UNIVERSITI TEKNOLOGI MARA

EXTENDED ABSTRACT

DESIGN INNOVATION ACADEMIC SHOW 2025

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

MONDARIKA

NIAT
NORTHERN INNOVATION ACADEMIC TOUR

Organized by

Faculty of Art & Design
#perubahanluarbiasa
#ADpilihanpertama

UNIVERSITI TEKNOLOGI MARA
Fakulti Seni Lukis & Seni Reka
Cawangan Kedah

UiTM di hatiku

Collaboration with

PUSAT SAINS NEGARA WILAYAH UTARA

KEMENTERIAN SAINS, TEKNOLOGI DAN INOVASI
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION

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.

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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

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

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.

Industrial Design (Bachelor)

VORATRAZ I SUV

[1]Zulhisham Hilman Bin Khairul Samri, [2]Prof. Madya Ts Dr Azhari Bin Md Hashim

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ABSTRACT

Camping in Kedah is gaining popularity among outdoor enthusiasts, enhancing local tourism and the recreational economy. However, the increasing number of campers and their transportation needs have led to significant environmental challenges, including carbon emissions, habitat disruption, and littering. This study explores greener transportation alternatives to reduce the negative impacts of forest-based camping activities in Kedah. It investigates current commuting methods among campers, highlights critical environmental issues, and assesses the viability of sustainable mobility options such as eco-friendly access routes, shared mobility platforms, and low-emission transportation systems supported by proper infrastructure. Field data were gathered from selected forest campsites in Kedah through stakeholder interviews, user questionnaires, and on-site observations. Findings show that camper behavior, environmental awareness, accessibility, and involvement in forest management are key factors in achieving sustainable transport. As part of the solution, this study proposes **VORATRAX**, a conceptual SUV designed specifically for forest camping activities. **VORATRAX** emphasizes low-emission performance, modular storage for outdoor gear, and off-road adaptability while minimizing ecological footprint. The study calls for collaborative action between local communities, government agencies, and outdoor recreation groups. Outcomes from this research will inform future development of environmentally responsible transportation systems in Kedah's Forest tourism sector.

Keywords: Sustainable transportation, Eco-friendly SUV, Outdoor mobility, VORATRAX, Kedah camping

Forest camping is an increasingly popular recreational activity in Kedah, Malaysia, attracting both local and international nature enthusiasts. This trend supports local economies and enhances the value of ecotourism, particularly in forest-rich areas such as Ulu Muda, Bukit Wang, and Gunung Jerai (Department of Forestry Peninsular Malaysia, 2022). However, the growing number of visitors and their reliance on conventional transportation have raised serious environmental concerns. The primary issues identified include carbon emissions, habitat fragmentation, soil erosion, and improper waste management due to vehicle access into sensitive forest areas (Omar & Muhamad, 2019; DOE Malaysia, 2021).

Traditional transportation modes mainly fuel-powered 4x4s and private vehicles lack the design and environmental efficiency necessary for forest-based mobility. This calls for alternative transport models that are both functional and environmentally responsible. Recent studies emphasize the need for integrating low-emission vehicles and sustainable transport systems in nature-based tourism (Huang & Rahman, 2020). Yet, Malaysia still lacks purpose-built solutions for eco-mobility in camping environments. IN response, this study introduces **VORATRAX**, a conceptual sustainable SUV designed to cater specifically to forest camping conditions. With an emphasis on low emissions, terrain adaptability, modular gear storage, and reduced environmental footprint, **VORATRAX** aims to become a key solution in promoting sustainable mobility in Kedah's Forest tourism sector.

METHODS

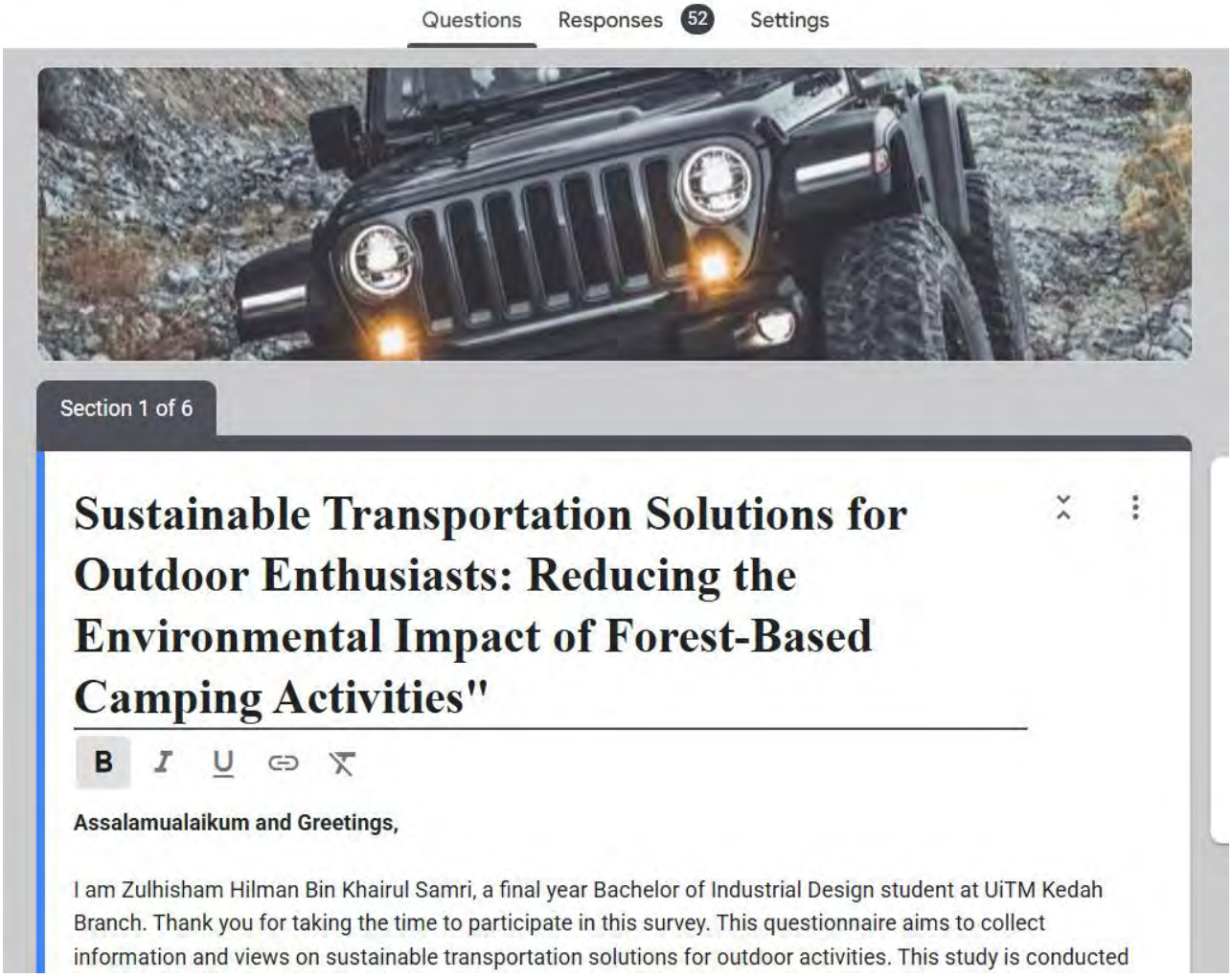

Figure 1.1 Questionnaire

This study used a mixed-methods approach, combining an online survey, field observations, and stakeholder interviews. A Google Form questionnaire titled "*Sustainable Transportation Solutions for Outdoor Enthusiasts*" was distributed to campers across Kedah, gathering 52 responses on their transport habits, environmental awareness, and opinions on the proposed sustainable SUV, **VORATRAX**.

Field visits were conducted at six popular forest campsites in Kedah: **Caribbean Campsite**, **Campsite Batu Hampar**, **Bukit H**, **Ulu Muda Eco Park**, **Bukit Wang**, and **Gunung**

Jerai. Observations focused on road access, vehicle types, and visible environmental impact. In addition, informal interviews with forest rangers, campsite managers, and tour operators provided expert insights into current transport challenges and the potential of eco-friendly vehicle integration.

RESULTS / DISCUSSIONS/ FINDINGS

Field observations at six selected campsites in Kedah, namely Caribbean Campsite, Batu Hampar Campsite, Bukit H, Ulu Muda Eco Park, Bukit Wang, and Gunung Jerai revealed that most campsites, approximately 80%, rely on conventional fuel-powered vehicles to access forest areas. These vehicles are mostly private cars and four-wheel drives that are not designed with the environment in mind. As a result, physical impacts such as soil erosion, compaction, and damage to native vegetation are commonly observed along unpaved access routes. This indicates a significant gap in the availability of designated eco-friendly access infrastructure, which contributes to the long-term degradation of the forest environment. Data from the online questionnaire supports these field observations.

A large proportion of respondents, 72%, were not fully aware of the environmental consequences of their transportation choices. This lack of awareness highlights the urgent need for educational efforts on sustainable travel behavior, especially in natural and protected areas. However, the survey also shows a positive outlook, as 65% of campers expressed a willingness to switch to more sustainable transportation options if such solutions were made accessible, practical and affordable. These findings indicate that many outdoor enthusiasts are open to change, provided that environmentally friendly alternatives meet their needs without compromising comfort and mobility. In addition, informal interviews conducted with campsite managers, forest rangers and eco-tourism operators revealed several recurring challenges in implementing sustainable transportation systems.

The most prominent issues include the lack of dedicated infrastructure, such as charging stations or designated green parking zones, and minimal public awareness campaigns targeting transportation sustainability in forest recreation areas. Enforcement of environmental policies related to vehicles also remains limited, with current forest management efforts largely focused on visitor safety and hygiene rather than transportation impacts. To address these issues, this study proposes the concept of the VORATRAX, a sustainable SUV purpose-built for forest-based camping activities. VORATRAX is conceptualized as either a hybrid or fully electric powertrain, significantly reducing harmful emissions compared to existing vehicles. It features a rugged suspension system and high ground clearance to navigate rough forest terrain while minimizing damage to trails and vegetation. In addition, the vehicle incorporates modular storage compartments to accommodate camping equipment and to encourage responsible waste management, thus supporting the zero-footprint camping ethos. Another key feature of the VORATRAX model is its potential integration with shared mobility platforms, enabling a rental or group-use system that can reduce the number of vehicles entering forest areas. This can drastically reduce traffic congestion, emissions and physical stress on access roads. By combining practical off-road capabilities with a sustainable design, VORATRAX offers a realistic and responsible alternative for nature-based mobility in Kedah, in line with user expectations and environmental goals.

CONCLUSION & RECOMMENDATION

Figure 1.2 Progress Development

The study concludes that transportation is a major contributor to environmental degradation in Kedah's forest-based tourism areas, largely due to the use of conventional fuel-powered vehicles. There is a clear gap in the availability of sustainable vehicle options designed specifically for camping and forest travel. The proposed solution, VORATRAX, is a conceptual sustainable SUV developed to meet this need by combining low-emission technology, rugged off-road performance and modular storage suitable for camping gear and waste management inspired by Malaysia's forest terrain and the lifestyle of modern outdoor enthusiasts, VORATRAX represents a balance between practical utility and environmental responsibility.To move forward, the study recommends the development and pilot testing of a VORATRAX prototype at selected eco-campsites in Kedah. Government support through green mobility incentives is essential to encourage adoption. Public awareness campaigns are also needed to educate campers on the environmental impact of their transport choices. Finally, VORATRAX or similar eco-vehicles should be included in eco-tourism packages through partnerships with tour agencies or rental companies. Overall, VORATRAX offers a forward-thinking, practical solution that supports the future of sustainable mobility in Malaysia's forest recreation sector.

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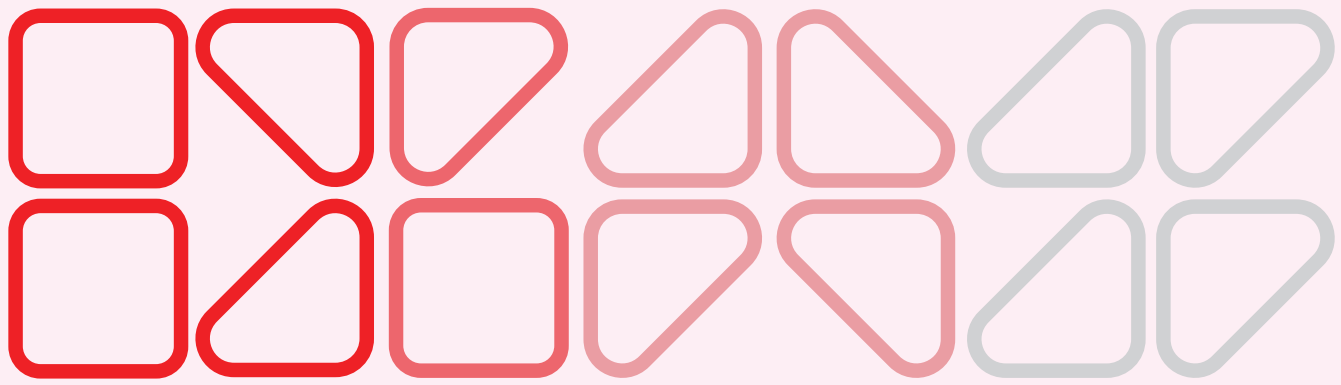

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