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 (Diploma)

KiddiGuard: DEVELOPMENT OF A CHILD-FRIENDLY TEMPORARY DAMAGE SEAL TOY

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ABSTRACT

KiddiGuard is a child-friendly and temporary damage seal toy developed to support safer and more inclusive play environments within the MADAD EduKidz Playground. Designed to address minor surface damage such as cracks on playground equipment, the toy encourages children to take part in simple repair-like activities through guided play. The toy includes colourful, soft, and reusable sealing patches that are safe to handle and easy to apply, turning maintenance into an educational and interactive experience. Its playful shapes, tactile textures, and visual cues are designed to engage young users while promoting awareness of safety and responsibility in shared play spaces. Lightweight and easy to use, *KiddiGuard* allows both staff and children to cover potentially hazardous areas temporarily, maintaining safety without interrupting playtime. Made from durable, non-toxic materials, it is only suitable for indoor surfaces. Testing showed that *KiddiGuard* helped reduce safety concerns while making children more mindful of their environment. It offers a creative, low-tech solution that supports both emotional and physical well-being in community play settings.

Keywords: Playground Safety, Temporary Damage Patch, Educational Toy, Child Engagement, Inclusive Design, Safe Play, Interactive Repair, MADAD EduKidz.

INTRODUCTION

The MADAD EduKidz Playground is a shared learning and recreational space where children from diverse backgrounds engage in play, exploration, and social development. However, with constant use and active play, the playground

equipment is prone to minor wear and damage such as small cracks or exposed edges. These issues, if left unattended, can pose safety risks and disrupt the overall play experience. Instead of redesigning or replacing entire structures, KiddiGuard offers a simple, child-friendly solution, which is a temporary damage seal toy that makes it easy to cover minor defects while also engaging children in responsible, hands-on learning. Designed with young users in mind, KiddiGuard provides playful sealing components that are colourful, safe to touch, and easy to apply. The product encourages safe interaction, teaches basic awareness of playground care, and supports educators and staff in maintaining a safe environment. With intuitive shapes, lightweight materials, and bright visual markers, KiddiGuard fits well in active, communal play areas and helps make daily maintenance more inclusive and manageable.

MATERIALS AND METHODS

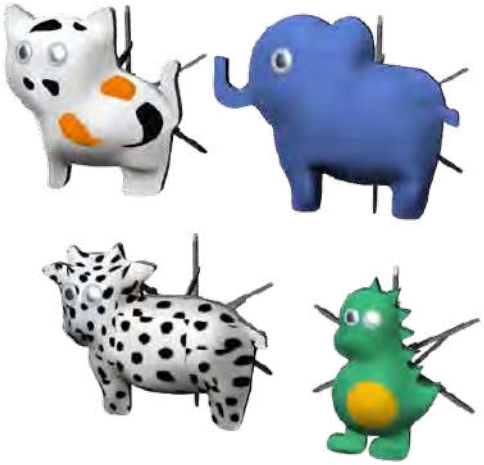

Figure 1.1 The picture of final body structure

KiddiGuard is a playful, easy-to-use toy designed to temporarily seal minor surface damage in child-accessible spaces like the MADAD EduKidz Playground. Each unit includes a set of colourful, soft and safe sealing components that children can interact with during supervised play. The product is made using a combination of lightweight and durable materials suited for repeated handling and outdoor use.The main patches are crafted from **EVA foam** and **polyfoam**, chosen for their flexibility, shock-absorbing properties and soft touch making them safe for young hands. These foams are layered and shaped into various playful forms of animals, to make the sealing process fun and visually engaging. A layer of **synthetic fabric** is added to

enhance durability and provide a soft texture, while also making the surface easy to clean. To allow easy attachment and removal, the pieces are connected using a **zip mechanism**, allowing staff to gently press and "zip" the patch over the damaged area. A **3D-printed umbrella-like mechanism** is used for sealing over oddly shaped or rounded surfaces, providing flexible coverage with a foldable structure inspired by umbrella ribs.

For early prototyping, **foam board and scrap textiles** were used to explore form, comfort, and functionality. This helped test the size, shape and feel of the product before producing a more refined version using long-lasting, child-safe materials. Through this process, the design was refined to ensure that *KiddiGuard* is easy to apply, safe to use and playful enough to encourage active participation in playground care.

RESULTS AND DISCUSSION/FINDINGS

The goal of this project was to develop a child-friendly, temporary sealing toy that supports safety and engagement within the MADAD EduKidz Playground. KiddiGuard was created to address small but common issues such as cracks on playground equipment, problems that often go unnoticed. The toy aims to provide a playful and educational way for children to participate in identifying and covering these minor hazards. During the development process, key factors such as safety, ease of use, durability, and child engagement were closely considered. The final design features soft, flexible patches made from EVA foam and polyfoam, paired with synthetic fabric and supported by a zip and foldable 3D-printed umbrella mechanism. These elements allowed the toy to function as both a safety tool and a playful activity. Testing in the playground environment showed that KiddiGuard was effective in temporarily covering minor damage, making the space feel safer and more maintained. Children were naturally drawn to bright colours and playful shapes, and many engaged with the toy under supervision, learning about safety and responsibility in the process. Staff found the product lightweight, easy to store, and quick to apply on a variety of surfaces, which helped reduce the urgency for immediate repairs. The results show that KiddiGuard offers a simple, flexible, and engaging way to support ongoing playground safety while promoting interactive learning. It does not replace formal maintenance but acts as a useful stopgap that encourages shared

responsibility and keeps the play area more secure between repair intervals.

CONCLUSION & RECOMMENDATION

KiddiGuard is a simple and creative solution designed to temporarily cover minor damage in child-focused spaces like the MADAD EduKidz Playground. With its bright, inviting design and easy-to-use components, it not only improves safety but also encourages children to take part in caring for their environment. The lightweight materials, soft textures, and flexible parts make it safe and practical for daily use by both children and staff. By turning damage control into a playful, interactive experience, KiddiGuard helps reduce risk and promotes a shared sense of responsibility within the playground. It supports day-to-day maintenance without needing major tools or repairs, making it ideal for schools, play centres, and community spaces with frequent child activity. It is recommended that KiddiGuard be produced using durable, washable materials such as EVA foam, synthetic fabric, and flexible zip mechanisms to withstand regular use. Future improvements may include modular or stackable storage options, weather-resistant coatings for outdoor use, and enhanced educational features that align with early childhood learning outcomes. Overall, KiddiGuard is a flexible and meaningful addition to child-safe spaces, helping to keep play areas safer, more organised, and more engaging for young users.

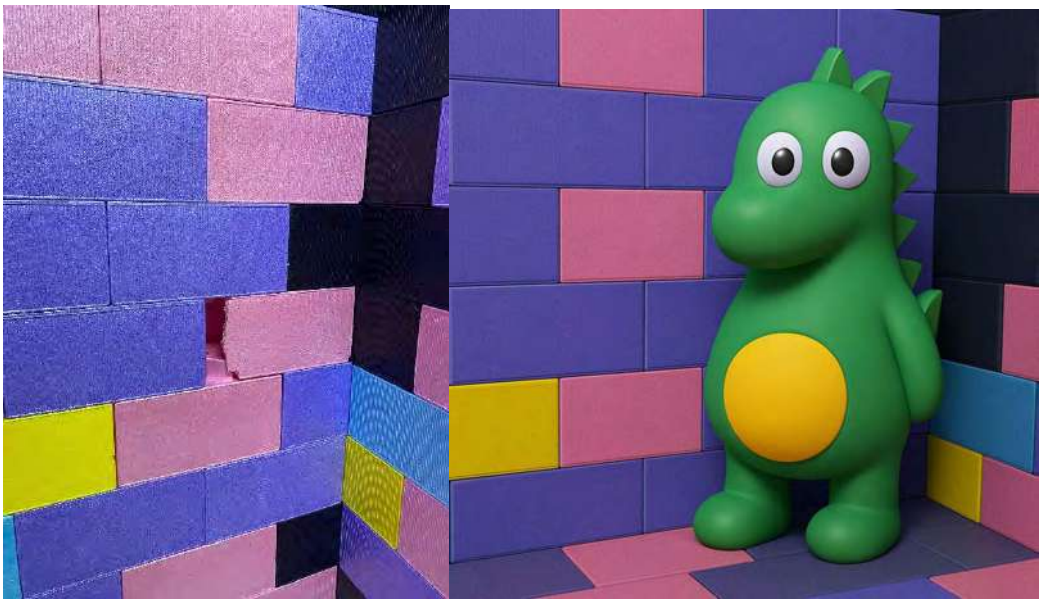

Figure 1.2 The picture of Environment

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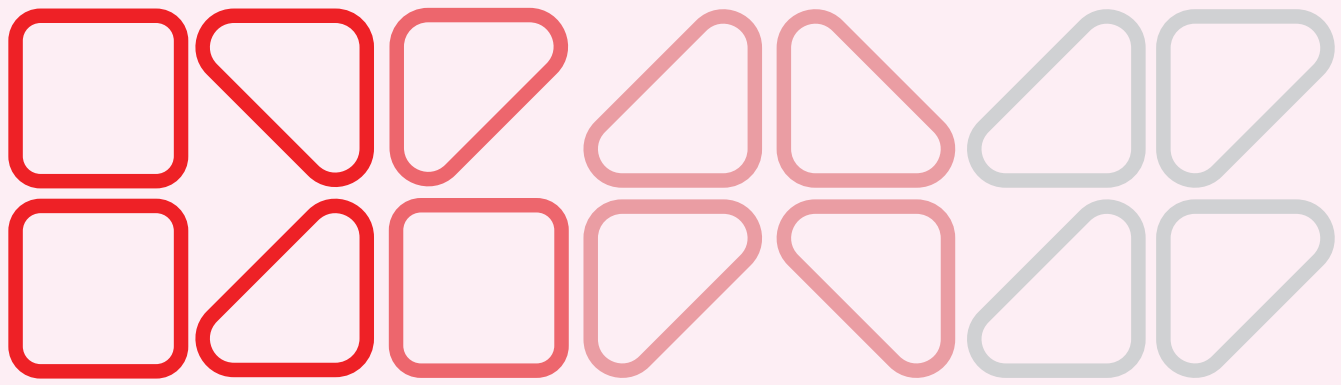

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