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)

REGRIP | ERGONOMIC UTENSIL

[1] Nur Irdina Alya Binti Mohd Hasnor, [2]Dr Hasnul Azwan Bin Azizan @ Mahdzir

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ABSTRACT

ReGrip - The project focuses on designing assistive mobility products aimed at enhancing the quality of life for individuals with physical disabilities, especially those recovering from strokes. Stroke often leads to limited hand mobility, weak grip strength, and difficulty performing daily tasks such as eating, dressing, or lifting objects. One of the major goals of this project is to support stroke survivors by developing ReGrip, a set of ergonomic utensils that promote independence and ease in their daily routines. These utensils are specifically designed to be user-friendly, comfortable to hold, and efficient in reducing strain on the hands and wrists. The research began with an in-depth literature review to understand different types of disabilities, current assistive devices, and the challenges users face. This was followed by surveys and interviews with stroke patients to identify their needs, preferences, and limitations. The data collected from these activities guided the ideation process, resulting in the development of several conceptual designs. Key design criteria included ergonomics, comfort, lightweight materials, and usability for individuals with reduced hand function. After evaluating multiple concepts, the project focused on ReGrip, an ergonomic utensil with contoured grips and adaptive features. Prototypes were developed and tested with target users to gather feedback, which helped refine the final design. The project emphasizes inclusive and user-centered design practices, ensuring the product addresses real-life problems faced by stroke survivors. The integration of smart features is also considered to enhance functionality and track user progress. Overall, ReGrip aims to improve autonomy, dignity, and daily functionality for individuals with hand mobility challenges.

Keywords: Assistive mobility, Ergonomic utensils, Stroke rehabilitation, User-centered design, Hand disability

INTRODUCTION

Stroke is a major cause of physical disability, often leading to impaired hand function that makes daily activities such as eating challenging. Many stroke survivors experience weak grip strength and limited coordination, yet existing assistive utensils are frequently bulky, uncomfortable, and not tailored to their specific needs (Avf et al., 2019; Clarkson et al., 2013; Kumar et al., 1997). To address this issue, this project introduces ReGrip—a set of ergonomic utensils designed specifically for adult stroke patients. ReGrip focuses on reducing the physical effort required to grip and maneuver utensils by incorporating lightweight materials, ergonomic shapes, and user-friendly features. The aim is to enhance independence, comfort, and functionality for stroke survivors through a user-centered and inclusive design approach.

MATERIALS AND METHODS

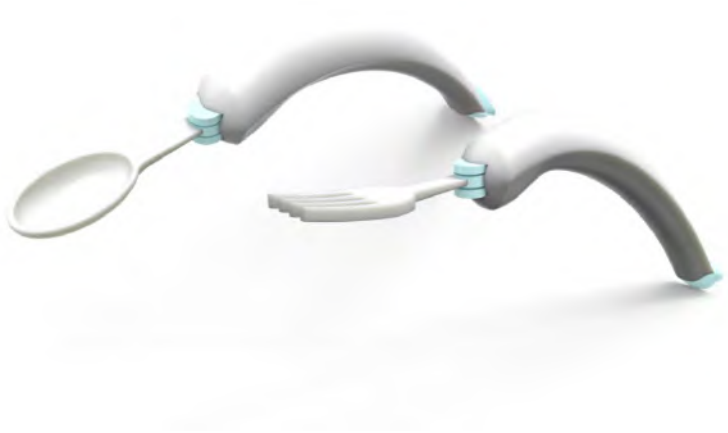

Figure 1.1 The picture of final design

The development of ReGrip followed a user-centered design process, combining research, ideation, prototyping, and user testing. The initial phase involved a literature review to understand the limitations of existing assistive utensils and the needs of stroke patients with reduced hand mobility. Supporting references highlighted gaps in current product designs,

particularly in terms of ergonomics, inclusivity, and usability (Avf et al., 2019; Clarkson et al., 2013; Kumar et al., 1997).

Primary data was collected through surveys and interviews with 13 stroke patients, focusing on their daily challenges, grip strength, and preferences in assistive tools. The responses guided the design criteria—lightweight, ergonomic, and easy to use.

Material selection emphasized comfort and hygiene, using soft-touch rubber for grip areas and food-grade plastic for utensil tips. CAD modeling and 3D printing were used to develop multiple prototypes. These were tested by stroke patients to assess usability, comfort, and grip efficiency. Feedback from testing informed iterative improvements to finalize the ReGrip design.

RESULTS AND DISCUSSION/FINDINGS

The development and user testing of ReGrip revealed several important findings.

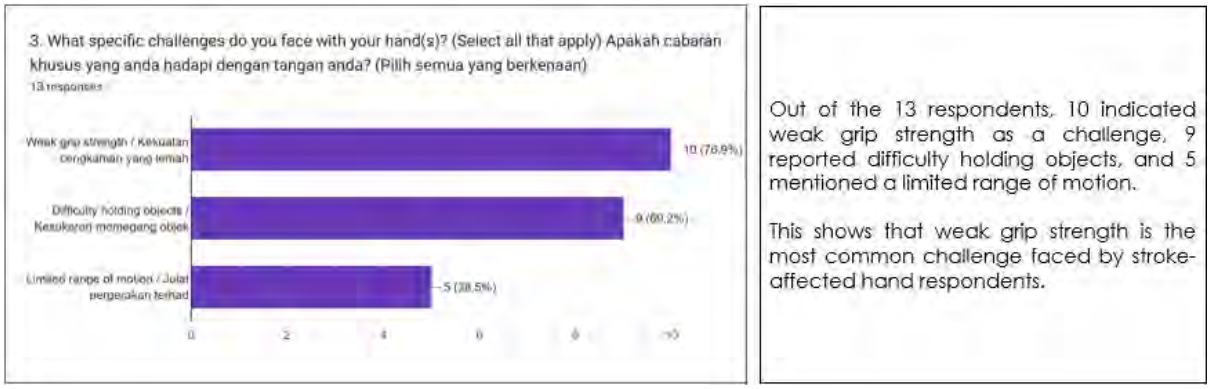

Figure 1.2 Distribution of common hand challenges among stroke patients.

This pie chart illustrates the primary difficulties reported by 13 stroke-affected individuals in the study. The most frequently mentioned issue was weak grip strength (77%), followed by difficulty holding objects (69%) and limited range of motion (38%). These findings highlight the need for ergonomic utensils like **ReGrip** to support users with reduced hand function.

Based on survey data from 13 stroke patients, the majority reported weak grip strength, difficulty holding standard utensils, and discomfort when using existing assistive tools. Most respondents preferred products that combined rehabilitation functions with daily usability and expressed a strong interest in ergonomic, easy-to-hold designs. During prototype testing, users responded positively to ReGrip's contoured handle, lightweight structure, and non-slip grip, noting improved control and comfort during use. The design effectively addressed common issues such as hand fatigue and utensil slippage, which were key concerns in earlier product evaluations.

Furthermore, the feedback highlighted the importance of proper sizing, material softness, and utensil angle for users with limited wrist mobility. Some suggestions included adding customization options for different hand sizes and integrating smart features for tracking progress. Overall, ReGrip demonstrated improved usability and user satisfaction compared to existing utensils, supporting its effectiveness as an assistive tool for stroke survivors.

CONCLUSION & RECOMMENDATION

In conclusion, the ReGrip utensil was designed to help stroke patients with limited hand mobility eat more easily and independently. Based on the feedback from users, the product successfully improves grip, comfort, and ease of use. Most of the respondents said they felt more confident using ReGrip compared to regular utensils, especially because of its ergonomic design and lightweight materials. The product also helped reduce hand strain, which is very important for people recovering from a stroke.

For future improvement, I recommend adding more customization options like different handle sizes or adjustable angles to suit different users' needs. It would also be useful to test the product with more users to get more feedback. If possible, smart features like grip tracking or progress monitoring can be added to help users and caregivers see improvement over time. Overall, ReGrip has great potential to support stroke survivors in their daily life and could be developed further for wider use.

Figure 1.3 The picture of Environment (ReGrip)

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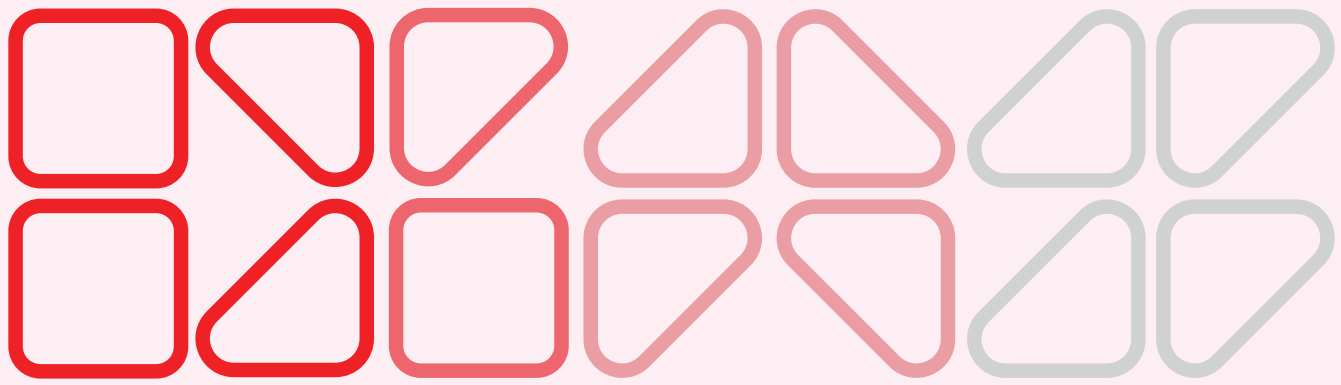

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