UNIVERSITI TEKNOLOGI MARA

EXTENDED ABSTRACT

DKA 2025

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

MONDARIKA

NIAT
NORTHERN INNOVATION ACADEMIC TOUR

Design Innovation Academic Show 2025

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)

EQUIBOX FEEDER : INNOVATIVE HORSE FEEDING CONTAINERS DESIGNED FOR EFFICIENT STABLE MANAGEMENT AT THE MADAD CENTRE

Nik Muhammad Hafiey Bin Tuan Ku Din, Azmir Mamat Nawi

Industrial Design Department,
Faculty of Art and Design,
Universiti Teknologi MARA (UiTM)

hafieykudin@gmail.com

ABSTRACT

Equibox Feeder the Horse Feeding Container is a user-centred solution developed to address safety, hygiene, and efficiency issues identified at the MADAD Centre. Observations and interviews revealed that existing feed containers are unstable and often knocked over by horses, causing feed spillage, pest attraction, and contamination. Additionally, caretakers are required to enter enclosures to clean or refill containers, exposing them to injury risks and physical strain. This project proposes a redesigned feeding system featuring a secure locking mechanism and a sliding drawer design that allows external access for refilling and cleaning. The Horse Feeding Container is designed to support fast, hygienic, and efficient feeding container distribution in equine facilities. Its sturdy and water-resistant structure ensures stable positioning of feeding containers, reducing spillage and contamination, even in outdoor or semi-exposed environments like those at the MADAD Centre. This feeding container is built securely to accommodate horse feed containers, ensuring easy access for horses while minimising feed waste. The design prioritises durability, ease of maintenance, and safety, making it ideal for daily stable operations. Equipped with a quick-lock and release system, it allows caretakers to replace or refill feed containers quickly from the outside.

Keywords: User-friendly feeding solution, Horse feeding container, Spill Resistant Container, Easy to Clean, Improving both animal welfare and staff productivity

INTRODUCTION

Equibox Feeder, the project focuses on designing a horse feeding container system specifically for use in horse stables. The aim of the horse feeding container we built/created is to design a safe, stable, and efficient horse feed container that prevents feed spillage, improves hygiene, and eliminates the need for workers to enter horse enclosures for refilling or cleaning more efficiently and more hygienically. Current methods/ways of horse feeding often contain manual labour, which can lead to feed wastage, feed contamination, and unnecessary physical workload for the workers. In addition to instability, this may also manifest as design problems in the solving of horses' feeding containers. The Horse Feeding Container Holder was created to allow workers to access, refill, and clean the container from outside, reducing the risk of worker injury, to reduce the feed wastage, and to make the entire feeding process easier. By involving a suitable material, sliding & locking mechanism, and modular approach, these issues can be effectively addressed. This solution not only improves animal welfare and hygiene but also enhances worker safety and operational efficiency. The improved feed container holder will contribute to safer, cleaner, and more sustainable stable management practices, benefiting horses and workers.

MATERIALS AND METHODS

Figure 1.1 The picture of final body structure

The Horse Feeding Container Holder is mainly built from plywood, and we turn it into plastic to make it resistant to water and easy to clean, which is suitable for stable conditions. There is a galvanised steel slide that allows the feed container to be pulled out and locked in place, preventing caretakers from going in the horse's stall when refilling or attaching the holder to the structure. All fasteners are made from stainless steel to eliminate any rust and maintain strength. The design process begins with observation and interview, solving the problem, sketching, digital modelling in CAD software, and prototyping in a 3D printer, shaping the mould through the rotational or

injection method, bending the plywood, and applying putty and duco on it to make the surface look like plastic. All the parts of the product are assembled, and a drawer mechanism is added to it.

RESULTS AND DISCUSSION/FINDINGS

The researchers at the MADADADAD Centre used systematic observation together with thematic interviews to identify major problems in current horse feeding practices. The main problem with existing feed containers was their tendency to become unstable because horses would knock them over or move them during feeding sessions. The frequent feed spills from this situation created unclean conditions that attracted pests and resulted in avoidable food waste. The observational findings showed that feed was spread throughout the enclosures, while caretaker feedback supported that the containers did not have secure fastening systems, which made them susceptible to animal disturbances. Workers must enter horse enclosures to handle feed containers, which creates dangerous situations because horses display unpredictable movements and have areas where they cannot be seen. Staff members described multiple near accidents and injuries while performing these tasks, which demonstrates the necessity for safer feeding equipment. The observation about exposed feed and inadequate containment systems confirms that these factors create an unhygienic feeding environment. The Safety and User Behaviour categories received higher scores than other categories because workers followed safe procedures, yet the available equipment and tools lacked ergonomic and operational optimisation. The proposed solution, a horse feeding container holder with a sliding mechanism and locking system, directly addresses these findings. By enabling caretakers to refill and clean the container from outside the enclosure, the design significantly reduces risk of injury and improves operational efficiency. The secure holding mechanism prevents tipping, helping to maintain a cleaner, pest-free environment and reducing feed waste. The design also supports stackability and modularity, offering adaptability for different stall layouts and horse behaviours. Overall, the findings clearly validate the need for a redesigned container holder. Implementing this solution will not only enhance safety, hygiene, and animal welfare, but also relieve the physical strain on workers and contribute to a more sustainable and professional stable environment at the MADAD Centre.

CONCLUSION & RECOMMENDATION

The development of the Equibox Feeder addresses critical challenges observed at the MADAD Centre, including feed spillage, hygiene issues, and caretaker safety. By introducing a stable, lockable feeding container with an external sliding mechanism, the design effectively reduces feed waste, minimises the risk of contamination, and eliminates the need for workers to enter horse enclosures. This innovation not only improves the daily workflow for caretakers but also promotes a cleaner and safer environment for both horses and humans. The project demonstrates the value of a human-centred approach in solving real-world problems within equine care facilities.

Figure 1.2 The picture of Environment (Equinox Feeder)

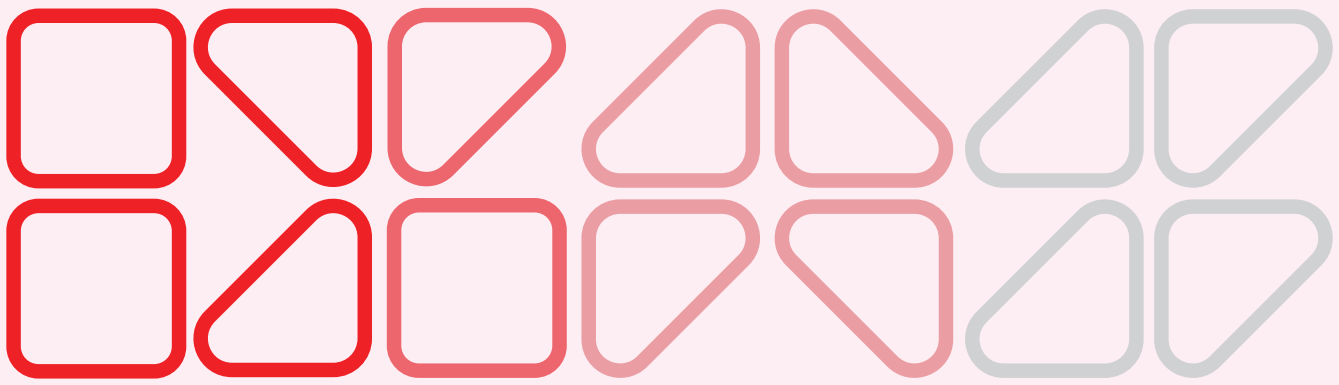
It is recommended that the Equibox Feeder be implemented and tested across multiple stalls at the MADAD Centre to evaluate its long-term performance and durability in real conditions. Additional improvements, such as adjustable height for different horse sizes and optional cover lids for outdoor use, can further enhance its functionality. Regular feedback from caretakers should be collected to refine the design. Expanding this solution to other equestrian facilities, especially those with high activity and limited staff, is also encouraged to improve overall efficiency, safety, and horse welfare industry wide.

REFERENCES

Thunes, C. (2019, January 28). *Tips for feeding horses that are messy eaters*. The Horse. https://thehorse.com/165799/tips-for-feeding-horses-that-are-messy-eaters/

User feedback. (n.d.). *Spilling feed*. Chronicle Forums. https://forum.chronofhorse.com/t/spillingfeed/464842

WorkSafe New Zealand. (2022, October 7). *Breaking in horses on farms*. https://www.worksafe.govt.nz/topic-and-industry/agriculture/working-with-animals/horses/breaking-in-horses-on-farms/



DAS

UNIVERSITI TEKNOLOGI MARA

9 789672 948780