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.

Publisher

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

Perpustakaan Negara Malaysia
Cataloguing – in- Publication Data

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.

CONTENTS

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 (Diploma)

SUNQUIK | HUMAN-POWERED CLOTHES DRYER

[1]Muhammad Sadiq Akasyah bin Mohd Suhaimi,

[2]Mohd Hamidi Adha bin Mohd Amin, [3]Mohd Rozman bin Mohd Nasir

Industrial Design Department,
Faculty of Art and Design,
Universiti Teknologi MARA (UiTM)
sadiqakasyahsuahimi@gmail.com

ABSTRACT

SunQuik is a manual, human-powered clothes dryer specifically designed for use during flood disasters and other emergency scenarios where electricity is unavailable. The product aims to address a critical issue faced by displaced populations—drying clothes efficiently in challenging environments to prevent health risks such as hypothermia and infections. Operated through a foot-pedal mechanism, SunQuik uses centrifugal force to extract water from wet clothes, reducing air-drying time significantly. The design prioritizes sustainability and practicality by using easily replaceable and eco-friendly materials. Its structure is made from recycled plastic, biodegradable composites, and **standard bicycle components, which allows for local repair and maintenance using commonly available parts. The frame is constructed with lightweight aluminum to ensure portability and corrosion resistance. The development process followed a user-centered design approach, focusing on simplicity, efficiency, and adaptability for use in temporary shelters. The device is compact, modular, and operable by a wide range of users, including children and the elderly. SunQuik represents how industrial design can respond to real-world problems by combining sustainable thinking with practical innovation. By improving hygiene, preserving dignity, and minimizing health risks in disaster relief contexts, SunQuik contributes to more humane and resilient emergency responses. Its low-cost, durable, and accessible design has the potential for widespread deployment in flood-prone communities and humanitarian aid programs globally.

KEYWORDS: Human-powered, Clothes dryer, Sustainable, Flood relief, Foot-pedal

INTRODUCTION

Floods are one of the most frequent natural disasters in Malaysia, often displacing thousands of residents and cutting off access to electricity, clean water, and essential services. In these critical situations, people are forced to live in crowded shelters with limited resources. One common yet often overlooked problem is the inability to dry wet clothing, which can lead to discomfort, hygiene issues, and increased risk of hypothermia. SunQuik is a foot-powered clothes dryer designed to solve this problem by allowing users to dry clothes without electricity. Built using recycled plastic, aluminum, and standard bicycle parts, the product focuses on sustainability, affordability, and ease of repair. As part of an industrial design assignment, SunQuik demonstrates how design can be a tool for social impact—solving real problems with accessible, human-centered solutions that are practical for low-resource and emergency environments.

Figure 1 SunQuik

DESIGN AND DEVELOPMENT

SunQuik was developed through iterative prototyping and user-centered design thinking. The dryer uses a foot-pedal system to spin wet clothes and expel water through centrifugal force. Key materials include recycled plastic for the drum, aluminum for the frame, and bicycle parts for the pedal mechanism. These were

chosen for their sustainability, ease of sourcing, and repairability. The design went through multiple tests to refine its efficiency, structural stability, and comfort, ensuring usability in crisis shelters and off-grid locations.

SUNQUIK PROJECT

SunQuik is a sustainable, foot-powered clothes dryer designed for the PRODUCT DESIGN II (IDT316) project. It addresses post-flood challenges by offering a manual drying solution made from recyclable materials. Designed for emergency use, SunQuik improves hygiene and comfort, showing how design can solve real-world social and environmental problems.

MATERIALS

As part of an industrial design project, SunQuik integrates easily replaceable and sustainable materials to create a practical solution for post-disaster environments. Recycled plastics, aluminum, and standard bicycle components were used to ensure durability, affordability, and ease of repair. The product aligns with eco-conscious design principles and emphasizes functionality, user accessibility, and long-term social impact.

FINDINGS AND RESULTS

Testing and evaluation of SunQuik revealed several key findings. The foot-pedal mechanism effectively removed 70–80% of water from clothes in under 3 minutes. The design proved stable, easy to use, and operable by users of various ages. Material choices such as recycled plastic and aluminum offered both strength and lightweight portability. User feedback highlighted the product's practicality in crisis settings, though improvements in pedal comfort and capacity were noted for future refinement. The ability to replace parts using standard bicycle components was especially well-received by testers, confirming its potential for community-level maintenance and long-term use.

CONCLUSION AND RECOMMENDATION

SunQuik successfully addresses a practical problem in flood relief settings—drying wet clothes without electricity. Through sustainable design, the product demonstrates how industrial design can support health, dignity, and resilience in emergencies. It is recommended that SunQuik be further refined for mass production, with improvements in pedal ergonomics and drying capacity. Partnerships with humanitarian organizations and local governments could enable its distribution in flood-prone areas. Incorporating community feedback and modular upgrades could further enhance its usability and long-term impact.

REFERENCES:

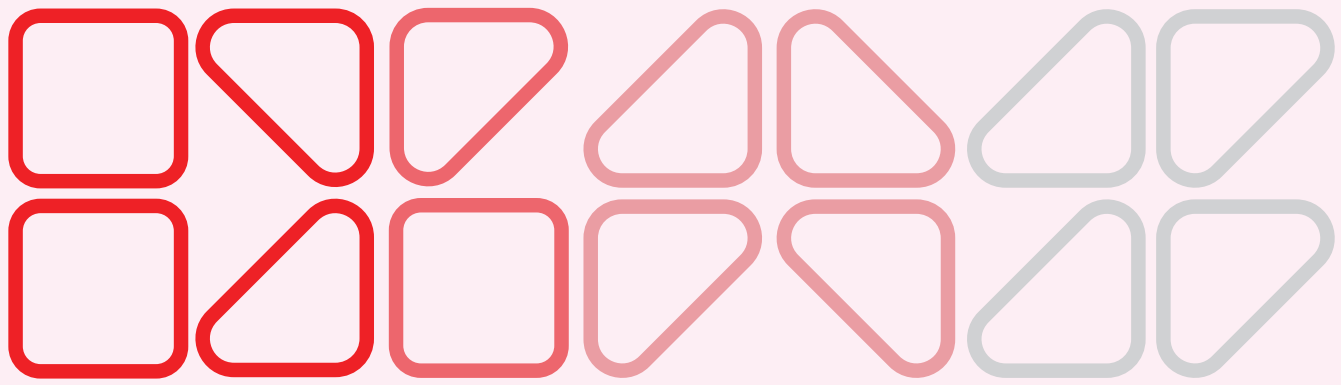
1. Mansor, N. F. A., Mohd Amin, N. A., & Azman, N. (2023). *Flood disaster and impact on residents: A case study in Kedah*. Journal of Geography and Environment, 15(1), 32–44. https://ojs.upsi.edu.my/index.php/GEOG/article/view/8156

2. Rosmadi, H. S., Ahmed, M. F., Mokhtar, M. B., & Lim, C. K. (2023). *Reviewing challenges of flood risk management in Malaysia*. Water, 15(13), 2390. https://www.mdpi.com/2073-4441/15/13/2390

3. Noorhashirin, H., Abdul Halim, M. F., & Razak, K. A. (2016). *Assessing Malaysian disaster preparedness for flood*. International Journal of Public Health and Clinical Sciences, 3(1), 63–78. https://www.researchgate.net/publication/338594431

4. Md Akhir, N., Mohd Noor, N. A., & Mohd Nasir, N. (2021). *Exploring factors influencing resilience among flood victims in Malaysia*. Journal of Social Science and Humanities, 16(3), 124–132. https://www.researchgate.net/publication/355102806

5. Safuan, S., & Edinur, H. A. (2021). *Post-flood infection diseases in Malaysia*. Journal of Human Health, 2(1), 55–62. https://www.researchgate.net/publication/354193938



DAS

UNIVERSITI TEKNOLOGI MARA

9 789672 948780