



EXTENDED ABSTRACT



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



Design Innovation Academic Show 2025



Organized by



Fakulti
Seni Lukis & Seni Reka
Cawangan Kedah



اوسها تقوى موليا

Collaboration with



#perubahanluarbiasa
#ADpilihanpertama



**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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CONTENTS

Rector's Message
Head of College's Message

EXTENDED ABSTRACT

Diploma in Art & Design
(Graphic Design & Digital Media)

Page

1 - 174

Diploma in Art & Design
(Industrial Design)

175 - 575

Bachelor in Art & Design
(Industrial Design)

576 - 760

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
(Diploma)***





FLEXBIN | COLLAPSIBLE TRASH BIN

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ABSTRACT

This project introduces the "FlexBin," a portable and odor-controlled trash bin designed for temporary flood shelters in Malaysia. Made from corrugated plastic (PP sheets), HDPE (High-Density Polyethylene), and recycled plastic, it aims to improve waste management for flood victims and volunteers. Key features include quick assembly, lightweight design, and flood resistance, ensuring easy deployment. The "FlexBin" automatically replaces liners to minimize contact with waste, preventing overflow and enhancing hygiene in crowded shelters. This solution reduces staff workload and promotes better waste disposal habits.

Keywords: Portable, Hygiene, Waste Management, Crisis, Shelter

INTRODUCTION

The "FlexBin" project addresses critical waste management issues in temporary shelters, especially during Malaysia's recurring flood disasters. Overcrowding and limited infrastructure in these shelters lead to inadequate waste disposal, overflow, and odor problems, increasing health risks. This project aims to develop a portable, odor-controlled waste system for flood victims and volunteers. By focusing on easy movement, odor prevention, and hygiene, the "FlexBin" seeks to improve sanitation, reduce relief team workload, and encourage proper waste disposal in crisis situations.

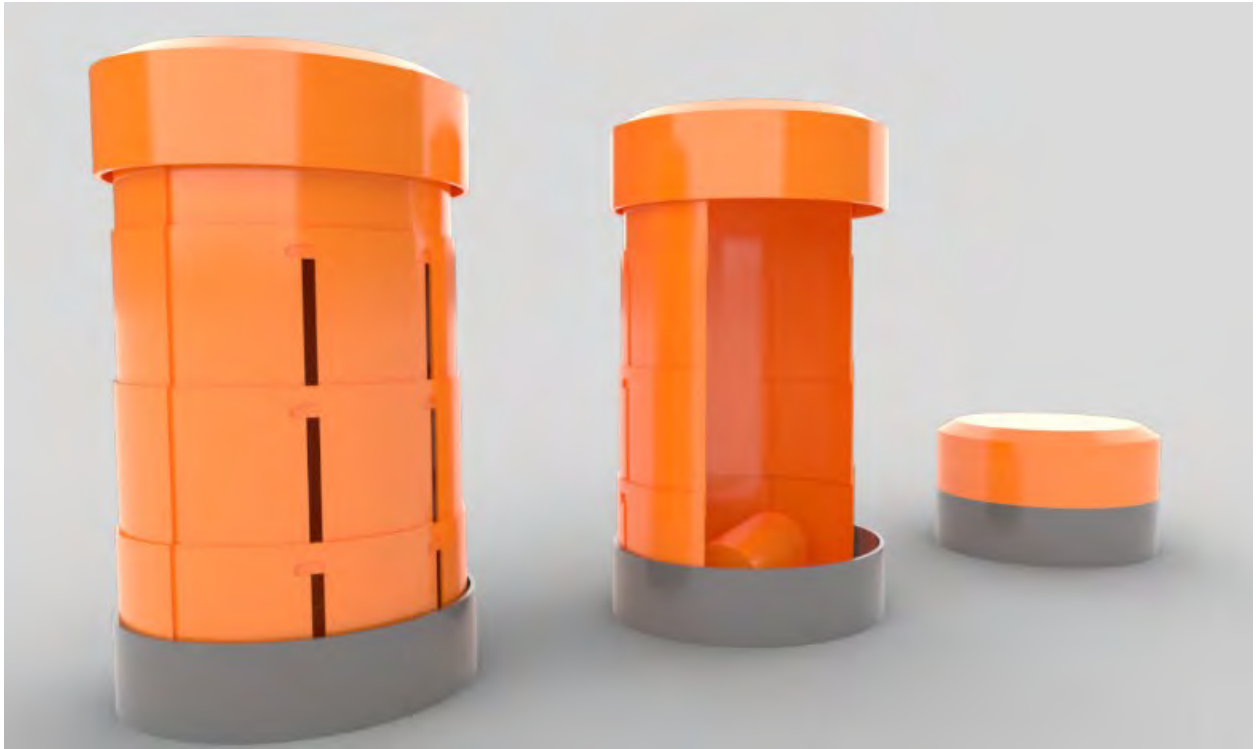


Figure 1 FlexBin

MATERIALS AND METHODS

Developing the "FlexBin" was driven by the urgent need for effective waste management in crisis shelters. The goal was a portable, odor-controlled bin to tackle overflowing waste and difficult transport. Initial design steps identified problems like overflowing trash, the heavy weight of bins for disposal, and the odor from uncovered waste, leading to design objectives of portability for easy movement and odor control for crowded indoor spaces.

Material selection was vital for its performance in flood-affected areas. Corrugated plastic (PP sheets) was chosen for its light weight, foldability, and water resistance, making it suitable for emergencies. HDPE (High-Density Polyethylene) was considered for its durability, waterproof nature, recyclability, and affordability. Recycled plastic was explored for its low cost and sustainability, especially for non-structural parts. The design incorporates automatic liner replacement to reduce direct contact with waste and a fill-level indicator to prevent overflow. The structure will be quick to assemble, lightweight, and made of flood-resistant materials for rapid deployment and easy transport in dynamic crisis scenarios.



RESULTS AND DISCUSSION/FINDINGS

Research and development for the "FlexBin" revealed significant challenges in shelter waste management and confirmed the potential of the proposed solution. Flood-induced displacements in Malaysia often result in inadequate waste disposal, leading to overflow, transport difficulties, and odor issues that worsen health risks. An individual can produce around 1-2 kg of waste daily, and a family around 3-6 kg, highlighting the large volume to manage.

The "FlexBin" is designed for automatic liner replacement, minimizing contact with waste and preventing overflow, thus maintaining cleanliness in high-density temporary shelter environments. It serves as a vital hygiene tool, reducing disease spread and lowering the workload for shelter staff, while promoting proper waste disposal.

The bin is made for rapid deployment, quick assembly, and easy placement in emergency shelters without special tools. Its lightweight and portable nature, achieved with durable, waterproof materials like corrugated plastic, HDPE, and recycled plastic, allows for easy transport during crises. Volunteers can quickly set up bins in key areas. Some models can include fill-level indicators to prevent overflow. Its sealed design controls odor and reduces pest exposure. After use, bins can be cleaned, collapsed, and stored or reused.

Identified materials like HDPE are durable, waterproof, recyclable, and affordable. Recycled plastic is a sustainable, low-cost option for non-structural parts. Corrugated plastic (PP sheets) is lightweight, foldable, and water-resistant, ideal for emergencies. Benchmarking existing solutions showed strengths in portability and space-efficiency, but weaknesses in non-biodegradability, bulkiness, and capacity. The "FlexBin" aims to overcome these through its design and material choices. These findings confirm the "FlexBin's" importance for improving waste management and hygiene in humanitarian crises.



CONCLUSION & RECOMMENDATION

In conclusion, the "FlexBin" is an essential solution for hygienic waste management in flood-affected temporary shelters. It effectively addresses problems like overflowing trash, heavy bins, and odors, which compromise public health and hinder relief efforts. Its portable, odor-controlled design, utilizing lightweight and water-resistant materials, ensures rapid deployment and improves sanitation. The "FlexBin" reduces workload for relief teams and promotes proper waste disposal through its intuitive features like automatic liner replacement.

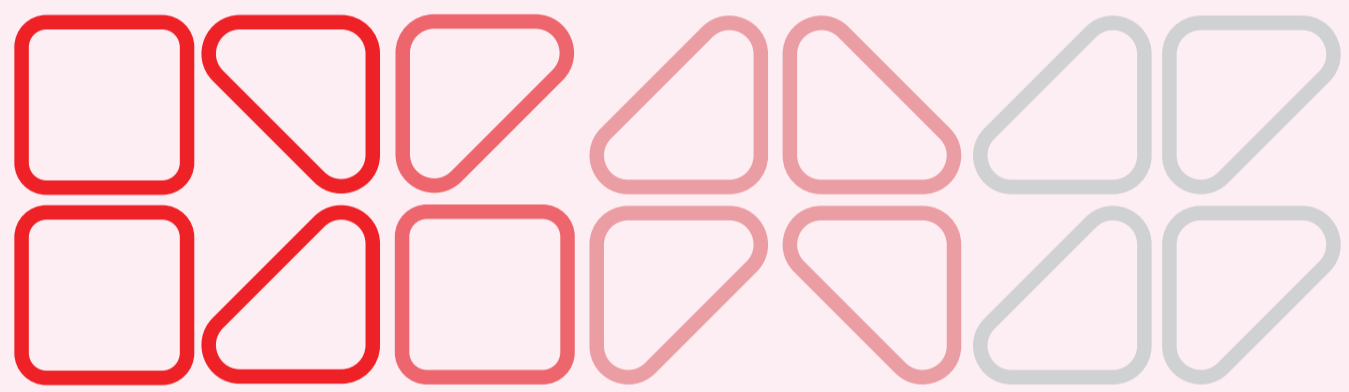
For future development, it is recommended to prototype and test the bin in simulated shelter environments to validate its performance. User feedback from those affected by floods and relief workers should be incorporated to refine the design. Further material optimization, including exploring biodegradable liners, is crucial for strength, durability, and sustainability. A scalable production plan is needed for quick manufacturing, and collaboration with disaster relief organizations is essential for integration into existing response systems. The "FlexBin" represents a vital step towards enhancing sanitation and living conditions in temporary shelters.

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