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Section : 01

Task : Design Thinking Project: Digital Solutions for ADHD Community

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Video Link: https://youtu.be/_G865_Z1zpM?si=fUAEKEDI1AG30Z9z

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1.1 Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disease which will affect both children and adults. The symptoms of ADHD include difficulty paying attention, hyperactivity and acting without thinking. The challenges usually faced by ADHD students include maintaining focus when learning, restlessness, staying still for a long time, being easily distracted by mobile phones and feeling overwhelmed when starting tasks. Nowadays, many digital applications are developed to improve efficiency that require tracking and self-discipline, but it becomes challenging to ADHD users.

The design thinking project is to design a digital system to help ADHD students stay focused without using a tracking system. It combines a physical Focus Regulation Tool with a simple mobile application that provides simple and structured guidance. The purpose is to improve efficiency in learning and daily activities by reducing thinking effort and helping users make simple decisions about how to focus. The project applies the design thinking process that are empathy, define, ideate, prototype and test phases to make sure the proposed solution is user-centred, practical and related to real ADHD behaviours.

1.2 Design Thinking-Detailed Steps and Evidence

1.2.1 Empathise

In the empathy phase, the team focused on understanding the problems faced by ADHD students when learning. This was done by discussions with friends, observing common behaviours among students, and reading online articles related to ADHD learning challenges. From these activities, the team noticed that many ADHD students have difficulties sitting still, fidget a lot, are easily distracted by phones, and feel stress when using productivity applications.

Some users shared that some applications need frequent tracking or reminders, which cause them to feel tired and pressured, so they decided to stop using the apps sometimes. From this result, the team realised that ADHD users need an application that is easy to follow. A simple user persona was created to represent a university student with ADHD who struggles to focus during self-study. This phase helped the team have a better understanding of user needs before developing the solution stages.

1.2.2 Define

After the empathy phase, the team defined the main problem based on how ADHD students manage their attention and energy during learning activities.

The problem statement for this project is:

“ADHD university students need a way to manage restlessness and stay focused during learning activities without depending on tracking systems, strong self-discipline, or using apps frequently.”

This problem statement focuses on how the users think and behave rather than on technical solutions. It also avoids medical or diagnostic aspects, as the project is for the purpose

of learning and focusing. Through the defined phases, the team was able to continue the ideation process and make sure the proposed solution remained relevant and user-centred.

1.2.3 Ideate

During the ideation phase, the team brainstormed several possible ideas that could help ADHD students to improve focus, which include task planners, focus timers, reminder apps, and wearable devices. However, these ideas were less suitable because they required frequent use and self-control after discussion.

After a brainstorming session, the team noticed that fidgeting is a common behaviour among ADHD users when focusing on learning. This led to the idea of using a physical focus tool to help manage restlessness. To meet the requirement of including technology, the physical tool was combined with a simple mobile application that provides guidance and structure by connecting the Bluetooth. This phase involved comparing ideas and selecting the most suitable solution based on user needs and practicality.

1.2.4 Prototype

1.2.4.1 Prototype Design Idea

The design idea of the prototype is a physical Focus Regulation tool connected with the MindAnchor mobile application through Bluetooth connection. The purpose of the design idea is to help ADHD students improve attention and emotion management by turning natural restless movement into calm and purposeful action. The users are suggested to use the app when they are feeling anxious, overwhelmed, stressed, restless and easily distracted.

The concept focuses on simple, calm, and accessible interactions for ADHD students while students below 10 years old need guidance from parents.

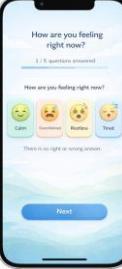
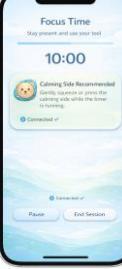
1.2.4.2 Screen Prototype Implementation

The application begins with welcome screen, and a simple login screen with user-type selection. A Bluetooth connection screen used to connect physical tool with the application.

Users will answer five screening questions, the applications will suggest which side of physical tool need to use in recommendations screen based on users' answer, followed by a focus session timer, and a reflection screen. The users or parents can review past session in a progress screen.

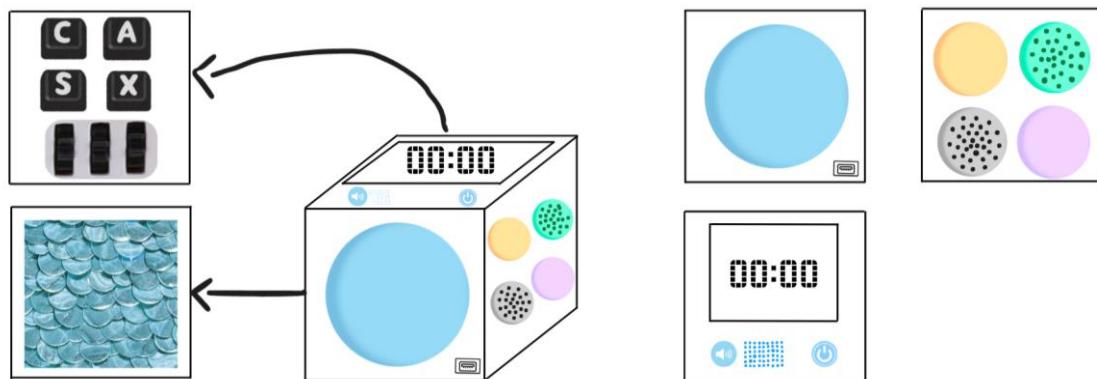
1.2.4.3 Screen Prototype Description Table

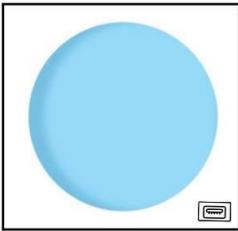
Prototype Screens	Description
Welcome Screen 	A simple, calm and friendly MindAnchor application introduction screen. The screen includes application name, tagline and start button to provide a comforting first impression and guide users into the application.
User Selection Screen 	The users are allowed to choose either parents-guided mode or independent user mode. This provides a simple account setup for users which can avoid mental effort.
Login Screen 	Users can optionally set up a profile by entering a nickname and choosing an age range. The simple login steps improve ease of use while providing a suitable guidance based on age.

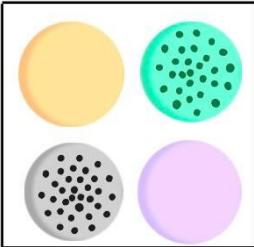
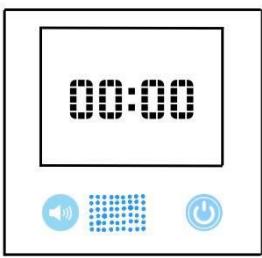
Bluetooth Connection Screen	<p>Users are guided to connect the physical Focus Regulation tool with the app via Bluetooth. Step-by-step instructions are provided, so the users can pair easily.</p> 
Screening Questions	<p>Using simple questions and icon-based response options to analyse user's current emotional state. A progress bar showing the completed questions number to reduce user anxiety.</p> 
Recommendation Screen	<p>The screen recommends the suitable tool side based on screening responses and allows users to select a focus duration.</p> 
Focus Session Screen	<p>Help users to focus with a countdown timer and guide them to use the recommended side of physical tool. This screen provides calm and controlled action during the focus session.</p> 
Reflection Screen	<p>User provide feedback based on their emotional state after done the focus session by choosing mood icons and optionally entering their thoughts in a text box. This session can promote emotional awareness and self-expression.</p>

	
Progress Screen 	Allows users or parents review progress through a simple summary of past sessions and feedback without pressure.

1.2.4.4 Physical Focus Regulation Tool Prototype



Tool Surfaces	Description	Function	Purpose
Calming Surface 	A large and soft circular pad for squeezing or slow pressing and include a charging site.	Suitable when users feel overwhelmed, anxious or stress.	To reduce pressure and help users to relax.

Multi-Tactile Grounding Surface	 <p>Contains multiples small circular surfaces with irregularly spaced small particles with different texture and firmness.</p>	<p>Suitable when users feel bored or have problem to pay attention.</p>	<p>To improved attention and maintain focus through tactile interaction.</p>
Control and Timer Surface	 <p>Includes a digital timer display, audio indicator and power control.</p>	<p>Power Control: Allow users to start connecting with application.</p> <p>Digital timer display: To track the remaining time.</p> <p>Audio indicator: A soft music will play to remind users when the focus session is end.</p>	<p>Provide time tracking for users during focus session. Soft music will not stimulate the users and provide them a calming transition.</p>
Stimulation Surface	 <p>Includes tactile elements such as buttons and rolling components that provide small resistance and repetitive action.</p>	<p>Users are suggested to use it when feel restless or energetic and needs sensory stimulation.</p>	<p>To convert extra energy into useful action.</p>

Textured Surface	Calming	Consist of a reversible texture material with a soft, sequin-like finish.	Provide slow, repetitive touch when users feel stress.	To support emotional regulation with the texture that provide soothing sensory feedback.
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1.2.5 Test

The test phase is carried out by introducing the prototype to peers for the purpose of analysing what the user will experience in MindAnchor. Participants were guided with the app concept and main features, which include screening questions, focus sessions, using the physical tool and reflection sessions. After that, feedback was collected through discussion and a short interview session.

Most users shared that the physical Focus Regulation Tool is useful to manage restlessness during learning and easy to carry anywhere. Furthermore, some users also mentioned that the Bluetooth connection was simple to use and should add simple guidance for users below 10 years old. From the feedback, the team realised where the improvements should be done and confirmed the design able support focus and emotional self-awareness in a practical way.

1.3 Problem, Solution & Team Working

1.3.1 Problem

The main issue in this project is that ADHD students always face difficulties in maintaining focus during learning activities. Many students experience restlessness, become easily distracted, and struggle to start or continue tasks. Although there are many digital productivity tools nowadays, most of them require tracking, reminders, and long-term use, which can be challenging for ADHD users.

As a result, the ADHD users often stopped using these tools after a short period of time. ADHD students also have problem making decision, such as unable to decide how to do a study plan or how to manage their focus. Therefore, the lack of a simple and supportive system that works with ADHD behaviour is the problem.

1.3.2 Solution

The proposed solution is a focus support mobile application combined with a physical Focus Regulation tool. The system starts with short screening questions to understand the user's current emotion state. Based on the responses, the system suggests an appropriate side of physical tools to use with guidance and a suitable focus duration.

The physical tool allows users to turn their natural fidgeting behaviour into controlled movement, which helps to improve focus in learning. The digital system does not track progress or performance, so it is less stressful for users. Thus, this solution supports learning by reducing cognitive load and simple, focus-related decisions.

1.3.3 Team Working

This project was completed through teamwork and cooperation among group members. Each member was responsible for different tasks such as research, interface design, physical tool development, and testing. The team gave opinions and discussed them regularly as well as shared feedback to improve the design.

Through teamwork, the team makes improvements at each stage of the design thinking process in the project. In addition, group discussions also helped the team consider different perspectives, which leads to a better final solution. Therefore, teamwork is extremely important in ensuring the project can be carried out successfully and related to the course requirements.

1.4 Design Thinking Evidence

Group Meeting	Purpose	Group Meeting Photo
8/12/2025 12:45pm N28a	<ul style="list-style-type: none"> Division of project tasks and focused on understanding the target users. Group members discussed the possible challenges faced by users in their daily life and listed out interview questions to gather users' needs and experiences. 	
22/12/2025 1:30pm N28a	<ul style="list-style-type: none"> Discussion about details for the prototype and presentation slide as well as manipulated results from empathy phase and identified users' key problems. Some problem statements were recorded and improved into a clear definition based on users' needs. 	
1/1/2026 1:05pm N28a	<ul style="list-style-type: none"> Discussion about video and idea for designing physical device to user and brainstorming session for solutions. Group members suggested multiple ideas and analysed them based on feasibility, user needs, and related to support for ADHD students. 	
8/1/2026 11:15am N28	<ul style="list-style-type: none"> Final discussion about interface flow and improvement for prototype screen. 	

	<ul style="list-style-type: none">• Division of tasks for designing different prototype screen using Canva.	
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1.5 Reflection

Group Members	Reflection
Khairun Najiha Budriah Binti Mohamad Husaini:	<p>As a Bioinformatics student, my goal is to develop strong disciplinary skills that integrate biology, data analysis, and computational techniques in order to build a successful career in the bioinformatics or biotechnology industry. I aspire to apply my knowledge to analyze biological data, support research, and contribute to scientific and healthcare advancements.</p>
	<p>Design thinking has positively influenced my approach to learning by encouraging a user-centered and problem-solving mindset. It helps me better understand real-world biological and industry needs, while promoting creativity, critical thinking, and collaboration. These skills are essential for developing effective and practical bioinformatics solutions.</p> <p>To improve my potential in the industry, I plan to continuously strengthen my technical skills in programming, data analysis, and bioinformatics tools, while also improving my communication and teamwork abilities. Gaining hands-on experience through projects, internships, and continuous learning will help prepare me to meet industry expectations and grow as a professional bioinformatician.</p>
Nurshahadah Binti Shahrul Effendi:	<p>My goal that relates to my course is to create useful apps that will solve real-world problems, are user-friendly, and make life easier for people with needs, such as people with ADHD. Other than that, my aim is to improve my thinking skills in solving these real-world problems and prepare myself for a career that involves technology.</p> <p>This design thinking impacts my goal by making me understand people with needs, like ADHD, in aspects of their emotions and the way they think and behave, and I become</p>

	<p>motivated to help them solve these problems by creating an app that will focus on helping these people. This design thinking helps improve the way I think and come up with useful solutions and better ideas by refining them.</p> <p>My action in improving my potential in the industry is by asking people with needs about their problems to understand them better. I will study these problems and try to design an app that will help people with needs, and I will test this app to determine whether it needs improvement. I will improve the app based on the feedback. Other than that, I will try to help my team members and work with them as a team to make much greater improvements.</p>
Siti Aleeya Qaisara Binti Mohd Fayyaz:	<p>My goal with regard to my course is to become a graduate who is able to design technology solutions that are practical, user-centred, and meaningful in real world contexts. I hope to work in the technology or digital industry where I can apply my knowledge to solve everyday problems, especially those related to education, accessibility, or user experience. Through this program, I aim to develop not only technical skills but also critical thinking and empathy towards different types of users.</p> <p>This Design Thinking project has significantly impacted my goal by changing how I view problem-solving in technology. Instead of focusing only on digital features or complex systems, I learned the importance of understanding user behaviour and limitations. Designing a solution for ADHD users helped me realise that effective technology does not always require advanced functions, but rather thoughtful design that reduces cognitive load.</p> <p>To improve my potential in the industry, I plan to continue developing my problem analysis and user research skills. I also aim to improve my ability to translate user needs into simple, well-designed systems. In addition, I will work on strengthening my</p>

	<p>communication and teamwork skills, as collaborative work is essential in the industry.</p>
Teo Kai Xuan:	<p>My goal for this program is to improve my computing skills and software development skills, as I wish to develop useful software in the areas such as education, health and digital well-being.</p> <p>Through this design thinking project, I realised that software developers are not just creating software. I also should understand and observe users' emotions, problems, and daily situations. So that I can create the most suitable software to make sure the users can have the best experience. Besides, I also understand the importance of problem-solving skills, planning, feedback and teamwork, which are the parts of technical skills. In addition, I think I need to have more creative thinking, be open-minded and accept feedback to achieve success in my future.</p> <p>To improve my potential in industry, I decided to strengthen my coding skills, improve my problem-solving skills, do better time management and participate in more projects or internships to gain more real-life experience. As the saying goes, practice makes perfect. I believe I can become more confident and prepared as well as contribute to the field of computer science.</p>

1.6 Task Division

Group Members	Role in Project	Role in Report
Khairun Najiha Budriah	Research & Empathy	Carried out research based on users' daily lives and developed it into empathy-based insights to understand their need.
Nurshahadah	Ideation & Concept Developments	Generated solution ideas and developed design concept.
Siti Aleeya Qaisara	Testing & Documentation	Analysed the prototype, collect feedback from user and documented reflections and results.
Teo Kai Xuan	Design prototype	Designed the mobile app screen prototypes and the physical tool prototype.

1.7 Conclusion

The design thinking process, which includes the empathise, define, ideate, prototype and test stages, was applied successfully in the project to develop a user-centred solution for students with ADHD. Through this process, the team obtained a clearer understanding about the daily challenges faced by ADHD students when they are learning, such as paying attention and controlling restlessness and emotions.

MindAnchor combines a physical Focus Regulation Tool with a mobile application via Bluetooth connection. So that students can improve their attention through calm and guided sessions. Furthermore, students also stay focused without causing pressure or distraction by turning excess energy into useful action. MindAnchor includes simple screening questions, guided focus session and a users' feedback feature which can promote students' emotional self-awareness and personalised support based on their current emotion.

In conclusion, the project showed the importance of empathy and user-centred design to create useful and functional solutions. Through the project, it demonstrated that technology could work with human behaviours in a user-friendly way.

1.8 References

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