



EXTENDED ABSTRACT



InViCCAID 2025
1ST INTERNATIONAL VIRTUAL COMPETITION OF CREATIVE
ARTS & INNOVATIVE DESIGN IN TEACHING & LEARNING



Design Innovation Academic Show 2025



Organized by



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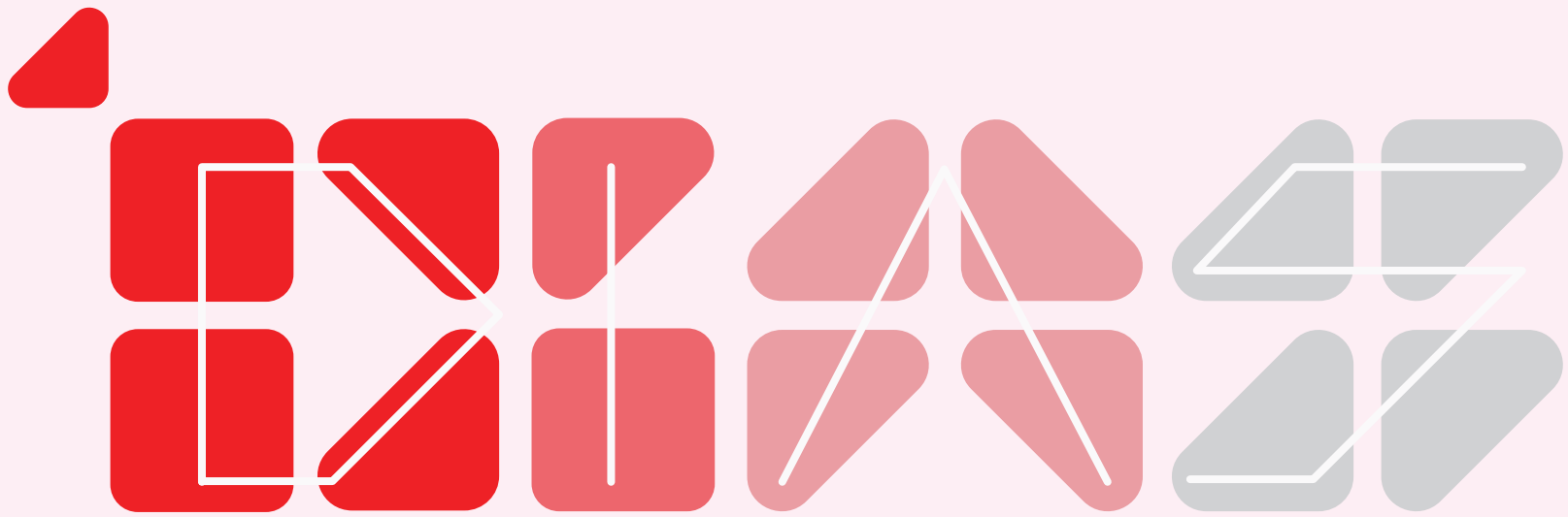
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***EXTENDED
ABSTRACT***

***Design
Innovation
Academic
Show 2025***





DIAS 2025 (Design Innovation Academic Show) is all about "Transcending the Boundaries of Creativity: Innovation in Art & Design for 21st Century Education." This vibrant program shines a spotlight on how creativity and innovation are reshaping modern education.

It consists of three key components. First up is the Mindareka Design Show, an exhibition that showcases students' final year projects and creative designs, giving them a chance to connect with industry professionals and the wider community. Next, we have the Northern Innovation Academic Tour (NIAT), which takes participants on an academic adventure to select institutions and innovation centers in the northern region, aimed at promoting knowledge sharing and building strong academic and professional networks.

Finally, there's the 1st International Virtual Competition of Creative Arts & Innovative Design in Teaching & Learning (InViCCAID), a global competition that recognizes outstanding practices in teaching and learning by blending art, technology, and innovative design. But DIAS 2025 is more than just a talent showcase; it's a powerful platform for empowering both students and educators, while also strengthening collaborations between universities, creative industries, and global communities. With its inclusive and interdisciplinary approach, this initiative strives to spark relevant, competitive, and impactful ideas and innovations that truly benefit society and push the future of education forward.



Publisher

Universiti Teknologi MARA Kedah Branch,
Sungai Petani Campus,
08400 Merbok,
Sungai Petani,
Kedah,
Malaysia.

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Perpustakaan Negara Malaysia
Cataloguing – in- Publication Data

Editor : Syahrini Shawalludin, Juaini Jamaludin, Normaziana Hassan, Fadila Mohd Yusof

Co-Editor : Shafilla Subri, Mohd Syazrul Hafizi Husin, Abu Hanifa Ab Hamid, Norarifah Ali, Zaidi Yusoff, Mohd Taufik Zulkefli, Mohd Hamidi Adha Mohd Amin, Ahmad Fazlan Ahmad Zamri, Abdullah Kula Ismail, , Suhaiza Hanim Suroya, Mohamad Hazmi Shoroin, Mohd Zamri Azizan, Mohamat Najib Mat Noor, Asrol Hasan, Azhari Md Hashim, Azmir Mamat Nawawi, Dinah Rakhim, Hasnul Azwan Azizan@ Mahdzir, Nazri Abu Bakar, Muhammad Aiman Afiq Mohd Noor, Nizar Nazrin, Nazirul Mubin Awang Besar, Qatrunnisa Shariff, Mohd Rozman Mohd Nasir, Wan Noor Faaizah Wan Omar

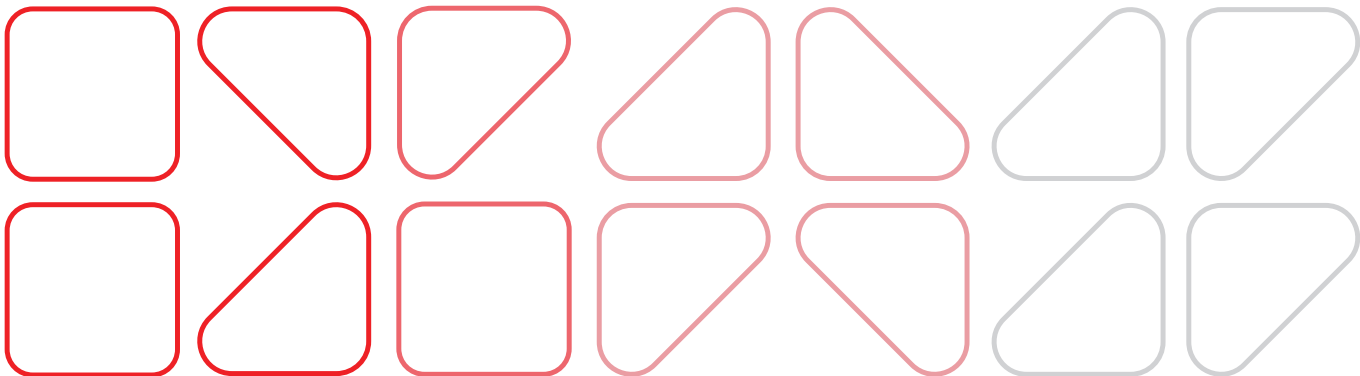
Design & Layout Editor: Syahrini Shawalludin, Nazirul Mubin Awang Besar, Mohd Rozman Mohd Nasir & Qatrunnisa Shariff

Language Editor : Normaziana Hassan & Juaini Jamaludin

DIAS 2025 : Extended Abstract

Perpustakaan Sultan Badlishah
e ISBN: 9 789 672 948 780

Printed By :
Universiti Teknologi MARA Kedah Branch,
Sungai Petani Campus,
08400 Merbok,
Sungai Petani,
Kedah,
Malaysia.





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Design
Innovation
Academic
Show 2025



Prof. Dr. Roshima Haji Said
Acting Rector
UiTM Kedah Branch

Rector's Message

I am delighted to extend my heartfelt congratulations to the College of Creative Arts, UiTM Kedah Branch, for bringing MINDAREKA 2024 - Unleashing Your Visual Creativity to fruition. The triumphs of past MINDAREKA editions undoubtedly fueled the organization of this year's event, making MINDAREKA 2024 a reality.

MINDAREKA 2024 - Unleashing Your Visual Creativity stands as a testament to the dedication of students at the College of Creative Arts, UiTM Kedah Branch, providing them with a platform to showcase their final art projects. Beyond serving as a space for the exploration of fresh, innovative, and entrepreneurial concepts, this exhibition is poised to connect aspiring talents with potential clients and employers.

I extend my sincere gratitude to all participants whose enthusiasm and support have contributed to the success of MINDAREKA 2024 - Unleashing Your Visual Creativity. Their unwavering belief and commitment have truly brought this event to life, marking it as a resounding triumph!





Head of Faculty Message

It is an honour to introduce DIAS 2025 – Design Innovation Academic Show, held under the theme “Transcending the Boundaries of Creativity: Innovation in Art & Design for 21st-Century Education.” This significant event reflects the faculty’s ongoing commitment to fostering a culture of innovation, critical thinking, and creative exploration among our students and academic community. As we navigate the complexities of the 21st century, it becomes increasingly clear that education must go beyond traditional boundaries to embrace multidisciplinary approaches that are both relevant and future-forward.

The three core components of DIAS 2025, Mindareka Design Show, Northern Innovation Academic Tour (NIAT), and the 1st International Virtual Competition of Creative Arts & Innovative Design in Teaching & Learning (InViCCAID) which is serve as vital platforms to highlight the convergence of design, technology, and pedagogy. These initiatives not only empower our students to showcase their talents and ideas, but also create opportunities for engagement with industry leaders, academic peers, and global collaborators. The Mindareka Design Show celebrates student creativity and innovation through compelling final year projects. NIAT fosters knowledge sharing and institutional partnerships through academic visits and exchanges, while InViCCAID offers international recognition for excellence in integrating art and design into teaching and learning.

I would like to express my deepest appreciation to the organising committee, faculty members, students, and strategic partners who have worked tirelessly to bring this programme to life. Your dedication and collaborative spirit have made DIAS 2025 a reality and a reflection of our shared vision for transformative education. It is my hope that this platform will continue to inspire meaningful dialogue, cultivate groundbreaking ideas, and spark a new wave of innovation that enriches both education and society.



Mohamat Najib Mat Noor
Head of Faculty
Faculty of Arts & Design
UiTM Kedah Branch





***Industrial
Design
(Bachelor)***



EMAS | ELECTRIC MODULAR AUTONOMOUS SERVICE

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ABSTRACT

The “EMAS” (Electric Modular Autonomous Service) is a sustainable modular electric shuttle concept designed to address the mobility needs of urban Malaysian millennials. This design project promotes eco-conscious commuting by transforming daily transport routines through a compact, smart, and energy-efficient system that integrates autonomy and modularity. Responding to challenges such as congestion, pollution, and limited green transport options in cities like Kuala Lumpur, EMAS aims to align with global sustainability targets, particularly SDG 11 and SDG 13. Constructed using lightweight plastic, modular frame, and electric autonomous systems, EMAS is optimized for short-distance travel and shared use in urban settings. It features ergonomic seating, minimal environmental footprint, and autonomous navigation for seamless, smart operation. The modular system allows for adaptability accommodating varied passenger needs, cargo transport, or multipurpose services within the same framework. Research incorporated both quantitative surveys and literature reviews to uncover urban millennials' transport behaviour, pain points, and sustainability values. Survey insights revealed preferences for low-cost, smart, and eco-friendly mobility but limited access remains a barrier. EMAS responds directly to these needs. As a next-generation transport concept, EMAS represents the convergence of cultural, environmental, and technological progress. Its design encourages behavioural shifts toward sustainability, reduces emissions, and enhances urban efficiency. EMAS offers a future-forward solution that bridges



responsible design and millennial lifestyles, shaping mobility for a cleaner tomorrow.

Keywords: Sustainability, Urban Mobility, Millennials, Modular Design, Electric Vehicle

INTRODUCTION

As part of the Industrial Design course, EMAS (Electric Modular Autonomous Service) was developed to address the growing need for sustainable, tech-driven transport solutions among Malaysian millennials. Millennials in urban areas increasingly demand practical, connected, and environmentally conscious alternatives to traditional vehicles. EMAS responds to these challenges through a user-centred, modular design that incorporates smart autonomous technology for short-distance city travel. According to Vávrová et al. (2025), millennial and Gen Z mobility behaviours are reshaping transport choices, making autonomy and modularity key strategies for adoption.

DESIGN AND DEVELOPMENT

The EMAS (Electric Modular Autonomous Service) is a forward-thinking transportation concept developed under the Industrial Design program to address urban sustainability challenges faced by the millennial generation in Malaysia. This age group, typically aged 29 to 44, represents a digitally connected, environmentally aware, and increasingly mobile demographic. However, many millennials still rely heavily on private vehicles due to poor public transport integration, limited green alternatives, and lack of awareness about sustainable options.

The concept of EMAS emerged from the need to design a transport system that aligns with both current technological advancements and future urban planning goals. It reimagines how people interact with urban transportation by combining smart automation, modular construction, and compact, eco-

friendly performance. Vávrová et al. (2025) suggest that to effectively engage millennials, transport systems must be flexible, sustainable, and responsive to changing user needs. EMAS aligns with this by offering a mobility solution that not only reduces environmental impact but also enhances daily commuting through smart design and digital connectivity.



Figure 1.1 Conceptual Inspiration

FINDINGS AND RESULTS

The research and testing phase of EMAS revealed strong support among Malaysian millennials for smart, sustainable transportation alternatives. Data from the user survey indicated that 92.7% of millennials still rely on private vehicles due to concerns over reliability, comfort, and convenience in public transit. However, more than half expressed openness to switching to green alternatives if they met lifestyle demands especially comfort, aesthetics, and smart technology integration.

The EMAS prototype directly addresses these needs through a design that is comfortable, efficient, and technologically advanced. It includes features such as touchless entry, climate-efficient materials, smart route optimization, and real-time user feedback integration. Shah et al. (2021) stress that the future of green transportation lies in overcoming behavioural barriers and infrastructural limitations EMAS accomplishes both through a flexible, scalable solution.

Feedback from early conceptual reviews indicated that the shuttle's visual design and autonomous features appealed strongly to millennial users. The modularity was seen as a bonus, allowing the same vehicle to serve multiple community functions, thus improving acceptance and long-term value.



Figure 1.2 Conceptual Inspiration

RESULTS AND DISCUSSION/FINDINGS

Findings from surveys showed that over 90% of urban millennials still depend on private vehicles. However, many respondents expressed interest in switching to sustainable transport if it met their needs for comfort, affordability, and tech integration. The final design meets these expectations by offering a compact, modular shuttle with smart features. The project demonstrates how informed design can make sustainable transport both practical and desirable.

CONCLUSION AND RECOMMENDATION

The EMAS project provides a clear example of how industrial design can lead the charge toward sustainable urban mobility. By combining modularity, electric propulsion, and autonomous technology, EMAS offers a compact solution for millennial users in Malaysian cities. It demonstrates how addressing user lifestyle, urban constraints, and eco-responsibility through thoughtful design can create viable transport alternatives to private vehicles.

To move forward, future work on EMAS should explore integration with IoT-based city infrastructure, including adaptive traffic lights, automated charging stations, and app-based ride scheduling. Governments and municipalities can further support the adoption of EMAS by providing EV-friendly policies and infrastructure. As emphasized by Shah et al. (2021) and Vávrová et al. (2025), education, accessibility, and system-level collaboration are key to fostering behavioural change and widespread adoption of sustainable transport.

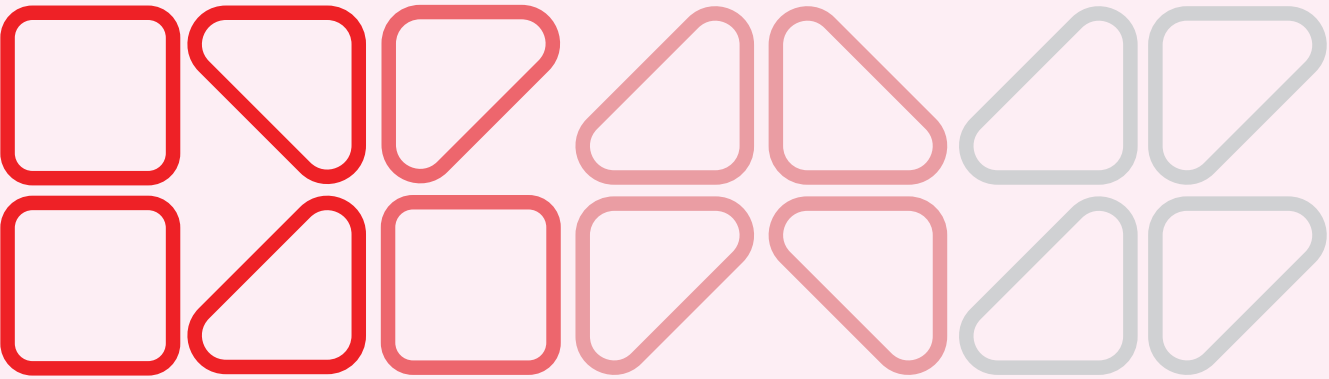
By aligning practical design with emerging tech and lifestyle needs, EMAS becomes more than just a vehicle it becomes a mobility service platform for a cleaner, smarter Malaysia.

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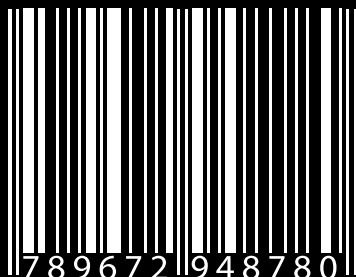
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