INNOVATION HIGHLIGHTS

Reneu Directory

"Aims to recognize and celebrate faculty achievements in Invention, Innovation & Design (IID) Competitions"

INNOVATION HIGHLIGHTS

2024/2025

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PUBLISHED BY

PERPUSTAKAAN TUN ABDUL RAZAK UNIVERSITI TEKNOLOGI MARA CAWANGAN SARAWAK JALAN MERANEK 94300 KOTA SAMARAHAN SARAWAK

PUBLISHED DATE

JULY 2025

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PREFACE

EDITORIAL TEAM

ACHIEVEMENTS IN IID COMPETITIONS

iidex 2024

VIIIC 2024

INDES 2024

iEDGII 2024

IIICe 2024

DiDi 2024

ITAC 2024

MIIEX 2024

QSRI 2024

IBIEC 2024

IVCCII 2024

IINNCOME 2024

VIC 2024

3iDC 2024

MAGIEX 2024

ICEBIV 2024

AICAD IID 2024

Innovation Exhibition @FPA 2024

MTF 2024

SIC 2024

USIEV 2024

INNOVATHON S2

Opll 2024

i3DC 2024

ICIIC 2025

Arshad Ayub Graduate Business School
Sustainable Horizon Week 2025

(i-TIEC 2025)

Innovation Highlights

PREFACE

"Innovation Highlights" marks the inaugural publication by Research Nexus UiTM (ReNeU) Unit under the Research & Industrial Linkages (PJI) Division, Universiti Teknologi MARA (UiTM) Sarawak Branch. This premier edition documents and celebrates the exceptional achievements of UiTM Sarawak's faculties in **Invention, Innovation, and Design (IID)** competitions throughout the 2024/2025 academic year.

As a testament to UiTM Sarawak's commitment to research excellence, this directory features:

- **Pioneering Solutions**: Award-winning projects addressing pressing challenges through technological and design innovations
- **Competition Excellence**: Notable participation and achievements in prestigious national and international platforms
- **Strategic Collaborations**: Interdisciplinary partnerships enhancing research impact and applicability
- Future-Focused Vision: Pathways for commercial potential and continued research development

To foster a culture of innovation, this compendium serves as both a record of accomplishment and an inspiration for future research endeavors. It underscores UiTM Sarawak's growing reputation as a regional hub for transformative ideas and practical solutions.

UiTM Sarawak takes pride in presenting this first-of-its-kind documentation, which we envision will become an annual benchmark of our institution's innovative capabilities.

Editor

Innovation Highlights

EDITORIAL TEAM



Prof. Dr Firdaus Abdullah

Rector

Advisor I



Prof. Ir Dr Juferi Idris

Deputy Rector

Research & Industrial Linkages Division

Advisor II



Dr Rudy Tawie *Coordinator* ReNeU Unit

Editor



Chrisna Pindah

Coordinator

Communication & Visibility Unit

Graphic Designer









4-8 NOV. 2024 DEWAN BERLIAN University Telenology MARIA (UITM) Puncal Alam, Selangor, Malaysia



Soft-shell crabs must be harvested within 2-3 hours after molting for quality. Manual detection is slow, costly, and inefficient. The Twincrab solution automates detection using IoT computer vision and deep learning, enabling timely harvesting without constant supervision. This increases yield and profitability. An agritech startup is being formed to scale this innovation and meet rising market demand.









4-8 NOV.

DEWAN BERLIAN Universiti Teknologi MARA (UITM) Puncak Atam, Sekangor, Makayasa



D.I.A.T. is an interactive mixed reality app making Sarawak's remote natural attractions accessible to all, including those with physical limitations. Using 360° media, 3D elements, and soundscapes, it provides an immersive virtual experience. This promotes sustainable tourism. preserves heritage, raises conservation awareness, and supports economy through strategic partnerships.









4-8 NOV. 2024 DEWAN BERLIAN University Teknology MARIA (LUTM) Puncak Alam, Selangor, Malaysia



Trigona-Moni tackles global stingless bee colony loss, threatening honey production and crop pollination (vital for 70% of world's food). This precision apiculture system uses IoT sensors and data science to monitor hive health, detecting anomalies, nectar levels, and safety issues. Its expert system alerts keepers for prompt intervention. Collaborating via an MoU, the project plans mobile smart hives for pollination services.









4-8 NOV. 2024 DEWAN BERLIAN University Telenology MARIA (UITM) Puncal Alam, Selangor, Malaysia



Convoquest is a gamified language learning card tool using translanguaging (Malay/English) build **English** to conversational skills. It features a mindmap guiding dialogues from greetings to complex talks, supported by 15 prompt cards and 5 challenge cards. Designed for low/intermediate learners, reduces anxiety through scaffolding and L1 support, making practice engaging and accessible.









4-8 NOV.

DEWAN BERLIAN University Telenology MARIA (URTM) Puncale Alarm, Selangor, Malayeta

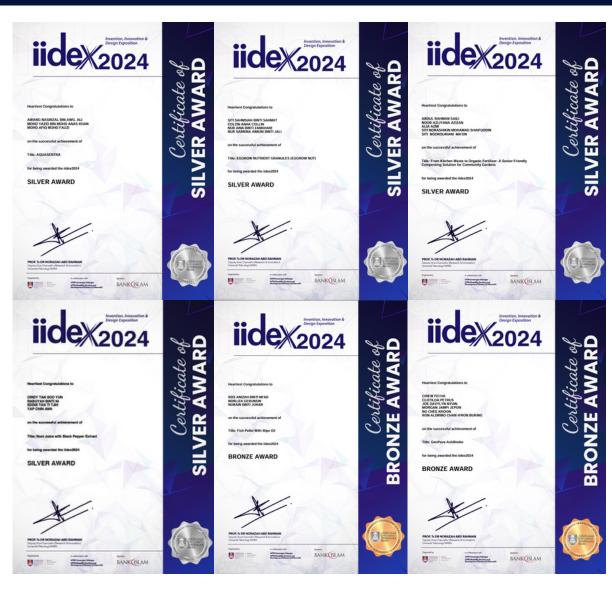


Countbuddy is a multisensory 7-in-1 tool designed to teach number sense to with learning children disabilities. addresses the challenge of learning basic numbers by integrating seven concepts into one affordable, colourful, and safe innovation resource. This supports UNESCO SDGs 4 (quality education), 10 (reduced inequalities), and 11 (sustainable communities) by making essential math skills accessible.























INTERNATIONAL EDUCATIONAL DESIGN, GAMES, INVENTION & INNOVATION 2024













INTERNATIONAL EDUCATIONAL DESIGN, GAMES **INVENTION & INNOVATION 2024**



SUHARDI BIN KRAM (KETUA) ABBYLOLITA SULLAH SITI NURR ATIKA BINTI MOHD SANIF ASMALINI BINTI HJ CHE ABU SHAFIE GORDON NICOLAUS JEMAT ANCHANG

ZEROZHERO SUPER PARA-ATHLETE QUEST: XL2S BOARDGAME 3.0

IEDOR INTERNATIONAL EDUCATIONAL DESIGN, CAMES, INVENTION & INNOVATION 2004

SELURUH WARGA UITM CAWANGAN SARAWAK





CERTIFICATE OF AWARD

ABBYLOLITA SULLAH

SITI NURR ATIKA BINTI MOHD SANIF ASMALINI BINTI CHE ABU SHAFIE

GORDON NICOLAUS JEMAT ANCHANG

GOLD

for the project entitled

ZERO2HERO SUPER PARA-ATHLETE QUEST: XL2S BOARDGAME 3.0



7 November 2024



PROF. TS. DR. NORAZAH ABD RAHMAN Deputy Vice-Chancellor (Research and Innovation) Universiti Teknologi MARA



SUHARDI BIN KRAM (KETUA) CYNDRA ROBERT BUDULL ADJULLEA JAMES @ NOEW THERESA AHING

DR. PIERMAURO CATARINELLA



OR INTERNATIONAL EDUCATIONAL DESIGN, GAMES, INVENTION & INNOVATION 2004

SELURUM WARGA UITM CAWANGAN SARAWAK











CERTIFICATE OF AWARD

DR PIERMAURO CATARINELLA CYNDRA ROBERT BUDULL

> ADJULLEA JAMES THERESA AHING

GOLD

LINGOACTIVE 2.0: REVOLUTIONIZING ITALIAN GRAMMAR LEARNING THROUGH INTERACTIVE PLAY AND PHYSICAL EXERCISE



7 November 2024



PROF. TS. DR. NORAZAH ABD RAHMAN Deputy Vice-Chancellor (Research and Innovation) Universiti Teknologi MARA









INTERNATIONAL EDUCATIONAL DESIGN, GAMES **INVENTION & INNOVATION 2024**





SELURUH WARGA UITM CAWANGAN SARAWAK



CERTIFICATE OF AWARD

AKMAL SHAFIQ BADARUL AZAM DR. MUHAMMAD SHAHIMI ARIFFIN MUHAMMAD ANAS ABDUL BAZAK MOHD ZUHAILI KAMAL BASIR

GOLD

ED-STAT: OPTIMIZING TEACHING AND LEARNING OF INTRODUCTION TO STATISTICS.



7 November 2024



PROF. TS. DR. NORAZAH ABD RAHMAN Deputy Vice-Chancellor (Research and Innovation) Universiti Teknologi MARA



PEMFAILAN HAK CIPTA

Ed-Stats









INTERNATIONAL EDUCATIONAL DESIGN, GAMES **INVENTION & INNOVATION 2024**











NUR AZIELA BT AIDIT HJH AFFIDAH BT MORN AISYAH BT NAZAMUD-DIN SITI HAFIZAH BT AMBI SITI JAMILAH BT MUHAMMAD HANEEF ALI

GOLD

GAMIFICATION IN ESL: USING SHOPPER'S DELIGHT 2.0 TO ENHANCE NOUN AND ADJECTIVE COMPETENCY



7 November 2024

PROF. TS. DR. NORAZAH ABD RAHMAN Deputy Vice-Chancellor (Research and Innovation) Universiti Teknologi MARA









PROF. TS. DR. NORAZAH ABD RAHMAN Deputy Vice-Chancellor (Research and Innovation) Universiti Teknologi MARA

25 📕 CERTIFICATE OF AWARD

SILVER

e-FinLEX





PROF. TS. DR. NORAZAH ABD RAHMAN Deputy Vice-Chancellor (Research and Innovation) Universiti Teknologi MARA



SILVER



X PROF. TS. DR. NORAZAH ABD RAHMAN Deputy Vice-Chancellor (Research and Innovation) Universiti Teknologi MARA









INTERNATIONAL EDUCATIONAL DESIGN, GAMES INVENTION & INNOVATION 2024



CERTIFICATE OF AWAR

This is to certify that

MUHAMMAD ANAS ABDUL RAZAK

ABIDAH AQILAH MOHD NOOR

AKMAL SHAFIO BADARUL AZAM MUHAMMAD ZULKHAIRI ZAKARIAH

MOHD ZUHAILI KAMAL BASIR

for the project entitled

I-TRADERN: A NOVEL TECHNIQUE IN ONLINE ARABIC READING COMPREHENSION



held on

7 November 2024



PROF. TS. DR. NORAZAH ABD RAHMAN Deputy Vice-Chancellor (Research and Innovation)

Universiti Teknologi MARA

TRACY ADELINE ANAK AJOL SHIRLEY SINATRA ANAK GRAN PM. DR. TANG HOWE ENG CINDY ANAK ROBERT

STEFANIE NATASHA RICH ANAK JOSEPH

BRONZE

MOOC MAT086: ENHANCING STUDENTS' UNDERSTANDING IN MATHEMATICAL CONCEPT USING COLOUR-CODED LEARNING



7 November 2024

This is to certify that

AGNES AYANG KENYANG ONG SING LING DR TUH MOLHUA TING SU UNG

BRONZE

for the project entitled

TRIGONOMAZE



7 November 2024





INTERNATIONAL TEACHING AID COMPETITION 2024 (iTAC 2024)



APPLICATION OF AUGMENTED REALITY (AR) IN MEASUREMENT OF BUILDING WORK

Sr Syamimi Liyana Amat Rais College of Built Environment, Universiti Teknologi MARA, Cawangan Sarawak syamimi6893@uitm.edu.my

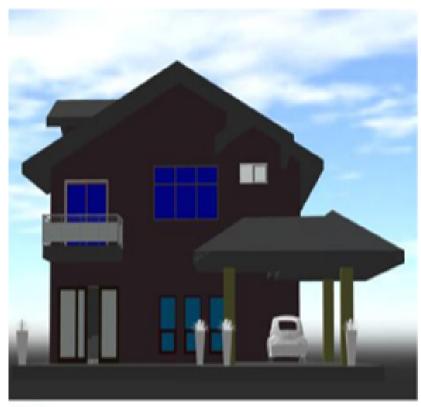
Sr Mohd Khairul Fitri Othman
College of Built Environment, Universiti Teknologi MARA, Cawangan Sarawak
mohd_khairul135@uitm.edu.my

Sr Zafikha Aida Bidin
College of Built Environment, Universiti Teknologi MARA, Cawangan Sarawak
zafikha936@uitm.edu.my

Sr Farah-Ajlaa Julaihi
College of Built Environment, Universiti Teknologi MARA, Cawangan Sarawak
farah-ajlaa@uitm.edu.my

Nur Illiana Husin College of Built Environment, Universiti Teknologi MARA, Cawangan Sarawak illiana@uitm.edu.my

To develop an Augmented Reality (AR) by focusing on construction drawing to enhance students' understanding and provide them with a greater visual insight into the elements and components involved in the building works before they start the measurement tasks.









INTERNATIONAL TEACHING AID COMPETITION 2024 (iTAC 2024)



ENGLISH GRAMMAR GUIDE APPLICATION - EGGA 2.0: A COMPREHENSIVE EVALUATION

Zubaidah Bohari
College of Computing, Informatics and Mathematics,
Universiti Teknologi MARA Sarawak Branch
zubaidah@uitm.edu.my

Sueb Ibrahim

Academy of Language Studies, Universiti Teknologi MARA Sarawak Branch ebraiz@uitm.edu.my

John Francis Noyan Academy of Language Studies, Universiti Teknologi MARA Sarawak Branch inoyan@uitm.edu.my

Lilly Metom
Academy of Language Studies, Universiti Teknologi MARA Sarawak Branch
lillymetom@uitm.edu.my

Abdul Hadi Abdul Talip
College of Computing, Informatics and Mathematics,
Universiti Teknologi MARA Sarawak Branch
adie0951@uitm.edu.my

English Grammar Guide Application – EGGA 2.0 is a mobile–assisted language learning tool designed to provide non–native English speakers with additional grammar instruction. This innovative application serves as a self–directed assessment tool, allowing students to study the fundamentals of English grammar and track their own learning progress. EGGA 2.0 includes essential grammar components, namely; English Tenses, Subject–Verb–Agreement, Parts of Speech, and VH–Questions, which are fundamental for achieving grammar proficiency.





Collection of short notes with simple examples



A feedback sample of a quiz



Score and grade











International Teaching Aid
Competition 2024







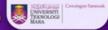
DR. YUSMAN BIN YACOB DR. MALVERN BIN ABDULLAH **UMI INSYIRAH BINTI PAKASA** JOHARI BIN ABDULLAH



PROGRAD: A MICROSOFT EXCEL DASHBOARD TO ENHANCE MONITORING AND SUPERVISION OF POSTGRADUATE STUDENTS

INTERNATIONAL TEACHING AID COMPETITION 2024 (ITAC)







SR. DR. AHMAD FAIZ ABD RASHID (KETUA) DR. SYLVIA GALA ANAK MONG @ AGAM TS. MOHD DZULIQYAN JASNI MEGAT FARIDRULLAH ZOLKEFLI

DR. VALERIE ANAK MICHAEL

ENGAGING YOUNG MINDS IN STEM: EXPLORING CARBON CAPTURE, UTILISATION, & STORAGE (CCUS) CONCEPT WITH VISUAL AIDS & 3D MODELS

ahniah \$ Syabas

TS. ROSELINE ANAK IKAU (KETUA) TS. DR. SYLVIA GALA ANAK MONG @ AGAM SR. ZAFIKHA AIDA BINTI BIDIN NUR ILLIANA BINTI HUSIN SR. SYAMIMI LIYANA AMAT RAIS

GANGSA





PROF. MADYA DR. NADIAH ABDUL HAMID DR. IDA SURIYA ISMAIL

4Utax2GO!





MUHAMMAD ZULKHAIRI BIN ZAKARIAH (KETUA) AKMAL SHAFIQ BIN BADARUL MUHAMMAD SHAHIMI BIN ARIFFIN

MUHAMMAD ANAS BIN ABDUL PAZAK

MOHD ZUHAILI BIN KAMAL BASIR

PERAK

ED-STATS: INTERACTIVE LEARNING TOOL FOR INTRODUCTION TO STATISTICS









TS. DR. SYLVIA GALA ANAK MONG @ AGAM (KETUA) TS. ROSELINE ANAK IKAU

DR. VALERIE ANAK MICHAEL

GANGSA

Second Life Edu (SLEdu) for Innovative Teaching & Lea Enhancing Education in the Virtual Realm









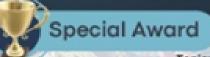






ongratulations

MOST PROMISING INNOVATOR AWARD



EGGROW NUTRIENT GRANULES (EGGROW-NUT)
Group ID: 05-IBIEC24-058

Group Members: TS. SITI SHAMSIAH SAHMAT (TEAM LEADER), COLZIN COLLIN, NUR SABRINA AIMUNI, NUR AINA ZAMAHARI

INSTITUTIONS: UITM KOTA SAMARAHAN, SARAWAK

(CATEGORY 5)

INTERNATIONAL BORNEO INNOVATION EXHIBITION & COMPETITION 2024





Category 3 & 4

ELECTRICAL TECHNOLOGY, ICT & TELECOMMUNICATIONS

1st Winner

Topic:
A SIMPLIFIED 16-PORTS RF SWITCHING
FOR MICRWAVE BREAST IMAGING
Group ID: 03-IBIEC24-017

Group Member: HADI BIN JUMAAT

Institutions: UITM SARAWAK BRANCH





INTERNATIONAL BORNEO INNOVATION EXHIBITION & COMPETITION 2024







Category 6

TEACHING & LEARNING. EDUCATION TECHNOLOGY & PEDAGOGY

Topic: COUNTBUDDY Group ID: 06-IBIEC24-026

Group Member: SYAH RUNNIZA BINTI AHMAD BAKRI (MAIN PRESENTER), PROF. TS. DR. LING SIEW ENG

Institutions: UITM CAWANGAN SARAWAK



INTERNATIONAL BORNEO INNOVATION EXHIBITION & COMPETITION 2024







Category 6

TEACHING & LEARNING. EDUCATION TECHNOLOGY &











Virtual Innovation Competition 2024 (VIC 2024)







3rd International Competition of Entrepreneurship Business Innovation (iCEBIV) 2024









INNOVATHON SEASON 2

This innovative TV show is a collaboration between the Ministry of Economy, the Ministry of Science, Technology & Innovation (MOSTI), and Astro.











INTERNATIONAL BUSINESS AND MANAGEMENT VIRTUAL INNOVATION AND INVENTION OF IDEAS COMPETITION

-VIIIC 2024 CATALOGUE















FinTrove merges educational content with semi digital gameplay, incorporating various financial instruments available in the Malaysian financial system.







INTERNATIONAL INNOVATION INVENTION AND CREATION EXHIBITION

EARTH: EFFICIENT AQUAPONIC RECYCLING TECHNOLOGY

This project explored the feasibility of composting hydroponic waste and its effect on Brassica juncea growth. Results show improved plant growth and potential for sustainable waste management in hydroponic farming, enhancing environmental sustainability and resource efficiency.

GROUP: HYDROROMPOST

UiTM Sarawak



We are the Hydrorompost Group from UiTM Sarawak.











Apong Eco-Langko



This langko which looks like a small hut is located in a muddy nipah forest with no piping and electricity supplies.



Investing in renewable energy resources and local materials is expected to lead the charge towards a more sustainable business and communities.







npowerment of Special Teed's through Invention & Innovation"













Mind Map: Interrogative words in Mandarin

Ngien Ming Ming¹, Wee Sheau Ping², Cindy Richard Thing³, Sheela Faizura Binti Nik Fauzi⁴, Liew Chin Ying⁵

1.2.3.4.&5 Academy of Language Studies, Universiti Teknologi MARA, Sarawak Branch, Campus Samarahan 2, Sarawak, Malaysia

*Corresponding Author's Email: cindy@uitm.edu.my

Abstract

"Mind Map: Interrogative Words in Mandarin" explores the integration of mind maps, based on Tony Buzan's theory, into Mandarin interrogative word learning. In a globalized society where language acquisition is crucial, innovative tools like mind maps offer a non-linear and intuitive approach to organizing information. The study addresses the challenge of learners struggling with learning Mandarin interrogative words, proposing a solution through the creative and systematic use of mind maps. By focusing on vocabulary retention, conceptual understanding, system building, and reading comprehension, the study aims to enhance learners' application abilities in both real-life scenarios and exams. "Mind Map: Interrogative Words in Mandarin" combines visual elements with textual information, offering an inventive and graphical method for learners to understand, classify, and utilize interrogative words effectively. The expected outcomes include improved contextual awareness and self-learning skills, making the process of learning interrogative words engaging, effective, and creative. Ultimately, the use of mind maps as a learning tool for interrogative words helps enhance learners' understanding and mastery capabilities.



Keywords: Mind map, interrogative words, Mandarin language.





International Invention, Innovation and Design Competition 2024 2nd Edition (i3DC 2024)











AleAD Invention, Innovation & Design 2024











AICAD Invention, Innovation & Design 2024































SIC 24

SMART INNOVATION COMPETITION INTERNATIONAL, 2ND EDITION

UTS

27 SEP 2024

9.00AM - 5.00PM

University Of Technology Sarawak Dewan Canselor Tun Abdul Taib Mahmud

28 SEP

Award Presentation Ceremony 9.00AM - 5.30PM

Category EF: Professional Innovator SIC 20 24

CHAMPION

EF_018: Deadly Microbes (UiTM Cawangan Sarawak Kampus Mukah)





Tahniah & Syabas

TS. DR. MOHAMAD IZWAN BIN ISMAIL

Pensyarah Kanan, Fakulti Sains Gunaan Kampus Mukah

atas pencapaian memperolehi anugerah

EMAS

BEST INNOVATOR AWARD

Kategori: Professional Innovator untuk projek inovasi bertajuk

DEADLY MICROBES

dalam pertandingan

SMART INNOVATION COMPETITION (SIC) 2024 28 SEPTEMBER 2024

Daripada:

SELURUH WARGA UITM CAWANGAN SARAWAK



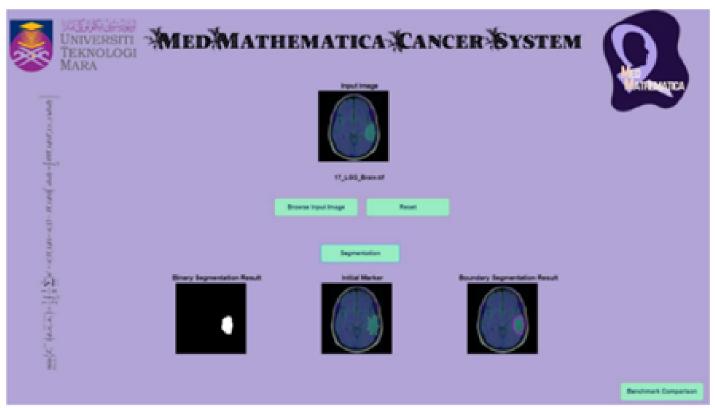












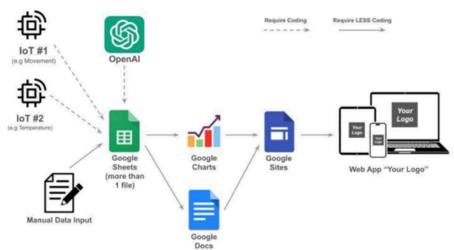






13th International Invention, Innnovation & Design Competition 2024





Framework of BUILDthermo Vision

A groundbreaking approach that transforms the analysis of building heat dynamics through advanced algorithms and visualization techniques.















SELURUH WARGA UITM CAWANGAN SARAWAK











Innovative Teaching Approach: Product Adaptation in International Agricultural Marketing







This certificate of achievement is proudly presented to

ASSOC. PROF. TS. DR. ABDUL RAHMAN SAILI MOHAMMAD ZULFIKAR KAMIL ASSOC. PROF. TS. DR. FAZLEEN ABDUL FATAH ASSOC. PROF. TS. DR. ZAITON SAPAK NUR NABILA HUDA AZIZ

Team leader



Assoc Prof. Ts Dr Abdul Rahman Bin Saili FPA UiTM Sarawak Kampus Samarahan



Negeri Sembilan International Exposition 2024







International Research & Information Science Expo 2025 (iRISE 2025)







31 January 2025



LIST OF WINNERS

Category A: Professional

Ref. No.	Title	Institution	Award
	Formative Measurement Model of Sustainable Neighbourhood Elements for High Rise Low-Cost Housing in the Urban Area		GOLD
1020	AquaLoop	Universiti Teknologi MARA Sarawak	SILVER
989	Community Engagement Linkages Tracker (CELTRACK)	Universiti Teknologi MARA Sarawak	SILVER
1009	FormatEase	Universiti Teknologi MARA Sarawak	SILVER
978	Paper Speaks: Construction Law 1.0	Universiti Teknologi MARA Sarawak	SILVER
948	ScamAlert Eduwareness	Universiti Teknologi MARA Sarawak	SILVER
979	The Notebook Anthology: Site Clearance Work	Universiti Teknologi MARA Sarawak	BRONZE
1007	Smart Community Platform for Disaster Resilience	Universiti Teknologi MARA Sarawak	BRONZE
1008	EmpowerCoop	- Universiti Teknologi MARA Sarawak	BRONZE











31 January 2025



LIST OF WINNERS

Category A: Professional

Ref. No.	Title	Institution	Award
1545	Formative Measurement Model of Sustainable Neighbourhood Elements for High Rise Low-Cost Housing in the Urban Area		GOLD
1020	AquaLoop	Universiti Teknologi MARA Sarawak	SILVER
989	Community Engagement Linkages Tracker (CELTRACK)	Universiti Teknologi MARA Sarawak	SILVER
1009	FormatEase	Universiti Teknologi MARA Sarawak	SILVER
978	Paper Speaks: Construction Law 1.0	Universiti Teknologi MARA Sarawak	SILVER
948	ScamAlert Eduwareness	Universiti Teknologi MARA Sarawak	SILVER
979	The Notebook Anthology: Site Clearance Work	Universiti Teknologi MARA Sarawak	BRONZE
1007	Smart Community Platform for Disaster Resilience	Universiti Teknologi MARA Sarawak	BRONZE
1008	EmpowerCoop	Universiti Teknologi MARA Sarawak	BRONZE













Arshad Ayub Graduate Business School Sustainable Horizon Week 2025









International Tinker Innovation & Entrepreneurship Challenge (i-TIEC 2025)





