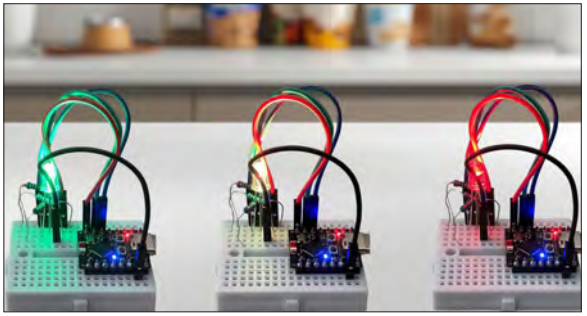
**NeoFresh**

NeoFresh is an innovative food freshness monitoring system that combines a smart sensor and mobile app to reduce food waste. The compact sensor attaches to food packaging and tracks time, sending real-time data via Bluetooth to the NeoFresh app. Users can log expiry dates by scanning barcodes, while the app displays a colour-coded freshness indicator—green (fresh), yellow (near expiry), and red (expired). It also provides timely reminders to encourage food consumption before spoilage, replacing traditional expiry labels with dynamic, data-driven updates. NeoFresh helps prevent waste, save costs, and promote sustainability in line with SDG2 (Zero Hunger), SDG 3 (Good Health and Well-being), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).



# INVENTION DETAILS

**EX2025-069**

**SK Permatang Tok Mahat**

**INVENTOR**:
Nurul Wahida Hamdan

**CO-RESEARCHER(s):**
- Nur Afifah Muhammad Nasiruddin
- Aleesya Sofea Mohamad Ruslan
- Annur Zahra Faqihah Mahmud

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**BUGBEGONE Balm**

BugBeGone Balm is a natural, multifunctional balm that provides mosquito protection and relief from minor ailments such as cough, cold, bloating, and skin irritation. It is made from botanical ingredients — Neem, Senna Alata, Karpuravalli, and Chamomile — infused in reused palm oil through an energy-efficient solar extraction method that preserves active compounds. Pencil sharpener shavings are innovatively used as a natural absorbent and eco-friendly filler, turning waste into a valuable resource. The balm combines insect-repelling, antimicrobial, and anti-inflammatory properties in a gentle, semi-solid form safe for all ages, including children and sensitive skin users. By offering a chemical-free, sustainable alternative to synthetic repellents, BugBeGone Balm promotes family health, waste reduction, and an eco-conscious lifestyle.

**EX2025-070**

**SK Machang Bubok II**

**INVENTOR**:
Pearinbanayaky Sivalingam

**CO-RESEARCHER(s):**
- Asnawi B. Uvaiz
- Norul Atif B. Norulamin
- Noraini Yaacob
- Muhammad Amjad Zhafif B Mohd Rodhi
- Rosini Balasundram

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**PIFoUP (Prevention of Inappropriate Food and Unauthorized Personnel)**

The PIFoUP prototype uses a micro:bit microcontroller, ultrasonic sensor, and buzzer to detect movement near the pond and issue automatic warnings. Buttons A and B on the micro:bit simulate authorized and unauthorized users, while the LED display and buzzer provide real-time feedback to raise safety awareness. The full AI-based concept envisions advanced features such as object detection, facial recognition, and data learning, enabling the system to distinguish between students and staff, recognize safe and unsafe behavior, and promote long-term environmental education.

# INVENTION DETAILS

**EX2025-072**

**Kolej Komuniti Kepala Batas**

**INVENTOR**:
Mohd Zaki Abdul Manap

**CO-RESEARCHER(s):**
- Siti Khalijah Jamal
- Mohamad Noor Azizi Mohamad Saad

**MOBILE:** 0194157121

**EMAIL:** zakimanap@gmail.com

**An Automotive Security System (Car Anti Theft)**

Produk ini berfungsi sebagai sistem keselamatan kenderaan berasaskan sentuhan yang membolehkan enjin dihidupkan tanpa kunci konvensional. Ia menggunakan komponen elektronik sepenuhnya dan beroperasi secara stand-alone tanpa mengganggu sistem asal kenderaan. Semua wayar berwarna hitam bagi mengelirukan pencuri, dan enjin tidak dapat dihidupkan walaupun menggunakan jump start atau master key. Pemasangan tersembunyi menambah tahap keselamatan, manakala suis ByPass ON/OFF disediakan bagi membolehkan kenderaan dihidupkan sekiranya berlaku kerosakan pada sistem.

**EX2025-073**

**SK Methodist**

**INVENTOR**:
Rosmeni Mat @ Ahmad

**CO-RESEARCHER(s):**
- Nur Farisha Irina Muhamad Azahari
- Nurul Syakinah Abdullah

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**EMAIL:** rosmeniahmad@gmail.com

**Egglow - Pencuci Tangan dan Pembasmi Kuman Semula Jadi daripada Kulit Telur**

EGGLOW ialah pencuci tangan dan pembasmi kuman semula jadi yang dihasilkan daripada kulit telur terbuang. Produk ini dirumus khas untuk membersih, melindung dan melembutkan kulit tanpa bahan kimia berbahaya. Ciri-ciri utama produk: 1.Diperbuat daripada kulit telur semula jadi yang kaya dengan kalsium karbonat antibakteria. 2. Berfungsi sebagai pencuci tangan dan pembasmi kuman 2 dalam 1. 3.Tekstur lembut dan sesuai untuk semua jenis kulit, termasuk kulit sensitif. 4. Mesra alam dan boleh dikitar semula, menyokong matlamat SDG 12 (Konsumsi dan Pengeluaran Bertanggungjawab). 5.Mempunyai aroma semula jadi dan mudah digunakan di rumah, sekolah atau tempat awam. Tagline produk: "EGGLOW – From Waste to Wellness".

# INVENTION DETAILS

**EX2025-074**

**Kolej Komuniti Kepala Batas**

**INVENTOR**:
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- Mohamad Noor Azizi Mohamad Saad
- Muhammad Azrizal Izman Azham

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**Alcohol & Carbon Monoxide Detector**

AN AUTOMOTIVE SECURITY SYSTEM ialah inovasi 3 dalam 1 yang menggabungkan sensor alkohol, sensor sentuhan, dan sensor gas karbon monoksida bagi meningkatkan keselamatan kenderaan. Enjin hanya dihidupkan apabila pengguna bebas alkohol, manakala sensor sentuhan berfungsi sebagai anti-kecurian. Sensor gas pula mengesan gas beracun dan mengaktifkan siren amaran. Jika pengguna di bawah pengaruh alkohol, sistem menghalang enjin serta memaklumkan waris melalui GSM GPRS, memastikan keselamatan dan pencegahan risiko kemalangan.


**EX2025-075**

**School of Mechanical Engineering,**
**Universiti Sains Malaysia**

**INVENTOR**:
Wong Yong Jie

**CO-RESEARCHER(s):**
- Mohd Sharizal Abdul Aziz
- Muhammad Fikri Shamsuri
- Fatin Shahirah Mohd Shamsul Hisham
- Mohd Fahmi Peter @Mohd Fauzi
- Mohd Fauzinizam Razali

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**FEMICARE - Thermal Regulated Compact Napkin Incinerator**

FEMICARE is a compact, thermal-regulated napkin incinerator designed for hygienic, low-emission menstrual waste disposal. Operating at 250–300 °C, it fully combusts napkins into sterile ash with minimal smoke or odor. Equipped with nichrome heating, ceramic insulation, and a catalytic exhaust purifier, it ensures safety and odor-free use. Featuring manual and app controls, real-time monitoring, and low power use, FEMICARE offers a durable, energy-efficient, and eco-friendly solution for schools, clinics, and workplaces.

# INVENTION DETAILS

**EX2025-076**

**SK Machang Bubok II**

**INVENTOR**:
Nooratika Abdul Rahman

**CO-RESEARCHER(s):**
- Nur Rifqi Rayqal Zakaria
- Rayyan Naufal Abdullah Sani
- Mohamad Aiman Syakeer Norhisham
- Muhammad Khalish Irfan Muhammad Asyraf
- Nor Azlina Ismail

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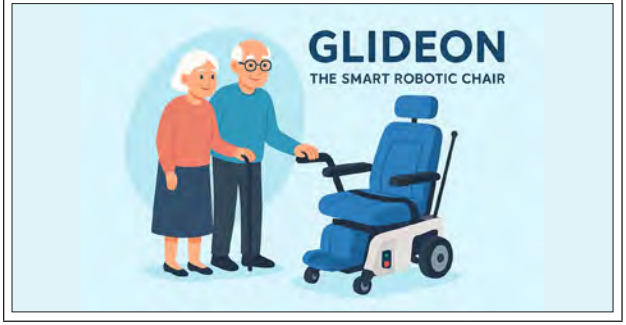
**Glideon is a Solar-powered Smart Robotic Chair that Assists Senior Citizens in Moving Easily Across Public Spaces.**

Glideon is an innovative robotic chair designed to assist senior citizens and individuals with walking difficulties. Powered by solar energy and integrated with smart control systems, Glideon combines artificial intelligence, sustainability, and human-centred design. The invention reflects empathy through technology — ensuring the elderly can move independently, safely, and comfortably in public spaces such as hospitals, parks, and shopping malls.The prototype uses a microcontroller with the mBlock platform to stimulate real movement and obstacle detection. This project combines AI, robotics and renewable energy to promote independence, comfort, and safety for the elderly




**EX2025-077**

**SJK (T) Azad**

**INVENTOR**:
Dipnna Arumugam

**CO-RESEARCHER(s):**
- Vayddes Vijayan
- Thivinnesan Parkunan
- Sarkunnan Sivanantham
- Yamunaa Muniswaran
- Pirakasam Angkusamy
- Pusparani Nada Raja
- Saranyah Shanmugam
- Komathi Sinnasamy
- Sivabalan Rajaindaran

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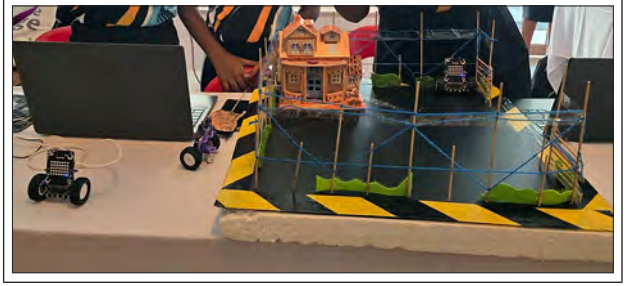
**Smart PawSense: A Humane Solution for Peaceful Coexistence**

Smart PawSense is an AI-powered, humane cat-catching system that safely manages stray cats using robotics integrated through PictoBlox. It employs object detection to identify cats and gently activates a trap without causing harm. Equipped with ultrasonic sensors, servo motors, and a smart control system, it ensures precise and safe operation. Portable, affordable, and eco-friendly, it's ideal for schools, neighborhoods, and shelters. Combining technology and compassion, Smart PawSense promotes animal welfare, community cleanliness, and peaceful coexistence.



# INVENTION DETAILS

EX2025-078

**River Engineering and Urban Drainage Research Centre, Universiti Sains Malaysia**

**INVENTOR**:
Chang Chun Kiat

**CO-RESEARCHER(s):**
- Noor Aida Saad
- Khairul Rahmah Ayub
- Mohd Fazly Yusof
- Syafiq Shaharuddin
- Nor Ariza Azizan
- Muhamad Nurfasya Alias
- Junaidah Abdullah
- Siti Fairuz Juiani
- Muhammad Zaki Mohd Kasim
- Foo Keng Yuen

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**BIOECODS@USM Sustainable Green Drainage System**

BIOECODS@USM integrates ecological swales, wet pond, detention systems, and dry ponds to control runoff rates, volumes, and pollutants. It combines infiltration, delayed flow, storage, and purification before discharge into constructed wetlands, enhancing pollutant removal, biofiltration, and infiltration while reducing runoff rates and promoting sustainable stormwater management.

EX2025-079

**Centre for Global Archaeological Research, Universiti Sains Malaysia**

**INVENTOR**:
Suresh Narayanen

**CO-RESEARCHER(s):**
- Nasha Rodziadi Khaw
- Velat Anak Bujeng
- Nor Khairunnisa Talib
- Stephen Chia Ming Soon
- Bugin Anak Bunyau
- Mohd Sairul Ramle

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**Reviving Heritage Through Technology: 3D Digital Reconstruction of the Bukit Choras Buddha Head**

The proposed solution uses the Artec Spider 3D scanner to digitally reconstruct damaged archaeological artifacts through high-resolution, contactless scanning. It captures detailed geometry and textures to create precise 3D meshes and photorealistic models. The workflow includes data capture, processing, mesh reconstruction, texture mapping, and virtual restoration. These models can be archived, 3D printed, or used in VR/AR exhibits. The system also supports condition monitoring, staff training, and research collaborations, offering a precise, sustainable, and accessible approach to cultural heritage preservation and education.

# INVENTION DETAILS

**EX2025-080**

**School of Computer Science,**
**Universiti Sains Malaysia**

**INVENTOR**:
Azman Ab Malik

**CO-RESEARCHER(s):**
- Mohd Naim Afifi Ishak
- Farzana Amirah Al-Aqsa
- Ismail Faruqi Faisol

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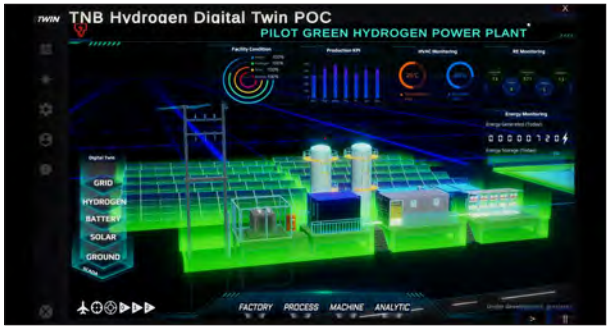
**Next Generation Real-Time Simulation and Digital Twin for Automated Handling Management System (AHMS) Towards Fully Automated Model for Semiconductor Operation**

1-lack of in-house coding knowledge and experience in software, AI, 2-Lack of real-time data, it ceases to be a "twin" and becomes a static model or a historical archive. In general, situation and condition of machine or system in semiconductor as bellowlSiloed machines & vendor-locked software block end-to-end visibility. Manual OEE & downtime logging delays decisions and hides losses. No safe place to test "what-if" scenarios without risking live lines. Reactive maintenance inflates MTTR and spare-part cost Heavyweight platforms are too costly/complex for SMEs




**EX2025-082**

**SJK (T) Ramakrishna**

**INVENTOR**:
Kaminee Adaikalam

**CO-RESEARCHER(s):**
- Matsyendra Narismuniswaran
- Hassvit Narinmuniswaran
- Jeehanne Narinmuniswaran

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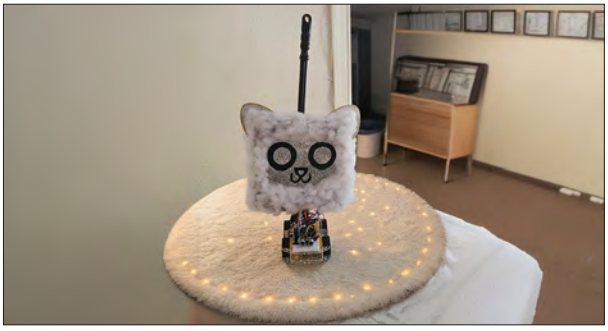
**Neoguardian- Your Guardian at All Times**

NeoGuardian was developed through a multi-phase process involving research, prototyping, user testing, and refinement. Various sensors such as ultrasonic, infrared, and LiDAR were assessed for accuracy, cost, and energy efficiency. Hardware components including microcontrollers, motors, and a lightweight chassis were combined for a reliable design. Initial prototypes tested obstacle detection and avoidance before evolving into a compact, functional model. User trials with elderly and visually impaired participants guided improvements in ergonomics and usability. The final prototype highlights NeoGuardian's integrated and practical design for real-world use.



# INVENTION DETAILS

EX2025-084

**School of Materials and Mineral Resources Engineering, Universiti Sains Malaysia**

**INVENTOR**:
Mohamad Danial Shafiq

**CO-RESEARCHER(s):**
- Amir Muhammad Noh Amin Abdul Rahman
- Nik Nur Azreen Nik Fauzi

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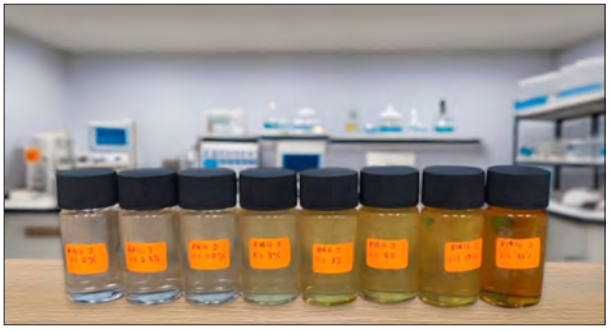
**Poly-DisperMax**

Poly-DisperMax, or Polyisobutylene Ionic Liquid (PIBIL) dispersant, is an advanced engine oil additive that combines a polyisobutylene backbone with ionic liquid functionality for superior soot and carbon stabilization. Its adaptive molecular structure prevents particle aggregation under high stress and temperature, ensuring cleaner combustion and longer oil life. Unlike conventional dispersants, it performs consistently across oil types, reducing sludge, improving fuel efficiency, and supporting environmental compliance. Poly-DisperMax represents a next-generation, sustainable solution for cleaner engines and enhanced vehicle performance.



EX2025-085

**School of Pharmaceutical Sciences, Universiti Sains Malaysia**

**INVENTOR**:
Gam Lay Harn

**CO-RESEARCHER(s):**
- Darshan Singh
- Lok Chia Yee
- Ang Jia Qian

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**CARETum Rapid Test Kit**

The CAREtum Rapid Test Kit is a compact lateral flow immunochromatography device designed for easy, instrument-free use and disposal. It delivers results within 10 minutes using two strips: the mitragynine test and the AZ112 test, the latter detecting a urinary biomarker linked to ketum dependence. With 93% specificity and 100% sensitivity, the kit ensures reliable detection. When immersed in urine, antigen-antibody interaction produces a pink T line indicating AZ112 presence, while the C line acts as a control. Mitragynine detection occurs via its dedicated strip.

# INVENTION DETAILS

**EX2025-086**

**Institute for Research in Molecular Medicine, Universiti Sains Malaysia**

**INVENTOR**:
Eugene Ong

**CO-RESEARCHER(s):**
- Aina Izzati Mohd Yazid
- Aziah Ismail

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**TYPHI-MSE: Typhoid antibody Detection Multiple Screening**

The enzyme-linked immunosorbent assay (ELISA) consists of a 96-well plate with a capture molecule (antigen in this case) coated in each well, a secondary detection antibody conjugated with horse radish peroxidase enzyme, and TMB (3,3′,5,5′-tetramethylbenzidine) which is a substrate that develops a blue color as an indication of antibodyding. The antigen is the Salmonella Typhi HlyE recombinant protein antigen produced in-house using our optimised protocol, previously shown to be sensitive and specific in the detection of typhoid antibodies from patient sera.


**EX2025-087**

**SK Permatang Tok Mahat**

**INVENTOR**:
Rosma Abu Bakar

**CO-RESEARCHER(s):**
- Imanina Nawwarah Mustamarul
- Nur Hanani Sufiyyah Mohd Sani
- Nur Ulya Humaira' Mohd Azizi
- Nur Damia Diandra Mohd Rizal

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**Inovasi Syampu Cat KutuFree AVERRHOA BILIMBI**

Syampu organik 'Cat KUTUFREE Averrhoa Bilimbi' berasaskan belimbing buluh ini diformulasikan dengan cuka dan ekstrak daun Averrhoa Bilimbi sebagai pewarna semula jadi. Ia berfungsi sebagai agen antikutu, antikulat dan antibakteria tanpa kesan sampingan pada kulit kucing. Asid oksalat dan flavonoid membunuh kutu serta telurnya, manakala tanin membantu merawat luka dan mengurangkan gatal. Dengan pH seimbang 6.0–7.5, ia sesuai untuk semua jenis kucing. Mengandungi sabun castile, minyak kelapa terpakai dan minyak Tea Tree, syampu ini selamat, biodegradasi, mesra alam serta menyokong SDG 3.

# INVENTION DETAILS

EX2025-089

**SK Jalan Matang Buluh**

**INVENTOR**:
Nor Hazli Ghazali

**CO-RESEARCHER(s):**
- Busyra Hanani Burhanuddin
- Muhammad Amsyar Safiy Mohd Sofian

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**EQ-STRIP 2.0**

Inovasi EQ-STRIP 2.0 telah digunakan di dalam kajian ini sebagai penggerak pembelajaran dan menimbulkan minat kepada murid untuk menguasai kemahiran asas. Dapatan data kajian melalui ujian dianalisis menggunakan analisis deskriptif untuk menjelaskan kebolehlaksanaan inovasi ini dalam proses pengajaran dan pembelajaran. Hasilnya, didapati terdapat peningkatan keupayaan mencongak unit selepas kajian dijalankan berbanding sebelumnya. Seterusnya, murid menunjukkan keupayaan menyelesaikan ayat matematik yang melibatkan nombor dalam perpuluhan juta dan pecahan juta dan unit ukuran dan sukatan dalam pecahan dan perpuluhan selepas mengikuti aktiviti pembelajaran dengan menggunakan Kit EQ-Strip 2.0. Kesimpulannya, Kit EQ-Strip 2.0 dapat membantu murid memantapkan lagi kemahiran pertukaran unit dan membuktikan bahawa murid berupaya menyelesaikan ayat matematik.


EX2025-090

**SK Jawi**

**INVENTOR**:
Azizul Mohd Hasan

**CO-RESEARCHER(s):**
- Nur Ardini Yamna Mohd Rizal Nizam
- Ku Muhammad
- Wafiy Mohd Zamri
- Nurnayli Iwani Ismail

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**CARICA ALUM**

CARICA ALUM ialah larvasid semula jadi berasaskan serbuk biji betik (Carica papaya) dan tawas yang berfungsi membunuh jentik-jentik Aedes aegypti, pembawa virus denggi. Sebatian aktif dalam biji betik seperti alkaloid, karpain, tanin, flavonoid dan saponin bertindak sebagai racun biologi, manakala tawas menjernihkan air dan menurunkan pH untuk meningkatkan keberkesanan. Mudah dihasilkan daripada bahan tempatan, produk ini sesuai untuk kegunaan komuniti. Ia menyokong SDG 3, 12 dan 13 melalui pendekatan kesihatan, kelestarian alam sekitar dan penggunaan sumber secara bertanggungjawab.

# INVENTION DETAILS

**EX2025-091**

**SM Sains Kepala Batas**

**INVENTOR**:
Saidatul Ainoor Shaharim

**CO-RESEARCHER(s):**
- Muhammad Khairil Shazwan Shahrul
- Wan Mirza Muslim Wan Shaifulaizam Rizal
- Hadif Harzan Mat Yunus
- Muhammad Aidil Najwan Asri

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**ECOPUFF**

Ecopuff is a sustainable innovation developed to replace Styrofoam, which contributes heavily to environmental pollution. Made from eco-friendly ingredients such as cornstarch, glycerin, and powdered eggshells, Ecopuff offers a biodegradable and compostable alternative that decomposes naturally without releasing harmful chemicals. This project aims to promote green awareness and encourage the use of renewable materials in packaging industries, proving that small innovations can lead to a big environmental impact.


**EX2025-092**

**SK Jalan Matang Buluh**

**INVENTOR**:
Nor Hazli Ghazali

**CO-RESEARCHER(s):**
- Lela Zakaria
- Nor Hazini Muhamad Saufi
- Hamidah Mohd Tajuddin
- Shiyamathi Rajoo

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**BIO-POT : Pasu Mesra Alam**

Tujuan utama projek Bio Pot: Pasu Mini Mesra Alam adalah untuk menggalakkan warga sekolah mengurus sisa dapur dan bahan terpakai dengan bijak. Pada setiap hari persekolahan, banyak sisa organik seperti hampas teh, kulit telur dan kotak susu RMT dibuang. Melalui pelaksanaan projek ini, warga sekolah bukan sahaja mengurangkan sampah dan sisa organic tetapi menggunakannya untuk tujuan lain yang lebih efektif. Selain itu, projek ini juga memberi pendedahan kepada murid tentang konsep bahan-bahan terbiodegradasi serta membantu warga sekolah membudayakan 5R urus sisa pepejal.

# INVENTION DETAILS

EX2025-093

**School of Pharmaceutical Sciences, Universiti Sains Malaysia**

**INVENTOR**:
Dzul Azri Mohamed Noor

**CO-RESEARCHER(s):**
- Yuen Kah Hay
- Voon Pei Jye
- King Teck Long
- Evelyn Lau
- Hsing-Ye
- Nicholas Law Lee Wei
- Chai Siang Ching

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**AVS CCO1 Soothing Cream**

AVS CCO1 Soothing Cream is a formulation containing a tocotrienol-rich fraction and moisturizing agents. Developed as a cosmetic product, it has also shown to be effective in managing hand-foot syndrome (HFS), a common side effect among patients undergoing chemotherapy, through this academic-industry collaborative project.


EX2025-094

**SM Sains Kepala Batas**

**INVENTOR**:
Nurul Syazwani Ismail

**CO-RESEARCHER(s):**
- Ilavendran Marimuthu
- Darwish Rayyan Khairil Anuar
- Muhammad Nuruddin Mohamad Nazri
- Dayang Ku Adlina Sahrul Azlee

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**AETHERLINK: Signal Beyond Reach**

AetherLink is an advanced tracking and navigation system designed for remote areas without GSM or internet access. It integrates LoRa mesh networking, offline GPS mapping, and real-time health monitoring into a single low-power device. Unlike conventional GPS trackers or smartwatches, it offers a cost-effective and energy-efficient solution for trekkers, fishermen, farmers, and rescue teams. Featuring a web interface built with Plasmic and Supabase, AetherLink enhances safety, connectivity, and preparedness in off-grid environments, making survival communication more reliable and accessible.

# INVENTION DETAILS

**EX2025-095**

**SM Sains Kepala Batas**

**INVENTOR**:
Manimegalai Murugiah

**CO-RESEARCHER(s):**
- Raja Nur Alieyyana Raja Mohamad Izaham
- Aira Irdina Azlin Mohd Noor
- Nuraqilah Zahra Mohd Hamizi

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**Ma-Mi Set Game**

The Ma-Mi Set Game was tested with 12 students to see if it boosts math skills, engagement, and teamwork. Students played three fun, logic-based games in groups. Results showed improved focus, faster thinking, and strong peer interaction. The game made learning math enjoyable, effective, and collaborative in the classroom.


**EX2025-096**

**SK Alor Pongsu**

**INVENTOR**:
Noorrezan Othman

**CO-RESEARCHER(s):**
None

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**MAGIC RULER 2.0**

Magic Ruler ini dicipta berdasarkan ukuran sebenar pada sebuah pembaris dengan mengambil kira konsep garis lurus.. Pembaris ini dilengkapi dengan ukuran standard pada sebuah pembaris biasa. dan dilengkapi dengan pelbagai maklumat lain yang dapat dijadikan panduan untuk murid tahap 1 dan 2. Murid dapat menambah dan menolak tanpa dan mengumpul semula dengan cara yang paling mudah. Murid lebih berminat dan tidak bosan belajar matematik. Magic Ruler ini dicipta berdasarkan konsep Fun Learning di mana ia sangat menarik minat murid .Magic Ruler mampu meningkatkan pengetahuan dan kemahiran guru dan murid secara kritis dan kreatif. Magic Ruler adalah inovasi yang sangat murah .Reka bentuk Magic Ruler ini yang ringan dan mudah dibawa amat bersesuaian digunakan oleh pelbagai tahap murid termasuk dalam aktiviti pengayaan dan pemulihan.Murid hanya perlu menggerakkan penunjuk untuk membuat operasi tambah dan tolak dengan lebih mudah.

# INVENTION DETAILS

EX2025-097

**School of Mechanical Engineering,**
**Universiti Sains Malaysia**

**INVENTOR**:
Muhammad Hafiz Hassan

**CO-RESEARCHER(s):**
- Muhammad Fauzinizam Razali
- Mohd Syakirin Rusdi
- Sareh Aiman Helmi Abu Seman
- Wan Muhammad Idzlan Wan Nazli

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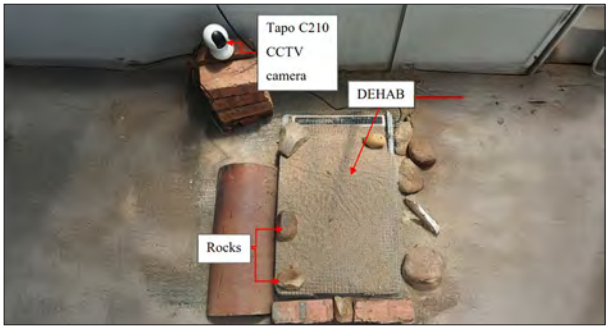
**DHABB Environment Heat-Activated Base (DEHAB)**

The DEHAB (Dhabb Environment Heat-Activated Base) is a conductive heating platform designed to mimic natural desert basking conditions for Uromastyx aegyptia in tropical captivity. It uses a heat plate beneath sand within a cement-insulated casing to provide consistent conductive heat at 52–55 °C, outperforming conventional infrared lamps. This stable heat prevents cold stress and respiratory issues while promoting healthy thermoregulation. Equipped with CCTV monitoring for behavior analysis, DEHAB is safe, durable, and energy-efficient, offering a sustainable, welfare-focused solution for reptile habitat management.




EX2025-098

**SJK (T) Ladang Krian**

**INVENTOR**:
Mahaletchumi Perumal

**CO-RESEARCHER(s):**
- Endrea Anne
- Tulliaa Ashleen Samuel Justin
- Thilashini Suresh

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**MathVenture Intreractive Board Game**

MathVenture shows improvements in students' problem-solving abilities and boosted their confidence in applying mathematical concepts. Indirectly, the innovation encouraged positive social interaction, teamwork, and strategic thinking. MathVenture effectively transforms mathematics into an engaging and meaningful experience to students. This innovation supports the integration of active learning strategies in mathematics education. Its a Creative & impactful educational innovation, Enhance safety feature for premises and human life, Improves student's performance in basic operations and boosts motivation, confidence, and critical thinking. High commercial value. Competitive price(affordable by student) Applicable for all primary level 2 students (All in 1). User friendly and simple rules. Improve student interaction & communication

# INVENTION DETAILS

**EX2025-099**

**SMK Datuk Haji Ahmad Badawi**

**INVENTOR**:
Suriyani Yahaya

**CO-RESEARCHER(s):**
- Muhammad Zaid Al-Hadi Abdul Sattar
- Muhammad Ihsan Afif Mohd Azri
- Muhammad A'li Qhumeini Mohd Shaiful
- Ahmad Asyraf Mazlan

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**SMART PHARM: An Innovative Product that Assists Pharmacists**

Lift mechanism: elevates and descends the tray. XY mechanism: facilitates the movement of the tray to the left, right, forward, or backward. Smart app/voice/touch: manage SkyLift through a smartphone, voice commands, or buttons. Bluetooth and IoT: rapid connectivity and compatibility with Google


**EX2025-100**

**SK Alor Pongsu**

**INVENTOR**:
Noorrezan Othman

**CO-RESEARCHER(s):**
- Siti Muhayya Delisya Mohammad Firdaus
- Dayana Sofea Ameena Mohd Syaidi Anuar
- Siti Aishah Mohd Yunus

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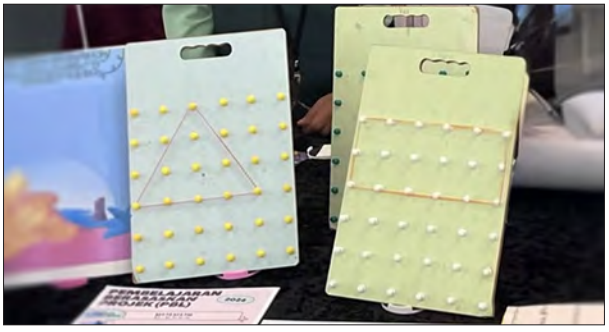
**MY SMART GEOBOARD**

My Smart Geoboard ialah inovasi pembelajaran interaktif yang menggunakan papan geoboard dan gelang getah untuk membantu murid membina serta mengenal pasti poligon sekata dan tidak sekata. Melalui aktiviti ini, murid dapat menemui sendiri ciri bentuk, konsep perimeter dan luas. Inovasi ini turut dilengkapi permainan seperti Puzzle (menyusun abjad untuk membentuk nama poligon) dan Tarsia (memadankan soalan dan jawapan), sesuai untuk aktiviti kumpulan kecil dan penilaian PBD. Unsur KBAT diterapkan, manakala versi digital membolehkan murid berlatih dalam kelas dan semasa aktiviti kokurikulum.



# INVENTION DETAILS

EX2025-102

**SK Methodist Parit Buntar**

**INVENTOR**:
Nurul Nadia Ismail

**CO-RESEARCHER(s):**
- Nur Qaireen Alisha Rosli
- Vaethesswary Sivavaethesswary Siva

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**Inovasi: Sifir Sempoi Smart Kit**

Sifir Sempoi Smart Kit ialah inovasi pendidikan Matematik yang direka untuk membantu murid menguasai sifir dengan lebih mudah, pantas dan menyeronokkan. Kit ini mengandungi tiga item pembelajaran interaktif yang boleh digunakan secara kendiri, berpasangan atau berkumpulan. Selain berbentuk kit fizikal, ia juga boleh diakses dalam versi digital melalui aplikasi mudah alih (Android/iOS) yang interaktif dan mesra pengguna. Reka bentuknya menggabungkan Teknologi,visual, muzik dan elemen interaktif bagi meningkatkan minat dan motivasi murid. Produk ini turut mengandungi elemen merentas kurikulum seperti Bahasa Inggeris (DLP), Pendidikan Jasmani, TMK dan KBAT, menjadikannya lebih komprehensif serta sesuai digunakan dalam pelbagai konteks pembelajaran.


EX2025-103

**Advanced Medical and Dental Institute, Universiti Sains Malaysia**

**INVENTOR**:
Intan Juliana Abd Hamid

**CO-RESEARCHER(s):**
- Syarifah Masyitah Habib Dzulkarnain
- Zarina Thasneem Zainudeen
- Ilie Fadzilah Hashim
- Izazi Arbain

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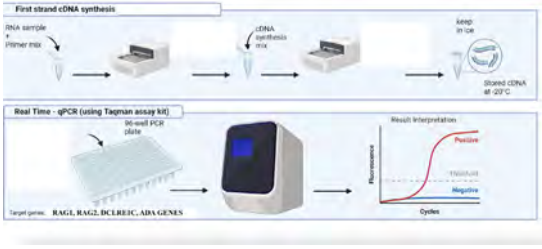
**Targeted Gene Panels for Rapid Diagnosis of Severe Combined Immunodeficiency (SCID) in Malaysia**

This specialized gene panel assay is designed to detect the T-B Severe Combined Immunodeficiency (T-B-SCID) phenotype using a targeted molecular approach. It focuses on key genes—RAG1, RAG2, DCLRE1C, LIG4, and ADA—involved in lymphocyte development. Custom primers from IDT and RAPID databases enable precise amplification and mutation detection via optimized qPCR. The workflow includes DNA extraction, purity validation, and gene expression analysis for reliable comparisons among samples. Offering speed, specificity, and cost efficiency, this assay supports early, accurate diagnosis and improved management of severe immunodeficiency disorders.



# INVENTION DETAILS

**EX2025-104**

**School of Civil Engineering,**
**Universiti Sains Malaysia**

**INVENTOR**:
Fadzli Mohamed Nazri

**CO-RESEARCHER(s):**
None

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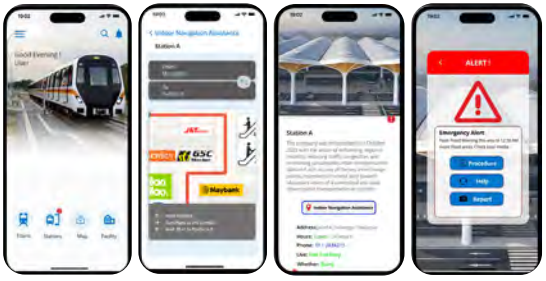
**EvacSmart: Apps for Smart Evacuation and Emergency Response During Disasters**

EvacSmart is an AI-driven mobile app that enhances commuter safety during emergencies in urban transit systems. It offers real-time evacuation guidance, predictive hazard alerts, and inclusive navigation for the elderly, disabled, and non-native speakers. Integrated with MyDigital ID, it utilizes crowd analytics, IoT sensors, and multilingual voice interfaces for responsive emergency management. Key features include indoor navigation, accessibility-focused routing, and live hazard detection. Currently at TRL 5, EvacSmart combines smart technology and human-centered design to create safer, more resilient, and inclusive public transportation systems.



**EX2025-105**

**MRSM Tun Abdullah Ahmad Badawi**

**INVENTOR**:
Nur Hana Bt Serip Mohamad

**CO-RESEARCHER(s):**
- Qaleesya Nur Mawaddah Bt Mustaqin
- Muhammad Rayyan Hakim Hifzi
- Nur Amira Kamal Ariffin
- Ameer Fawwaz Najhaan Mohd Ruhaifi

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**FUELING GARDEN: Emergency Alarm System to Prevent Fire Outbreak in a Gas Stations**

An Arduino–ESP8266-based alarm system integrated with the Blynk IoT platform has been developed to improve safety at fuel stations. It automatically warns customers who forget to switch off their engines during refueling, minimizing fire and explosion risks. Using ultrasonic and gas sensors, the system detects vehicle presence and running engines, activating an LED and buzzer after a 20-second delay. The ESP8266 module sends wireless alerts to station staff, and the system resets automatically when vehicles leave. This IoT-enabled solution enhances safety and encourages responsible driver behavior.

# INVENTION DETAILS

EX2025-107

**School of Mechanical Engineering,**
**Universiti Sains Malaysia**

**INVENTOR**:
Mohamad Ikhwan Zaini Ridzwan

**CO-RESEARCHER(s):**
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- Wan Mohd Amri Wan Mamat Ali
- Umesh Ganesh

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**Sawx - The Next Generation Lightweight Mechanized Oil Palm Harvesting Tool**

SawX is a next-generation lightweight mechanized oil palm harvester designed to address ergonomic, vibration, and usability challenges in existing tools. It features a reciprocating saw mechanism with a dual-stage gear reduction system for optimal torque and cutting efficiency. The top-mounted motor minimizes hand–arm vibration, while its ergonomic handle and balanced design reduce fatigue. Compatible with various pole lengths, SawX suits different tree heights and conditions. Field tests show reduced cutting force and vibration. Locally manufacturable and low-maintenance, it enhances safety, comfort, and productivity in sustainable palm oil harvesting.


EX2025-108

**School of Educational Studies,**
**Universiti Sains Malaysia**

**INVENTOR**:
Low Hui Min

**CO-RESEARCHER(s):**
- Ann Lee Sien Sut
- Hairul Nizam Ismail
- Lee Lay Wah
- Rozniza Zaharudin

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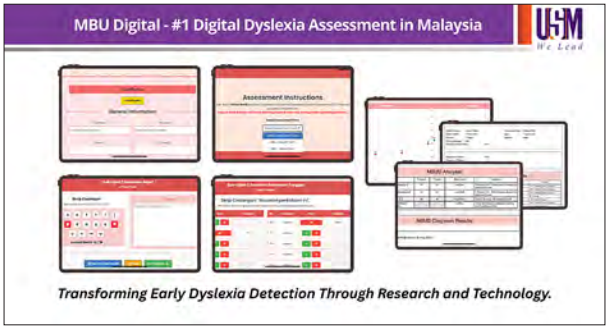
**MBU Digital - #1 Digital Phonological-Based Dyslexia Assessment Innovation in Malaysia**

MyBacaUji (MBU) Digital is a research-based digital assessment platform designed to detect dyslexia and reading difficulties among Malaysian children. It combines evidence-based tasks with automated scoring and instant reporting for faster, more accurate evaluations. Developed in Bahasa Malaysia and suited to the country's multilingual context, it ensures cultural and linguistic relevance. The platform provides immediate reports with intervention recommendations and standardized data for educators and health practitioners. Backed by 15 years of research and multiple SSCI-indexed publications, MBU Digital enhances early detection and cross-sector collaboration in literacy intervention.



# INVENTION DETAILS

**EX2025-109**

**Advanced Medical and Dental Institute, Universiti Sains Malaysia**

**INVENTOR**:
Mohammad Idham Abd Hamid

**CO-RESEARCHER(s):**
- Husniyati Roslan
- Siti Noor Fazliah Mohd Noor
- Siti Fatimah Samsurrijal
- Bian Yaohui

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**Novel Combined Bioactive Glass/Beta-TCP Promotes Osteoblast Cells Viability**

Bioactive glass and beta-tricalcium phosphate, from class of bioactive ceramic materials, are commonly used in bone tissue engineering for its ability to stimulate bone regeneration and support the bonding between implant surfaces and natural bone. These materials may help to reduce the complications to the minute percentages. However, there is limited research on how bioactive glass and beta-tricalcium phosphate coatings affect dental implants. Hence, this proposed study aims to address this gap by exploring the use of bioactive glass and beta-tricalcium phosphate as a coating for dental implants.


**EX2025-110**

**SJK (T) Ramakrishna**

**INVENTOR**:
Kaminee Adaikalam

**CO-RESEARCHER(s):**
- Dipthisha Manivelan
- Sakthiisa Rajasekaran
- Keshikka Sriraj
- Loganeysan Sukanthan
- Mohnashree Mogan

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**IOT Roof Tank Water Quality Monitoring System: A Safe Water for All**

The IoT Roof Water Tank Monitoring System is a smart solution that continuously tracks water quality in rooftop tanks by measuring pH, turbidity, and particle presence in real time. Built with sensors and IoT integration, it sends mobile alerts when water quality drops below safe levels, enabling prompt corrective action. The pH sensor detects water acidity or alkalinity, while the turbidity sensor monitors clarity and particle content. This system promotes safe water usage, prevents health risks, and supports clean water practices in homes and communities.

# INVENTION DETAILS

EX2025-111

**SJK (T) Subramaniya Barathee**

**INVENTOR**:
Inthara Pachaiappan

**CO-RESEARCHER(s):**
- Sajith Selvam
- Meera Sukumaran
- Rahini Thinagran

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**Green Soundroofing**

This project introduces an eco-friendly soundproofing material made from agricultural waste such as coconut husk, banana stem, coconut leaf stalk, coconut fiber, and sugarcane fiber. It offers a low-cost, sustainable alternative to conventional soundproofing materials that are often expensive and non-biodegradable. By reusing agricultural waste, the innovation helps reduce noise pollution, minimize environmental waste, and promote sustainability. Supporting the Sustainable Development Goals (SDGs), this approach transforms discarded materials into valuable resources for healthier, greener, and more accessible soundproofing solutions.


EX2025-112

**SMK Datuk Haji Ahmad Badawi**

**INVENTOR**:
Muhamad Yusoff Ahmed Jalaludeen

**CO-RESEARCHER(s):**
- Syalia Syazwina Abdul Hadi
- Nisrina Ulfa Mohamad Nadzir
- Nur Fatimatul Zahra Sabri Abdullah
- Nur Fazliyana Muhammad Fazli

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**AGRO Badawi Centre Description Efficiency Fertigation**

Inovasi ini menumpukan kepada penghasilan produk pertanian organik berasaskan bahan semula jadi. Repellent organik dihasilkan daripada campuran daun neem, daun durian belanda, dan buah mahkota dewa bersama gula merah organik dari India yang bebas bahan kimia. Selain itu, baja organik booster dihasilkan melalui proses fermentasi ikan temenung segar, sayuran, dan buah-buahan bagi menyuburkan tanaman. Kawalan biologi tanpa racun pula dilakukan dengan menanam pokok seperti marigold, tahi ayam, bakong, dan inai bagi menghalau serangga secara semula jadi. Hasil tanaman dipasarkan secara strategik berhampiran sekolah bagi menyokong pertanian lestari.

# INVENTION DETAILS

**EX2025-113**

**School of Pharmaceutical Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Leow Chiuan Yee

**CO-RESEARCHER(s):**
- Leow Chiuan Herng
- Ada Yousef Kazi
- Lim Chin Peng

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**EMAIL:** yee.leow@usm.my

**hCoV: DUAL SHIELD: A Multi-epitope Broad Spectrum Human Coronavirus Vaccine**

hCoV: DUAL SHIELD is an ML-guided, multi-epitope vaccine platform engineered to provide broad and long-lasting protection against all human coronaviruses. It combines conserved epitopes from structural (S, N, M) and non-structural (NSP3, NSP8) proteins to induce strong, balanced B- and T-cell immune responses. Preclinical studies showed high IgG, IgG1, and IgG2a levels with favorable cytokine profiles, confirming robust immunity. Designed for rapid adaptability and cost-effective microbial production, hCoV: DUAL SHIELD offers scalable, universal, and sustainable protection against current and emerging coronavirus variants.


**EX2025-114**

**Institut Kemahiran Tinggi PERDA (PERDA-TECH)**

**INVENTOR**:
Khairil Rizal Ahmad Kasim

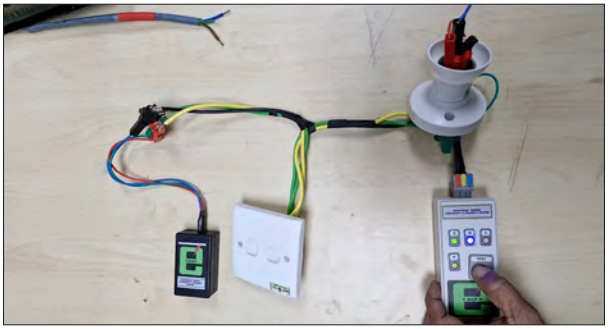
**CO-RESEARCHER(s):**
- Hafizah Hashim
- Muhammad Adam Haikal Saipul Azuan
- Muhammad Hanif Danie Abd Kasni
- Nur Sarah Dalila Mohd Rosli
- Muhammad Farid Rashidi

**MOBILE:** 0195671713

**EMAIL:** kriezz78@gmail.com

**Electrical Wiring Continuity and Polarity Tester (EWCP)**

Projek EWCP adalah untuk menghasilkan suatu penyelesaian inovatif bagi pengujian pendawaian elektrik yang dapat mempertingkat kecekapan dan ketepatan proses ujian. Secara khusus, objektif-objektif projek ini adalah seperti berikut: a) Mematuhi Peraturan Garis Panduan ST. b) Ujian Dilaksanakan Terus Dari Satu Beban - tanpa memerlukan pergerakan berulang-alik antara papan agihan (DB) dan setiap titik beban. c) Menjimatkan Masa Pengujian. d) Pengurangan Keperluan Tenaga & Kesilapan. e) Petunjuk Keputusan Jelas - melalui lampu LED. f) Peranti hendaklah praktikal digunakan di tapakaan atau bangunan kediaman, dan meningkatkan produktiviti kerja lapangan juruelektrik. g) Kos yang sangat murah.



# INVENTION DETAILS

EX2025-115

**SMK Datuk Haji Ahmad Badawi**

**INVENTOR**:
Muhamad Yusoff Ahmed Jalaludeen

**CO-RESEARCHER(s):**
- Nur Alysha Qaisara Shahrin Sazwan
- Siti Munirah Muhamad Nasron
- Farisya Maisara Abdul Hadi
- Alisya Yusrina Muhamad Yasir

**MOBILE:** 01155057860

**EMAIL:** ustaz80@gmail.com

**Astronomi Badawi Cemerlang dalam Explorasi Falak (Astronomi BCDEF)**

Inovasi ini merangkumi aplikasi mudah alih (APK) dan laman web interaktif yang telah direka bentuk dan berfungsi sepenuhnya bagi pembelajaran bidang astronomi untuk murid Tingkatan Dua. Ebook akan diperkenalkan pada tahun 2026, dengan data empirik disahkan oleh Jabatan Mufti Negeri Pulau Pinang dan JUPEM bagi memastikan ketepatan maklumat. Berteraskan SDG 4: Kualiti Pendidikan dan SDG 4.1: Pembelajaran untuk Semua, projek ini memberi manfaat kepada guru Sains dan Geografi. Selain itu, dana sebanyak RM20,000 sedang dikumpul untuk membina Balai Cerap Tun Abdullah Ahmad Badawi, mini observatori pertama di SMK Pulau Pinang sebagai Hab Astronomi/Falak kawasan ini.


EX2025-116

**School of Arts,**
**Universiti Sains Malaysia**

**INVENTOR**:
Hafeezur Rahmaan Mohd Yassin

**CO-RESEARCHER(s):**
- Liew Mei Yi
- Fong Kar Kar

**MOBILE:** 0164147241

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**MUSE**

**MUSE** reimagines rigid seating into a living, adaptable form for dynamic museum spaces. Inspired by the intertwined grace of banyan roots and the DNA helix, this modular flat-pack system unites biomimicry and craftsmanship. Formed from sustainably sourced Meranti wood and realized through digital fabrication techniques (CNC cutting) and resin inlay detailing, **MUSE** bridges tradition and technology, sculptural yet functional, inviting comfort, connection, and quiet reflection within evolving exhibitions.

# INVENTION DETAILS

**EX2025-117**

**Institute For Research In Molecular Medicine, Universiti Sains Malaysia**

**INVENTOR**:
Norsyahida Arifin

**CO-RESEARCHER(s):**
- Tye Gee Jun
- Khairul Mohd Fadzli Mustaffa
- Izzati Zahidah Abd Karim
- Tay Zhao Ee

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**SCAg-LFA: Strongyloides Chimeric Antigen-based Lateral Flow Assay for Rapid Diagnosis of Strongyloidiasis**

Our product is a lateral flow assay (LFA) for direct detection of strongyloidiasis from stool samples, specifically designed to overcome the limitations of existing diagnostics in immunocompromised patients. It utilizes chimeric antigens incorporating multiple epitope regions, which expand the antibody recognition repertoire and enhanceding efficiency. Aptamers, tailored to these chimeric antigens, function as synthetic antibody analogs, further increasing assay sensitivity and specificity. By integrating this multivalent antigen-aptamer system into an LFA format, the product provides rapid, user-friendly, and accurate detection, even in patients with impaired immune responses, thereby enabling timely diagnosis, treatment, and improved clinical outcomes.


**EX2025-118**

**SJK(T) Subramaniya Barathee**

**INVENTOR**:
Sherin Valairmate Abdullah

**CO-RESEARCHER(s):**
- Vaishnavi Rameshkumar
- Abiloshanaa Kanan
- Dhiivashinee

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**SMART IV Drip Monitoring System**

The Smart IoT-Based IV Drip Monitoring System automates IV fluid monitoring using capacitive sensors, an ESP32 microcontroller, and the Blynk IoT platform. It detects fluid levels in real time and sends alerts when levels are low, reducing manual checks and human error. This system improves patient safety, lowers nurse workload, and supports healthcare digitalization. With over 95% accuracy, it aligns with UN Sustainable Development Goal 3 by enhancing hospital efficiency and care quality through smart technology.

# INVENTION DETAILS

**EX2025-119**

**School of Pharmaceutical Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Leow Chiuan Yee

**CO-RESEARCHER(s):**
- Leow Chiuan Herng
- Zakaria Ismail
- Dhenmolly Arumugam

**MOBILE:** 0182567188

**EMAIL:** yee.leow@usm.my

**USM_AbVax: A Next-Gen Immunity Defence Against Hospital Acquired Superbugs**

USM_AbVax is a next-generation, genome-guided multi-epitope vaccine developed to target multidrug-resistant Acinetobacter baumannii. It incorporates 14 conserved epitopes from five key surface-associated proteins, identified through pangenome and reverse vaccinology analysis of over 6,000 genomes. Linked by GPGPG spacers and fused with a non-toxic CTB adjuvant, it enhances systemic and mucosal immunity. Recombinantly produced in E. coli, USM_AbVax is scalable and cost-effective. Preclinical results showed strong cross-reactivity, bactericidal activity, and balanced immune responses, offering a safe, broad-spectrum, and sustainable defense against antimicrobial-resistant infections.


**EX2025-120**

**Institut Kemahiran Tinggi PERDA (PERDA-TECH)**

**INVENTOR**:
Siti Dzaleha Sahiron

**CO-RESEARCHER(s):**
- Ahmad Luqman Hakim Abdul Ghani
- Mkhairuafiq Khairuizat
- Muhammad Azammuddin Mohd Zulkifli
- Muhammad Anas Iskandar Anas Yussof
- Aiman Husairi Rosli
- Muhammad Haziq Naim Abdul Razak

**MOBILE:** 0149474468

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**AG-ENVITECH: In House Temperate Crop Controlled Environment Chamber**

This project aims to develop a user-friendly smart farming system for temperate crop cultivation, suitable for small farms and research use. It focuses on creating durable, eco-friendly models for indoor and outdoor urban farming, producing high-quality crops by replicating temperate conditions. The closed system prevents pests and fungal contamination while enabling data monitoring. Designed to be compact, foldable, and portable, it incorporates solar energy as a sustainable power source for efficient and green cultivation.

# INVENTION DETAILS

**EX2025-121**

**School of Chemical Enginering,**
**Universiti Sains Malaysia**

**INVENTOR**:
Suzylawati Ismail

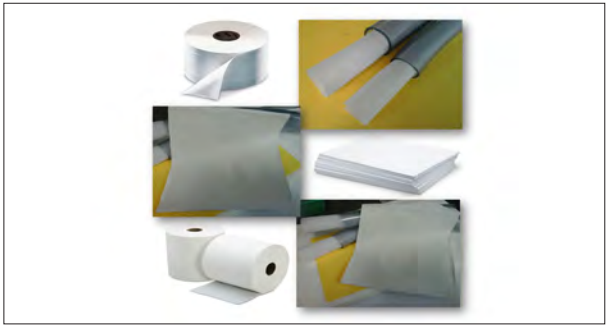
**CO-RESEARCHER(s):**
- Muhamad Sharafee Shamsudin
- Basem Mohammed Al-Howri

**MOBILE:** 0122167698

**EMAIL:** chsuzy@usm.my

**ZwitAd: Zwitterionic Adsorbent Coating for Advanced Pollutant Removal**

ZwitAd (Zwitterionic Adsorbent Coating) is a clay–polymer hybrid coating designed to remove wastewater contaminants through zwitterionic charge interactions. Containing both positive and negative groups, it simultaneously adsorbs cationic and anionic pollutants such as dyes, surfactants, and heavy metals. Easily applied to various surfaces, it transforms them into active adsorption layers for continuous treatment without energy input. Water-based, biodegradable, and cost-effective, ZwitAd achieves up to 70% cost savings and supports sustainable wastewater management aligned with SDG 6 and Green Technology goals.



**EX2025-122**

**School of Mechanical Engineering,**
**Universiti Sains Malaysia**

**INVENTOR**:
Abdul Haadi Abdul Manap

**CO-RESEARCHER(s):**
None

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**PepperX - An Integrated Post-Harvest Processing Ecosystem for Pepper**

PepperX is a patent-pending Integrated Post-Harvest Processing Ecosystem that modernizes pepper production through four interconnected smart machines: the Pepper Threshing System, Enzymatic Retting System, In-Line Solar Drying House, and Pepper Sieving Machine. These systems automate processing into premium white pepper with improved speed, hygiene, and consistency. The enzymatic retting process reduces processing time to one day, while solar drying lowers energy use. Scalable and modular, PepperX supports smallholders, enhances sustainability, and advances Malaysia's pepper industry through innovation and efficiency.

# INVENTION DETAILS

EX2025-123

**Kolej Islam Teknologi Antarabangsa (KITAB) Pulau Pinang**

**INVENTOR**:
Nur Diyana Mohamad

**CO-RESEARCHER(s):**
- Zaini Jamaluddin
- Mohd Ikhmal Fadzil
- Anas Suzastri Hj Ahmad
- Mohammad Aisamuddin Akob
- Nur Farhana Abdul Aziz
- Wan Amir Azlan Wan Haniff
- Wan Nazjmi Mohamed Fisol
- Norazura Ariffin

**MOBILE:** 0148066995

**EMAIL:** diyana@kitab.edu.my

**KITAB as An Educational Innovation Model for Human Capital Development of the B40 Group Through Zakat Instrument**

The KITAB model is an innovative framework that positions zakat as a strategic tool for education and human capital development, focusing on the B40 and asnaf communities. Managed by Majlis Agama Islam Negeri Pulau Pinang (MAINPP), it integrates islamic social finance with sustainable education initiatives. Key features include a fully zakat-funded higher education model, the integration of islamic and moden disciplines, emphasis on digital transformation through sustainability initiatives like Penang Islamic Digital Library (PIDL) and alignment with SDG 4: Quality Education as well as Penang State Vision 2030 to be a Family Focused, Green and Smart State That Inspires the Nation and Agenda Pembangunan Agama Islam Negeri Pulau Pinang 2030.


EX2025-124

**School of Chemical Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Mohd Ridhwan Adam

**CO-RESEARCHER(s):**
- Kabiru Hassan Dahiru
- Nur Alia Athirah Azhar
- Nur Fatin Atikah Abdul Mutalib
- Mohd Nurazzi Norizan
- Mohd Saiful Samsudin
- Mohd Hafiz Dzarfan Othman
- Siti Khadijah Hubadillah
- Mohd Riduan Jamalludin

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**CLINOPTILOCLEAN - Functional Zeolite for Clean and Clear Water**

ClinoptiloClean is a functionalized zeolite-based adsorbent designed to remove dyes, heavy metals, and microplastics from wastewater efficiently. Using clinoptilolite zeolite modified with bis-chalcone and curcumin, it offers enhanced surface area,ding strength, and pollutant selectivity. Incorporated into alginate beads and composite membranes, it functions in both batch and continuous filtration systems. Through electrostatic, hydrogen bonding, and π–π interactions, ClinoptiloClean ensures rapid, recyclable, and stable contaminant removal, providing a green, scalable, and cost-effective solution for sustainable water purification and environmental protection.

# INVENTION DETAILS

**EX2025-125**

**SK Permatang To' Kandu**

**INVENTOR**:
Farizal Muhamad

**CO-RESEARCHER(s):**
- Sumayyah Arman
- Muhammad Umar Nazim Muhamad Fadzli
- Nur Dahlia 'Izzati Dharul Ridwan
- Nur Zara Irdyna Ridzuan Abdullah
- Muhammad Aryan Firash Baba

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**Lilin Harum Lestari (LiME) dan Sabun Seroja**

Eco-Scent Digital ialah inovasi lestari sekolah yang menggabungkan teknologi digital dan keusahawanan hijau. Ia menghasilkan lilin LiME dan sabun SEROJA daripada minyak masak terpakai serta sisa krayon, disertakan Kod QR dan E-Logbook Digital untuk ketelusan dan kesedaran kitar semula. Pengguna boleh mengimbas kod bagi maklumat, video dan pilihan aroma interaktif. Projek ini memperkasa amalan hijau, keusahawanan pelajar dan kemahiran 6C melalui aktiviti jualan serta pameran sekolah.


**EX2025-126**

**Advanced Medical and Dental Institute, Universiti Sains Malaysia**

**INVENTOR**:
Asmida Isa

**CO-RESEARCHER(s):**
- Noorsuzana Mohd Shariff
- Hanis Nabilah Mohd. Nazman
- Muhamad Amir Azizan
- Nur Haida Natasha Shamsuddin
- Zainul Abeden
- Nur Sarah Khadijah Kamal Bahrin

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**Little Lab – DNA Extraction Kit: Fruit DNA in Your Hands**

Little Lab: DNA Extraction Kit is a Bahasa Melayu–based portable science kit that makes molecular biology accessible, engaging, and inclusive. Using simple materials and common fruits like bananas or strawberries, students can extract real DNA and visualize biological concepts in action. Supported by Step-Card Pedagogy, visual guides, a mobile mini-app, and YouTube videos, it caters to diverse learning needs. Proven through outreach to over 2,200 students, Little Lab bridges classroom theory with hands-on STEM learning, empowering B40 and rural students to explore science anywhere.

# INVENTION DETAILS

EX2025-127

**INTI International University**

**INVENTOR**:
Azureen Abd Aziz

**CO-RESEARCHER(s):**
- Sevagamy Jayaraman
- Choo Yeong Khong
- Muhammad Saadan Abdul Aziz

**MOBILE:** 0179634705

**EMAIL:** azureen.abdaziz@newinti.edu.my

**Braillight**

Braillight is a 3D-printed tactile prayer training model designed to help visually impaired individuals learn the correct kneeling posture for Islamic prayer (Salat). Featuring Braille labels for key body parts and tactile contours for alignment, it provides hands-on guidance for accurate posture. Compact, durable, and inclusive, Braillight includes QR-linked audio guides and modular components for prayer transitions, empowering blind worshippers to learn and perform prayers independently, fostering accessibility and religious inclusion.

EX2025-128

**School of Computer Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Siti Hazyanti Mohd Hashim

**CO-RESEARCHER(s):**
- Arar Al Tawil

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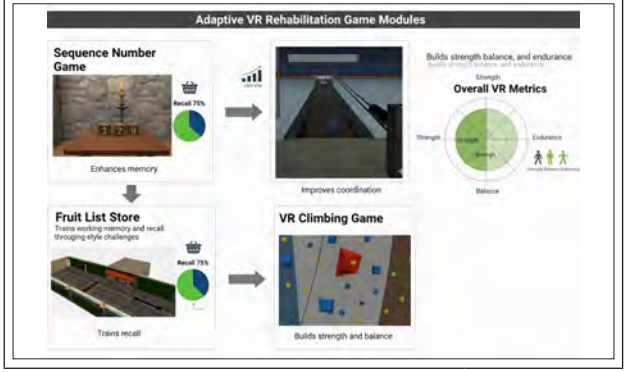
**Multi-Activity Virtual Reality Training System for Stroke Recovery**

REHABVR is a multi-activity virtual reality rehabilitation system developed using Unity 3D to enhance stroke recovery through immersive, gamified therapy. It integrates four VR modules—Sequence Number Game, Bowling Game, Fruit List Store, and VR Climbing Game—to improve cognitive function, memory recall, coordination, and upper-limb strength and balance. The system employs motion tracking and adaptive algorithms to automatically adjust task difficulty and deliver real-time performance feedback. Designed for both clinical and home-based use, REHABVR provides an engaging, low-cost, data-driven rehabilitation experience that supports personalized recovery, enhances motivation, and promotes long-term adherence to therapy.



# INVENTION DETAILS

**EX2025-129**

**INTI International University**

**INVENTOR**:
Azureen Abd Aziz

**CO-RESEARCHER(s):**
- Sevagamy Jayaraman
- Choo Yeong Khong
- Muhammad Saadan Abdul Aziz

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**EMAIL:** azureen.abdaziz@newinti.edu.my

**FitNect**

FitNect is an all-in-one fitness platform that connects users with verified trainers, dietitians, and wellness experts through a user-friendly app. It features an AI-powered matching system, real-time booking, progress tracking, and transparent trainer profiles. Users can access personalized workouts, nutrition plans, and health insights remotely, with options for free or premium subscriptions. By integrating fitness facilities and communities, FitNect motivates users to achieve their goals conveniently and effectively—making it a complete ecosystem for fitness and wellness management.


**EX2025-130**

**River Engineering And Urban Drainage Research Centre, Universiti Sains Malaysia**

**INVENTOR**:
Junaidah Abdullah

**CO-RESEARCHER(s):**
- Mohd Remy Rozainy Mohd Arif Zainol
- Mohd Sharizal Abdul Aziz
- Chang Chun Kiat
- Noor Aida Saad
- Syafiq Shaharuddin
- Mohd Fazly Yusof
- Nor Ariza Azizan
- Siti Fairuz Juiani

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**Revolutionizing Storm Water Management With Subsurface Drain Technology for Flood Prevention**

Subsurface Drain Technology is an innovative stormwater management system that enhances infiltration and runoff control through perforated pipes integrated with modular infiltration media. Mimicking natural hydrological processes, it promotes groundwater recharge and reduces surface flooding in urban areas. Tested at USM Engineering Campus, it showed improved runoff reduction and water quality. Compact, scalable, and compliant with the MSMA framework, it provides a sustainable and cost-effective alternative to traditional open drainage systems.

# INVENTION DETAILS

EX2025-132

**INTI International University**

**INVENTOR**:
Azureen Abd Aziz

**CO-RESEARCHER(s):**
- Muhammad Saadan Abdul Aziz
- Sevagamy Jayaraman
- Choo Yeong Khong

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**EduHarvest**

EduHarvest is a mobile-friendly platform designed to empower refugee children and families by connecting them to free educational content, food security resources, and remote job opportunities. Through skill-based courses in digital literacy, entrepreneurship, and vocational training, the app promotes learning and employability. It also links users to food banks and distribution centers while offering real-time updates on food availability. Accessible on Android and iOS, EduHarvest supports multiple languages, low-bandwidth operation, and a simple, inclusive interface to ensure usability for all.


EX2025-133

**Housing, Building and Planning,**
**Universiti Sains Malaysia**

**INVENTOR**:
Mohd Hazimi Afif Fairus

**CO-RESEARCHER(s):**
- Jestin Nordin
- Zalena Abdul Aziz

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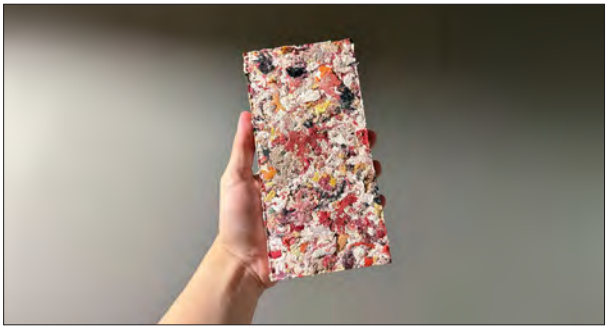
**FabricBRICK**

FabricBRICK is an innovative construction material made by combining recycled textile waste with epoxy resin, offering a strong and eco-friendly alternative to conventional bricks. Tested with varying textile compositions (30%, 60%, and 90%) using cotton and polyester, FabricBRICK achieved a compressive strength of 352.4 MPa at 65 mm, nearly 10 times stronger than standard bricks (35 MPa). Even at half the thickness, it maintained exceptional strength, demonstrating potential for lightweight, sustainable, and high-performance wall systems that reduce textile waste and promote green construction.



# INVENTION DETAILS

**EX2025-136**

**SMK Alor Pongsu**

**INVENTOR**:
Siti Fairos OSMan

**CO-RESEARCHER(s):**
- Haziq Fauzan Hairul Azizi
- Kartishah Loganathan
- Nurish Fatihah Rosli

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**ETAS (EcoTank Automation System)**

Sistem Takungan Air Pintar Berasaskan IoT ialah inovasi yang mengumpul, menyimpan dan mengurus air hujan serta air salji cair secara automatik menggunakan penderia hujan, penderia ultrasonik, sistem bermotor dan tenaga solar. la dapat mengesan cuaca, mengawal aliran air serta mengelakkan limpahan, sekali gus mengurangkan risiko banjir dan pembaziran air. Air yang disimpan boleh digunakan semula untuk pelbagai kegunaan. Reka bentuk modular dan jimat ruang menjadikannya sesuai di semua kawasan, menawarkan penyelesaian lestari, cekap tenaga dan mesra alam.

**EX2025-137**

**Universiti Teknologi MARA (UiTM)**
**Cawangan Pulau Pinang**

**INVENTOR**:
Amiesha Nur Shaheerah Mazlan

**CO-RESEARCHER(s):**
- Dania Azzahra Mohd Sis
- Anis Syuhada Saufi
- Alya Nurqistina Mohd Adzha
- Aliya Amanda Edny
- Mohamad Syafiq Abdul Wahab

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**Shiffa Gold : Herbal Synergy for Complete Body Wellness**

Shiffa Gold is a milk-based functional beverage designed to combat inflammation, poor digestion, and premature aging linked to modern diets and lifestyles. Formulated with Centella Asiatica, banana blossom extract, and turmeric, it offers a 3-in-1 solution for skin, joint, and digestive health. The microencapsulated powder ensures nutrient stability, long shelf life, and high bioavailability. By combining natural ingredients with scientific formulation, Shiffa Gold provides a sustainable, convenient alternative to synthetic supplements for daily vitality.

# INVENTION DETAILS

EX2025-139

**Universiti Teknologi MARA (UiTM)**
**Cawangan Pulau Pinang**

**INVENTOR**:
Siti Nursyazweena Zul-Kharnain

**CO-RESEARCHER(s):**
- Nur Qistina Ariffin
- Nurul 'Adilatil Hakimah Nur Azli
- Nur Lina Syahirah Mustapa
- Mohamad Syafiq Abdul Wahab
- Mohd Othman Halim

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**EMAIL:** wenazulkharnaen@gmail.com

**Kopi O Kulim: Taste the Difference, Feel the Health Benefits**

Kopi O Kulim is a unique fusion of Robusta coffee, instant chicory, and jungle garlic, a rare Malaysian herb known for its natural health benefits. Enriched with antioxidants, prebiotics, and antimicrobial compounds, it supports heart health, improves digestion, and enhances energy and focus. The blend of Robusta's boldness, chicory's smoothness, and kulim's herbal aroma delivers a flavorful, aromatic coffee that combines authentic local taste with modern wellness for daily vitality.


EX2025-140

**School of Computer Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Gan Keng Hoon

**CO-RESEARCHER(s):**
- Teng Eileen
- Ooi Pei Yin

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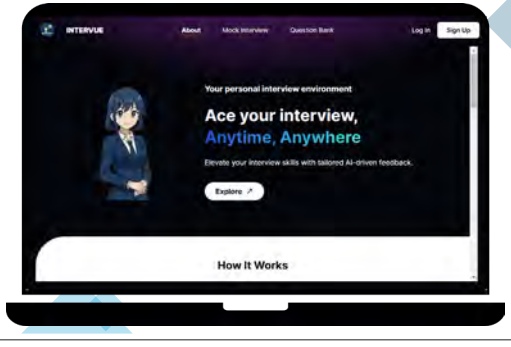
**EMAIL:** khgan@usm.my

**INTERVUE — Intelligent Large Language Model based Virtual Interview Experience**

INTERVUE is an AI-powered interview simulation platform that combines LLM, NLP, and OCR technologies to create realistic, role-specific interview experiences. OCR extracts key details from uploaded documents, enabling the LLM to generate context-aware and adaptive questions, while NLP transcribes and evaluates responses. Intelligent features such as auto-classification and a recommendation system refine the Question Bank and tailor practice sessions to job roles. With video-based simulations, performance analytics, and personalized feedback, INTERVUE helps users build confidence and master communication skills through dynamic, data-driven interview practice.



# INVENTION DETAILS

**EX2025-142**

**School of Arts,**
**Universiti Sains Malaysia**

**INVENTOR**:
Siti Suhaily Surip

**CO-RESEARCHER(s):**
- Chan Le Qi

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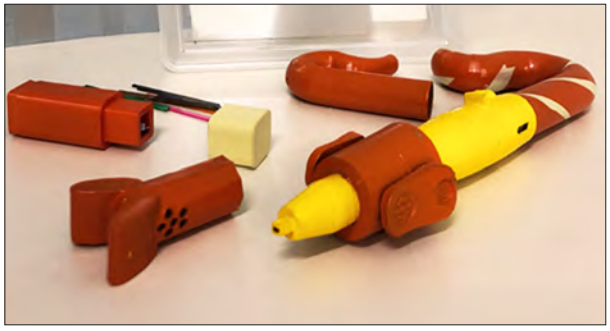
**EMAIL:** suhaily@usm.my

**MA PENCIL: An Assistive Learning Tool to Improve Fine Motor and Writing Skills among Children with Autism Spectrum Disorder (ASD)**

The MA Pencil is an award-winning assistive learning tool designed to develop fine motor and sensory-motor skills in children with Autism Spectrum Disorder (ASD). Winner of the James Dyson Award 2022 (National Level), it features an ergonomic, modular design with three adaptive stages—beginner, adaptive, and mature—that progressively train grip strength and finger coordination. With tactile surfaces and adjustable weight balance, it enhances writing stability and engagement. Merging therapeutic design with inclusive learning technology, the MA Pencil empowers ASD children to write independently and confidently, supporting inclusive education and developmental growth.



**EX2025-143**

**Universiti Teknologi MARA (UiTM)**
**Cawangan Pulau Pinang**

**INVENTOR**:
Arina Umairah Mohd Idlan

**CO-RESEARCHER(s):**
- Nabila Sofea Aznizam
- Ain Natasha Mohd Raduan
- Mohamed Syazwan Osman
- Alia Khalidah Ismail
- Mohamad Syafiq Abdul Wahab

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**Kopi Ala Kazim**

Kopi Ala Kazim is a functional 3-in-1 coffee crafted to help regulate blood sugar while preserving the rich aroma of traditional coffee. Blended with bitter melon extract, goat's milk powder, natural dextrose, and premium coffee, it offers a healthier, fibre-rich alternative free from artificial sweeteners. Low in sodium and compliant with Food Regulation 1985, it supports digestion, energy, and glucose balance. Enjoyed hot or cold, Kopi Ala Kazim delivers a smooth, wholesome experience for modern, health-conscious consumers.

# INVENTION DETAILS

EX2025-144

**School of Arts,**
**Universiti Sains Malaysia**

**INVENTOR**:
Hafeezur Rahmaan Mohd Yassin

**CO-RESEARCHER(s):**
- Fong Kar Kar
- Liew Mei Yi

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**Eithne Bench**

The **Eithne Bench** embodies biophilic design in sculptural form, inviting comfort, mindfulness, and aesthetic harmony within nature's embrace at The Habitat, Penang Hill. Inspired by the Curtis Crest Skywalk and the Yin-Yang philosophy, its flowing Meranti wood and concrete form reflect balance between people and the environment. Embedded reflexology pebbles awaken sensory calm, while the union of ergonomics, artistry, and sustainability transforms ordinary spaces into meditative landscapes of connection and well-being.

EX2025-146

**School of Industrial Technology,**
**Universiti Sains Malaysia**

**INVENTOR**:
Muhammad Najib Ikmal Mohd Sabri

**CO-RESEARCHER(s):**
- Kavita Pusphanathan
- Muaz Mohd Zaini Makhtar
- Muhammad Arshad Mohamed
- Nur Atiqah Abdul Rasik

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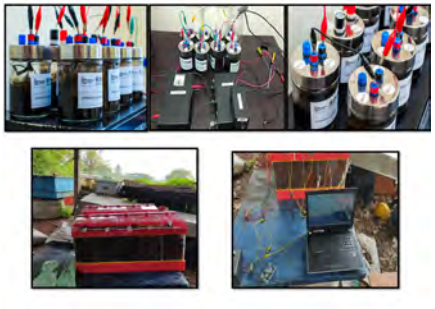
**Simultaneously Bioremediation of Chicken Manure and Bioelectricity Generation Using Microbial Fuel Cell Technology**

The Smart Membrane-Less Microbial Fuel Cell (ML–MFC) is an innovative bio-electrochemical system that converts organic waste, such as chicken manure, into renewable bioelectricity and biofertilizer. Its single-chamber design eliminates costly membranes, using the waste itself as a natural separator between electrodes. Through electrogenic bacterial oxidation and redox reactions, it generates electricity while bioremediating waste. Integrated with IoT-based monitoring, ML–MFC supports low-voltage agricultural systems, smart farming, and rural electrification, advancing Malaysia's circular bioeconomy through sustainable waste-to-energy innovation.



EX2025-148

**Institut Kemahiran Tinggi PERDA (PERDA-TECH)**

**INVENTOR**:
Khairil Rizal Ahmad Kasim

**CO-RESEARCHER(s):**
- Shaik Muhammad Qamar Shaik Nawawi
- Adam Haikal Sulainie Affendy
- Muhammad Khairul Aiman Mod Fauzi
- Khairil Rizal Ahmad Kasim
- Fadhil Latiffi Shahruddin

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**EMAIL:** kriezz78@gmail.com

**LD-SPS : Light Dependent Safety Power Socket**

Light Dependent Safety Power Socket (LD-SPS) ialah inovasi keselamatan pintar yang direka untuk memutuskan bekalan kuasa secara automatik berdasarkan tahap pencahayaan. Ia berfungsi menghentikan operasi alatan berisiko tinggi seperti grinder atau mesin gergaji apabila berlaku gangguan atau kegagalan cahaya secara tiba-tiba, bagi mengelakkan kecederaan. Reka bentuknya mudah alih membolehkan ia digunakan di pelbagai lokasi kerja. Selain itu, alatan tidak akan hidup semula secara automatik apabila cahaya kembali, dan pengguna hanya boleh menghidupkannya semula melalui butang RESET bagi kawalan penuh dan keselamatan maksimum.

EX2025-149

**School of Pharmaceutical Sciences,**
**Universiti Sains Malaysia**

**INVENTOR**:
Sabariah Noor Harun

**CO-RESEARCHER(s):**
- Jared Loo Tun Fang
- Guan Chin Leong
- Siti Maisharah Sheikh Ghadzi

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**AmiDose: Personalized Amikacin Dosing from the First Dose for High-risk Neutropenic Patients.**

This model-based amikacin dosing tool introduces an individualized, population pharmacokinetic (PopPK) approach for high-risk cancer patients with febrile neutropenia, replacing the conventional one-size-fits-all method. Using clinical parameters such as creatinine clearance (CrCL_ABW), albumin, and body weight, it predicts amikacin exposure after the first dose to ensure optimal peak and trough levels. The system enhances dosing precision, minimizes toxicity risks, and supports clinicians in making early adjustments. Validated through simulation, it is ready for integration into a user-friendly bedside dosing calculator, promoting safer, more effective therapy and strengthening antimicrobial stewardship in oncology and critical care.

# INVENTION DETAILS

EX2025-150

**School of Physics,**
**Universiti Sains Malaysia**

**INVENTOR:**
Beh Khi Poay

**CO-RESEARCHER(s):**
- Ahmad Fairuz Omar

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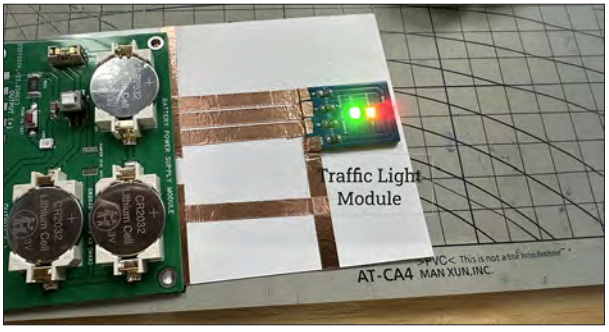
**CircuitFundaTiles: Malaysia based Electronics Series Modules Designed and Developed for Education**

The Modular Electronics Learning Tiles are syllabus-mapped circuit modules that allow students to build real, safe, and reconfigurable electronics systems using components such as power supplies, resistors, capacitors, diodes, and transistors. Each tile features printed schematics, polarity protection, current limiting, and resettable fuses to ensure safety and repeatability. Lesson cards align with KSSM Physics and RBT outcomes, supporting both theory (e.g., diode rectifiers, transistor amplifiers) and hands-on design tasks. Locally fabricated PCBs and serviceable enclosures minimize cost and downtime. Emphasizing measurement-first learning, every experiment integrates multimeter and oscilloscope verification—bridging device-to-system understanding and preparing students for Malaysia's E&E industry pipeline.




EX2025-151

**Institute For Research In Molecular Medicine,**
**Universiti Sains Malaysia**

**INVENTOR:**
Venugopal Balakrishnan

**CO-RESEARCHER(s):**
- Rehasri Selva Rajan
- Alqaraghuli Bassam Ali Sachit
- Azrin Syazana Zulcafli
- Thanasree Ganapathy
- Tye Gee Jun

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**Cervical-Dx: HLA Based Cervical Cancer Detection Using ELISA**

This innovation introduces the first TCR-like antibodies specifically developed against Human Papillomavirus (HPV) Type 16 and 18 E7 oncoproteins for cervical cancer diagnosis. By combining antibody high affinity (humoral immunity) with T-cell receptor (TCR) specificity (cellular immunity), these antibodies can recognize peptide–MHC (pMHC) complexes on the surface of malignant cells. Designed tod HPV16/18 E7 peptides presented by HLA-A2, HLA-A21, and HLA-A11 molecules, the detection process can be performed without cell lysis, enabling accurate, less laborious, and non-destructive diagnosis of cervical cancer.

# INVENTION DETAILS

**EX2025-152**

**River Engineering and Urban Drainage Research Centre, Universiti Sains Malaysia**

**INVENTOR**:
Puay How Tion

**CO-RESEARCHER(s):**
- Lim Jia Jun
- Nasehir Khan E.M Yahaya
- Muhammad Azroie Mohamed Yusoff
- Chang Chun Kiat

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**Artificial Riffle Structure (ARS) for Urban River Rehabilitation**

The Artificial Riffle Structure (ARS) is an eco-hydraulic system built using NAHRIM's NUCleaS units—modular, interlocking concrete blocks that restore natural pool–riffle morphology in regulated rivers. Each hexagonal-pyramid unit enhances turbulence, energy dissipation, and near-bed roughness, while the honeycomb layout forms alternating flow zones that replicate natural riffle–pool sequences. Supported by Computational Fluid Dynamics (CFD) analysis, ARS improves sediment sorting, aeration, and habitat diversity. Its modular, scalable design offers a sustainable, stable, and adaptable solution for river rehabilitation and eco-hydraulic infrastructure.

**EX2025-153**

**School of Materials and Mineral Resources Engineering, Universiti Sains Malaysia**

**INVENTOR**:
Mariatti Jaafar @ Mustapha

**CO-RESEARCHER(s):**
- Muhammad Izz Riyadh Ahmad Saiful
- Siti Rahyla Rahmat

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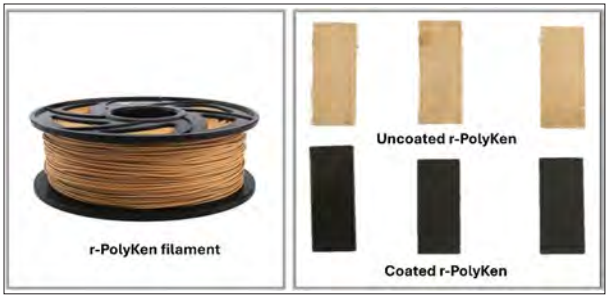
**r-PolyKen**

We have developed r-PolyKen composites to meet the growing demand for lightweight, durable, and hydrophobic materials by integrating recycled PVC (rPVC) with kenaf fiber. Our approach focuses on innovative formulations and processing methods tailored for furniture applications. PVC was selected for its excellent properties, including high strength, UV resistance, fire retardancy, reliable insulation, smooth surface, low water absorption, ease of processing, and aesthetic appeal, which making it a strong alternative to wood with extended service life. The new composite formulations are evaluated based on tensile strength, flexural performance, fire resistance, water absorption, and aging characteristics. To further enhance performance, we apply advanced nanocoating technology, significantly improving hydrophobicity and fire resistance. This project is a collaborative effort with Tasblock (M) Sdn Bhd and the Chiba Institute of Technology.



# INVENTION DETAILS

EX2025-154

**Institut Kemahiran Tinggi PERDA (PERDA-TECH)**

**INVENTOR**:
Khairil Rizal Ahmad Kasim

**CO-RESEARCHER(s):**
- Ain Yusra Mahmud
- Muhammad Adam Haikal Saipul Azuan
- Muhammad Hanif Danie Abd Kasni
- Nur Qistina Balqis Noor Apandi
- Nur Sarah Dalila Mohd Rosli

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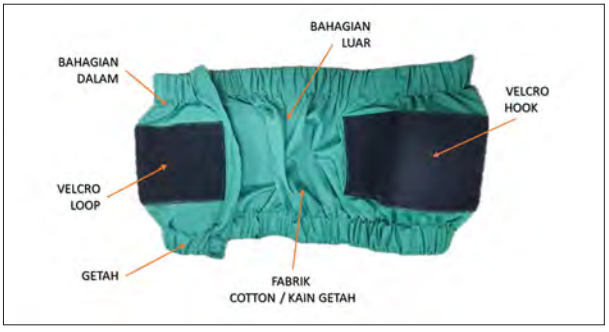
**EC-WRAP: Electrical Cable Wrapping**

Universal Cable Wrapping ialah inovasi yang direka untuk mengekalkan kekemasan dan keselamatan kabel dalam pelbagai persekitaran seperti bengkel dan kawasan industri. Produk ini bersifat universal, tahan lasak, fleksibel, dan sesuai untuk pelbagai saiz kabel. Rekaan praktikalnya memudahkan pengurusan kabel, mengurangkan risiko kemalangan serta kerosakan peralatan elektrik. Dengan potensi tinggi untuk dikomersialkan, inovasi ini mampu meningkatkan kecekapan kerja dan keselamatan pengguna secara menyeluruh.




EX2025-155

**SK Kampong Selamat**

**INVENTOR**:
Noorhafizah Rasid

**CO-RESEARCHER(s):**
- Amzarra Awufy Azlan
- Nur Aisara Asyrani Md Amin
- Nur Marsya Khairina Khairul Basri

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**RECAB PH Test Kit**

Produk ReCap pH Test Kit ialah inovasi mesra alam yang menggabungkan konsep kitar semula dan sains hijau. Ia dihasilkan menggunakan kertas terpakai yang dikitar semula dan dicampurkan dengan ekstrak kubis ungu sebagai bahan utama. Pigmen semula jadi anthocyanin dalam kubis ungu bertindak balas terhadap tahap keasidan bahan, menjadikan Kertas ReCab berubah warna mengikut pH larutan iaitu merah untuk asid, ungu untuk neutral dan kehijauan untuk alkali. Selain berfungsi sebagai penunjuk pH, ReCab juga mendidik murid tentang kepentingan mengitar semula bahan buangan kertas dan menggunakan bahan semula jadi dalam eksperimen sains. Produk ini mudah dihasilkan, selamat digunakan, tidak toksik serta membantu membentuk kesedaran alam sekitar dalam kalangan murid. ReCab bukan sahaja menyelesaikan masalah pembuangan kertas di dalam kelas tetapi juga menjadi alat pembelajaran interaktif yang menyokong amalan teknologi hijau.

# INVENTION DETAILS

**EX2025-157**

**River Engineering And Urban Drainage Research Centre, Universiti Sains Malaysia**

**INVENTOR**:
Goh Hui Weng

**CO-RESEARCHER(s):**
- Derek Chan Juinn Chieh
- Alias Mohamed
- Ang Shin Ying
- Nurul Hana Mokhtar Kamal
- Nor Ariza Azizan
- Syafiq Shaharuddin
- Siti Fairuz Juiani
- Jiei Kobe

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**Multi-Pond Constructed Wetland System (MPCWS) Design for Domestic Sewage Treatment**

The Multi-Pond Constructed Wetland System (MPCWS) is a pilot-scale, nature-based sewage treatment system comprising five ponds in series—sedimentation, oil screening, nutrient removal, treatment, and open water ponds. Using native tropical wetland plants, it integrates ecological and hydrological processes to effectively remove pollutants and improve water quality on tropical islands.

**EX2025-158**

**Institut Kemahiran Tinggi PERDA (PERDA-TECH)**

**INVENTOR**:
Iskandar Haszman Ismail

**CO-RESEARCHER(s):**
- Mohd Khairil Nizam Kassim
- Abdul Aziz Abdul Halim
- Muhammad Syazwan Alief Samsul
- Muhammad Nazrin Al-Hakim Mohd Arshad Nazri

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**Pallet Pro**

The Pallet Pro makes pallet handling easier, safer, and faster. It is affordable, portable, and suitable for SMEs, warehouses, and delivery services. By reducing strain and injury risks, it improves worker safety and supports more efficient and sustainable logistics operations.

# INVENTION DETAILS

**EX2025-159**

**Institut Kemahiran Tinggi PERDA (PERDA-TECH)**

**INVENTOR**:
Ahmad Zufar Zulkarnai

**CO-RESEARCHER(s):**
- Muhammad Zharfan Dzul Hisham
- Mohamad Syaffiq Jamalluddin Hilmi

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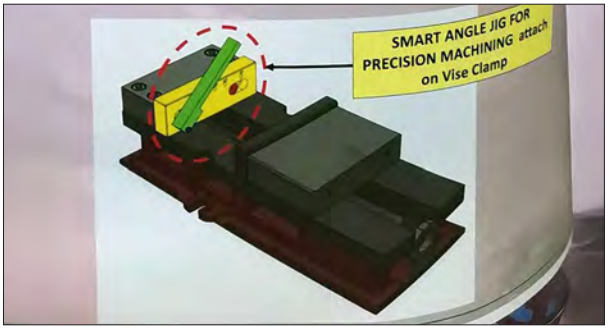
**Smart Angle Jig for Machining**

Smart Angle Jig Is A Process To Created Angled Cut Using Milling Machine. Adjustable Angular Setting- The Top Block Is Equipped With Multiple Holes Allowing Precise Angle Selection In And Makes Angle Positioning Quick And Accurate.




**EX2025-160**

**SM Sains Tun Syed Sheh Shahabudin**

**INVENTOR**:
Nadia Zulkifli

**CO-RESEARCHER(s):**
- Hafydinie Madzalifah
- Ahmad Mujahid Anuar
- Muhammad Hafizuddin Sabri
- Muhammad Fakhri Hakimi Mohd Firdaus

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**NEUROLYNX**

Neurolynx merupakan satu inovasi sistem berasaskan akuaponik yang diintegrasikan bersama IOT dengan kaedah penggabungan sistem akuaponik dalam satu produk yang dimana sumber tenaga produk melalui janaan tenaga boleh baharu daripada solar dan hidroelektrik. Dalam sistem Neurolynx elemen untuk proses fotosintesis dititikberatkan dengan penambahan lampu LED berautomasi penuh.

# INVENTION DETAILS

**EX2025-161**

**Universiti Teknologi MARA (UiTM)**
**Cawangan Pulau Pinang**

**INVENTOR**:
Adi Izhar Che Ani

**CO-RESEARCHER(s):**
- Halim Ghafar
- Hamid Yusoff
- Sh Mohd Firdaus Sh Abdul Nasir
- Aliff Farhan Mohd Yamin

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**EMAIL:** adiizhar@uitm.edu.my

**i-SunDryer**

The solar dryer is an eco-friendly, cost-effective solution that enhances drying efficiency, product quality, and hygiene for farmers, fishermen, entrepreneurs, and industries. Using solar energy, it offers faster, more uniform drying of crops, fish, and other products while reducing pollution and energy costs. Its weather-proof design ensures continuous operation in all conditions, protecting goods from contaminants and promoting sustainable, clean food processing for communities and small-scale producers alike.

**EX2025-162**

**Politeknik Balik Pulau**

**INVENTOR**:
Norhanisha Yusof

**CO-RESEARCHER(s):**
- Muhammad Firdaus Jusrin Ariffin
- Muhammad Adam Iman Abdullah
- Hazirah Nazihah Abdul Rahim

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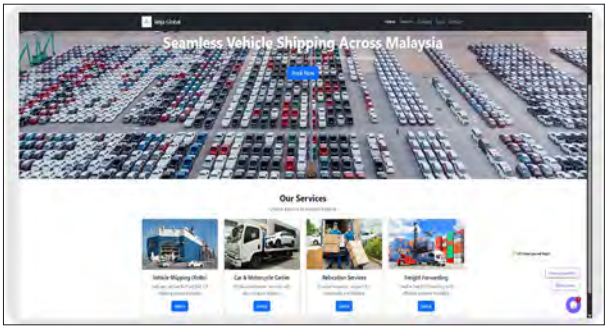
**L-TRACK: Logistics Management and Real-Time Tracking**

The L-Track system is a bilingual and mobile-friendly system via a website. This system helps logistics companies through online booking and document management for customers. L-Track helps companies with integrated real-time tracking & notifications via smartphones to users. In addition, there is an admin dashboard to monitor the delivery of goods. Therefore, these features are a novelty of the system developed. The L-Track system also helps companies such as Waja Global Services shift from manual work to a digital system with online booking, document upload, and logistics tracking. It increases efficiency with features like GPS tracking and artificial intelligence. Low cost and scalability make it suitable for other logistics companies in Malaysia.



# INVENTION DETAILS

**EX2025-163**

**National Poison Centre,**
**Universiti Sains Malaysia**

**INVENTOR**:
Syazwan Aizat Ismail

**CO-RESEARCHER(s):**
- Muhammad Iftishah Ramdan
- Nur Azzalia Kamaruzaman

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**Wellbeing-AI: The Proactive Health Platform for Buildings, Using Edge AI to Integrate Diverse Data for SDG Good Health.**

The Health Sentinel AI (HSAI) Platform is a two-tiered predictive health system combining Edge Sensing Modules (ESM) with a Central Predictive Analytics Engine (CPAE). ESMs use TinyML for real-time anomaly detection, while the CPAE fuses sensor data, symptom reports, and maintenance logs to produce a validated Composite Health Risk Indicator. Approved by IPMsC USM and pending patent filing in November 2025, HSAI enables proactive health and facility management, enhancing well-being, efficiency, and sustainability.

**EX2025-164**

**SM Sains Tun Syed Sheh Shahabudin**

**INVENTOR**:
Nadia Zulkifli

**CO-RESEARCHER(s):**
- Muhammad Adam Haziq Mohd Ismail
- Hadi Mirza Mohd Danir
- Putra Muhammad Rayyannaufal Khazarai
- Hariz Azfar Hasru

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**EMAIL:** g-18227654@moe-dl.edu.my

**FLOROSYNC**

Projek ini dinspirasikan dari negara jepun. Projek ini juga memanfaatkan tenaga kinetik hasil dari sebuah pegerakan. Tujuan projek ini dihasilkan untuk mejana tenaga elektrik(tenaga boleh baharu)dengan lebih mudah.Projek ini boleh berada di bawah jalan raya dan di kawasan pejalan kaki.Dengan tenaga kinetik dari kereta dan manusia dapat menghasilkan tenaga elektrik yang lebih mesra.

# INVENTION DETAILS

**EX2025-166**

**Universiti Teknologi MARA (UiTM)**
**Cawangan Pulau Pinang**

**INVENTOR**:
Adi Izhar Che Ani

**CO-RESEARCHER(s):**
- Hamid Yusoff, Halim Ghafar
- Aliff Farhan Mohd Yamin
- Sh Mohd Firdaus Sh Abdul Nasir

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**EMAIL:** adiizhar@uitm.edu.my

**i-Mistroom**

The i-Mistroom system is a smart, semi-automated mushroom cultivation solution designed to empower B40 families, women, youth, and persons with disabilities through home-based agribusiness. It supports NGOs, social enterprises, and TVET centres in training and income-generation programs. With integrated temperature and humidity monitoring, remote operation, and low maintenance, it ensures stable growing conditions and up to 300% higher yields. Compact, affordable, and user-friendly, i-Mistroom promotes sustainable livelihoods and urban food production.

**EX2025-167**

**Politeknik Balik Pulau**

**INVENTOR**:
Charles Cheng Wuen King

**CO-RESEARCHER(s):**
- Tan Rhu Choon
- Shobhanambigha Sivaguru

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**R-THENA 2.0: An R-Based Thematic and N-Gram Analyzer**

R-TheNA 2.0 is an open-source Shiny web app that converts raw text into frequency tables and wordclouds with unigram, bigram, or trigram options. Using R's quanteda, textstem, and wordcloud packages, it performs Unicode-safe preprocessing with lemmatization and customizable stopwords. Modular and lightweight, it runs efficiently on low-resource servers and supports future extensions like multilingual analysis. Designed for education and research, R-TheNA 2.0 democratizes text analytics through an intuitive, academically robust interface.

# INVENTION DETAILS

**EX2025-169**

**SK Bertam Indah**

**INVENTOR**:
Mohd Zaidi Shahrizal Haji Awang

**CO-RESEARCHER(s):**
- Muhammad Hanif Ed'noor
- Emirrizqi Rafa Razman Effendi
- Muhammad Nazif Safwan Mohd Shafiq
- Muhammad Al Fateh Mohamad Annuar

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**Automatic Solar Pump for Garden (ASPG)**

ASPG ialah sistem siraman tanaman automatik berasaskan tenaga solar yang menggunakan ESP32 sebagai mikropengawal utama. Ia mengesan kelembapan tanah melalui sensor soil moisture dan mengaktifkan pam air bagi menyiram tanaman secara automatik. Dilengkapi dengan panel solar, bateri LiFePO4, dan solar charger controller, sistem ini beroperasi sepenuhnya tanpa bekalan kuasa luar. Takungan air diperbuat daripada botol terpakai yang direka untuk menapis kotoran dan mengekalkan pam pada paras sesuai, menjadikannya inovasi lestari dan efisien.


**EX2025-171**

**Institut Kemahiran Tinggi PERDA (PERDA-TECH)**

**INVENTOR**:
Muhammad Amran Md Kasa

**CO-RESEARCHER(s):**
- Muhammad Auzraien Rusydi Muhammed Afamay
- Muhammad Zahid Roslani
- Muhammad Irfan Mohd Khairi

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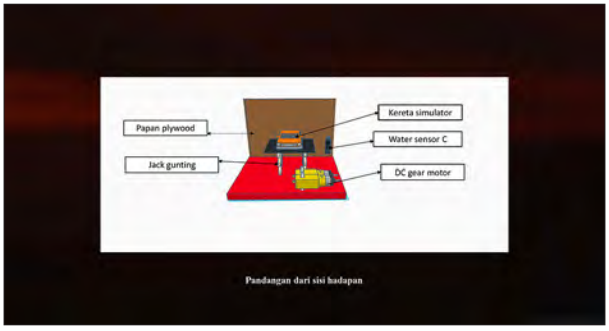
**EMAIL:** phu9345@gmail.com

**Automatic Flood Car Lift**

Tujuan projek Flood Car Lift ini dilakukan adalah untuk mengatasi masalah yang dihadapi pengguna. Pertama sekali Keselamatan Pengguna dan Kenderaan Keselamatan adalah salah satu kepentingan utama projek Flood Car Lift. Dengan peningkatan risiko banjir dan genangan air akibat perubahan iklim, kenderaan yang diletakkan di kawasan yang terdedah banjir boleh mengalami kerosakan yang serius. Sistem Flood Car Lift mengurangkan risiko ini dengan mengangkat kenderaan ke ketinggian yang selamat, jauh dari kemungkinan air bertakung. Ini bukan sahaja melindungi kenderaan daripada kerosakan mekanikal dan elektronik tetapi juga mengurangkan risiko keselamatan untuk pengguna. Dengan sistem ini, bahaya kemalangan yang mungkin timbul akibat air memasuki kawasan parkir dapat diminimumkan.



# INVENTION DETAILS

**EX2025-172**

**INTI International University**

**INVENTOR**:
Choo Yeong Khong

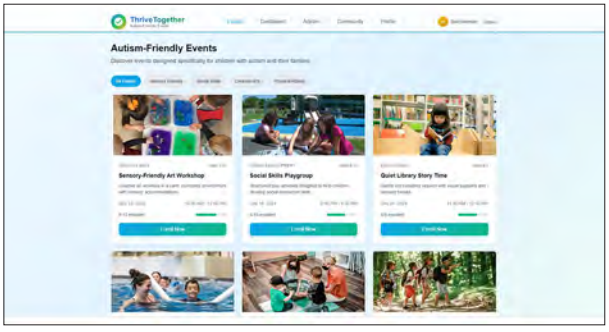
**CO-RESEARCHER(s):**
- Azureen Abd Aziz
- Muhamad Sa'dan Abdul Aziz
- Sevagamy Jayaraman

**MOBILE:** 0176391348

**EMAIL:** yeongkhong.choo@newinti.edu.my

**ThriveTogether**

ThriveTogether addresses these gaps by creating an all-in-one, sensory-friendly platform that combines community support, curated autism-friendly events, expert-led educational resources, and mental health tools. Designed with multi-language support, sign language, and balanced parental monitoring, it empowers both children and caregivers. Unlike current market solutions, ThriveTogether offers a safe, inclusive, and holistic digital ecosystem that promotes social connection, emotional well-being, and lifelong learning for neurodiverse communities.




**EX2025-173**

**Politeknik Seberang Perai**

**INVENTOR**:
Firdaus Mohamed Sa

**CO-RESEARCHER(s):**
- Md Najip Talibin
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**PSP Smart Lighting System V3**

Smart Lighting System Application Version 3 for Learning Processes in the Dark Using Seawater as a Power Source. It supplies a diffused lighting system covering an area of 40.5 cm in width and 35.5 cm in length for six hours, with the battery charging process occurring continuously.The IR (Infrared Proximity) sensor can automatically detect objects at a distance of 1.0 m, activating the lighting system.The Arduino Uno controller inside the electronic box functions to control the overall lighting system, the ultrasonic sensor, USB, and the safety button (on and off) for resetting errors.The main frame is developed using PETG filament material with a 3D printer machine.

# INVENTION DETAILS

**EX2025-175**

**Politeknik Metro Tasek Gelugor**

**INVENTOR**:
Safitri Salleh

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- Mohamad Aiman Azizi
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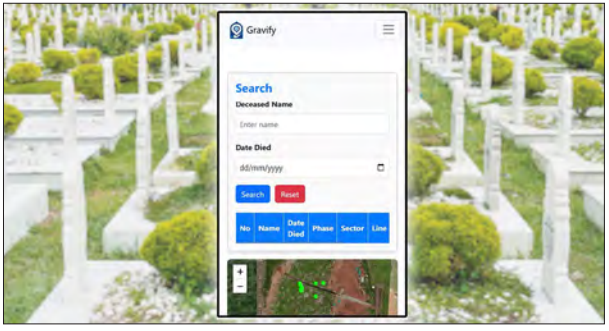
**Gravify**

1. Grave navigation
2. Digital Data Management
3. Automated Statistics Insight




**EX2025-176**

**Institut Kemahiran Tinggi PERDA (PERDA-TECH)**

**INVENTOR**:
Nurliana Dalila Shaari

**CO-RESEARCHER(s):**
- Siti Nurafiqah Bt Ahmad Yazid
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**EDULEXIVERSE**

This innovation project introduces a chatbot that facilitates interactive and multimodal learning. It offers several options, including AR-based learning, interactive notes, videos, and open conversations. Users can access vocabulary explanations through AI avatars or explore 3D models using augmented reality. The system ensures that learners successfully access their chosen content, highlighting the chatbot's effectiveness in integrating technology to enhance digital learning experiences.

# INVENTION DETAILS

**EX2025-178**

**INTI International University**

**INVENTOR**:
Azureen Abd Aziz

**CO-RESEARCHER(s):**
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**CostEdge**

CostEdge is a mobile platform designed to help B40 households manage rising living costs through smart financial tracking and community support features. It categorizes expenses into essential and non-essential items, enabling users to identify savings opportunities and make informed spending decisions. The app also connects users to local food banks, affordable housing, and subsidy programs. Built for simplicity, low data use, and offline functionality, CostEdge ensures accessibility for users with limited digital literacy or low-cost smartphones.


**EX2025-179**

**POLITEKNIK METrO TASEK GELUGOR**

**INVENTOR**:
Safitri Salleh

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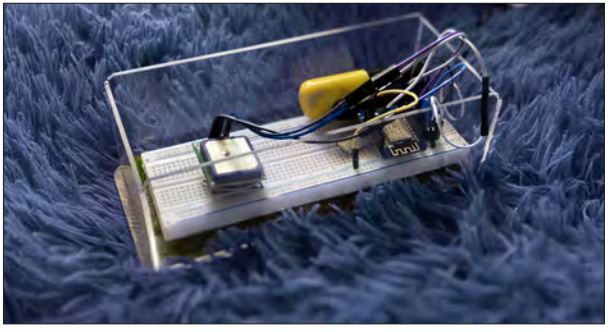
**TRACKIEY**

Multi-Factor Aunhentication (MFA) ; End-TO=End Encryption ; Automated Incident Response ; Smart Zone Management



# INVENTION DETAILS

EX2025-180

**POLITEKNIK METrO TASEK GELUGOR**

**INVENTOR**:
Azizah Siron

**CO-RESEARCHER(s):**
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- Muhammad Aiman Firdaus Ismail
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**Short Film Production: Di Bawah Langit Yang Sama**

The production of this short film serves as an inspiration for those interested in learning the technical aspects of film and drama production. Throughout the video production process, students utilized contemporary videography technology in terms of equipment, content development, and production workflow that aligns with commercial industry standards. The video product was also verified by industry partners collaborating with the polytechnic in the field of creative media production through the Industry on Campus approach implemented at Politeknik METrO Tasek Gelugor.


EX2025-182

**POLITEKNIK BALIK PULAU**

**INVENTOR**:
Mohd Razif Mustapha

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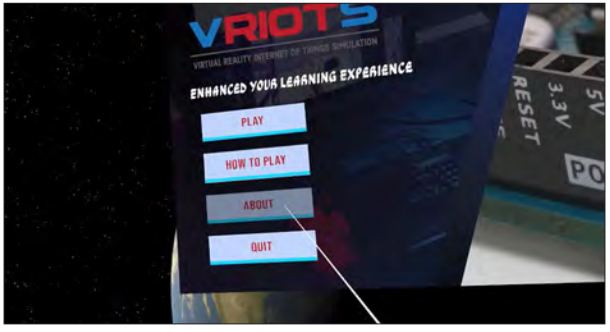
**Virtual Reality for IOT Simulation (VRIOTS)**

V-RIOTS introduces a groundbreaking approach to IoT education by combining immersive VR technology with interactive simulations of real-world IoT systems. Its key novelty lies in replacing the traditional dependency on physical hardware with a fully virtual, yet functionally realistic, learning environment. This not only reduces costs but also democratizes access to high-quality technical education for students regardless of their geographic or economic background. Unlike conventional e-learning platforms or static simulators, V-RIOTS provides an interactive 3D VR environment where students can build, configure, and troubleshoot IoT systems using virtual components that behave like their real-world counterparts. The system supports real-time feedback, dynamic scenario-based learning, and gamified task flows, fostering deeper engagement and active learning.



# INVENTION DETAILS

**EX2025-184**

**POLITEKNIK SEBERANG PERAI**

**INVENTOR**:
Abdul Hafiz Abd Hamid

**CO-RESEARCHER(s):**
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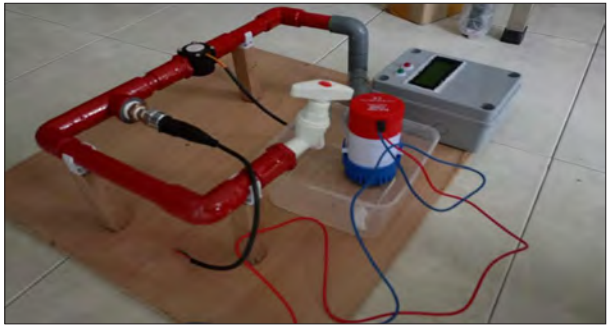
**FLOWS SYSTEM**

FLOWS (Fire Line Overflow & Water Leak Sensor) is an innovative project that combines Internet of Things (IoT) technology with the ESP32 microcontroller and water sensors to tackle the challenges of water wastage and fire safety risks associated with pipe leaks. This system detects leaks and overflows in real time using flow and pressure sensors, subsequently transmitting data to cloud platforms through MQTT and HTML dashboards. Users receive immediate notifications via mobile or web applications, allowing for prompt action to mitigate further damage and loss. With low development costs and a user-friendly design, FLOWS aids in water conservation, decreases maintenance expenses, and ensures dependable fire safety systems. The project showcases a sustainable and practical solution that aligns with national initiatives for efficient resource management and the adoption of smart technology.



**EX2025-185**

**POLITEKNIK METrO TASEK GELUGOR**

**INVENTOR**:
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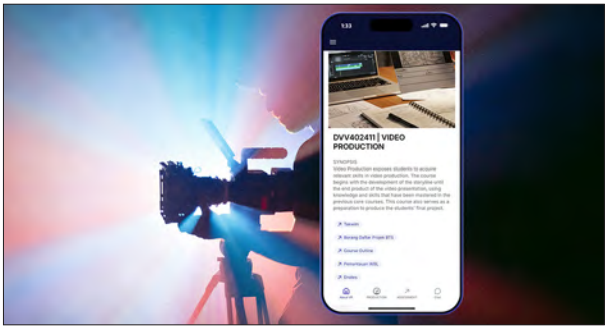
**WBL Hub**

Through this platform, students can review assigned activities, receive task reminders, and track their project progress. This interactive innovation incorporates multimedia elements such as text, images, and videos to create a structured and engaging learning tool. Features include a Calendar that functions as a Gantt Chart and a Weekly Task Menu for each production. Links to platforms such as Canva, Padlet, and Google Drive are also integrated based on project development needs.



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| rapidPenang | PWCC Penang Waterfront Convention Centre | MCCO Malaysia Cybersecurity Community Organization | ISACA |

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MADANI:SPARK IDEAS, SHAPE FUTURES

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