DESIGN THINKING REPORT

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DETAIL STEP AND DESCRIPTIONS IN DESIGN THINKING AND PHASES

Details of Design Thinking Design thinking is a strategic and practical process in which we use to tackle many complex problems that are ill-defined or unknown. This is because this process reframes these problems in a human-centric way. The process involves us to approach the user and understand their needs in an attempt to identify the solutions of the problems. It also offers us to think outside of the box in the effort of generating ground-breaking solutions. By using this process, we will make decisions based on what they want instead of only relying on assumptions and making risky bets. Based on the Hasso Plattner Institute of Design at Stanford (d. school). There are five phases of Design Thinking. The five phases are as follows:

- **Emphasise – approach your users**
- **Define – state your user's need, problems, and your insights.**
- **Ideate – generating ideas based on problem-solving.**
- **Prototype – adopting a hands-on approach.**
- **Testing – solutions**

Empathy Phase: Understanding Dorm Students Transportation Needs

We asked dorm students at Qaiwan University about their transportation problems. Most walk 25 minutes to campus or use taxis or friends' rides, which messes up their schedules and costs extra money. This becomes even harder during exams forcing students to go out of their comfort zone to go to college early which forces them to use the college library to study instead of staying in the dorms and studying there.

So, we suggested using electric scooters, which students liked because the scooters will offer them independence not relying on other methods of transportation plus it saves them time.

The college administrators also supported this idea. To make sure everyone can use the scooters easily and sustainably, we will set up charging stations at the dorms and campus, powered by solar panels so when the students park them they can always plug it in to the charger even if theres electricity problems the solar panels makes it independent of electricity issues. Even students who don't live in the dorms wanted to use the scooters.

Users need to pass a simple test before using the scooters. But there were safety concerns outside the campus. So, we agreed with the college to limit scooter access for non-dorm students, making sure they only use safer routes.

Define: Stating Students need, problems, and out insights.

Dorm students need a transportation method that gives them convenience and flexibility, allowing them to travel to and from campus without disruptions to their schedules and dependence on other students also given the costs of tuition, rent, and living expenses, students want to save money on transportation.

There is a growing awareness among students about the environmental impact, we also got a chance to talk to (Head of Environment and Climate Change Club), she appreciated the eco-friendly alternative for transportation while ensuring the safety of students during their travels, particularly concerning road safety and the reliability of this transportation method.

Inconvenience of Current Options such as walking, taking taxis, or relying on friends' ride, and time constraints, particularly during peak periods like exams and finals, also the cost of transportation, especially during exam periods when reliance on taxis increases, adds financial strain to students already facing significant expenses.

Demand for Independence Students value the independence of personal transportation option that allow them to travel to college according to their own schedules and preferences, and there is desire for Eco-Friendly Solutions There is a strong preference for transportation solutions that contribute with students' environmental values

Need for Cost-Effective Alternatives:
Affordability is a huge factor influencing students' transportation choices, which shows the importance of cost-effective methods while not ignoring the Importance of Safety and Reliability Students prioritize safety and reliability in their transportation options, emphasizing the need for solutions that offer peace of mind during their travel.

Ideate: Brain Storming other Ideas

Increasing the number of electric scooters available on campus while Installing additional charging stations at other good locations then Introducing incentives to encourage scooter usage, such as rewards.

Bike Sharing Program

Launching a bike sharing program with mounts to hold the bikes at stationary places across campus. Providing students with an alternative mode of transportation.

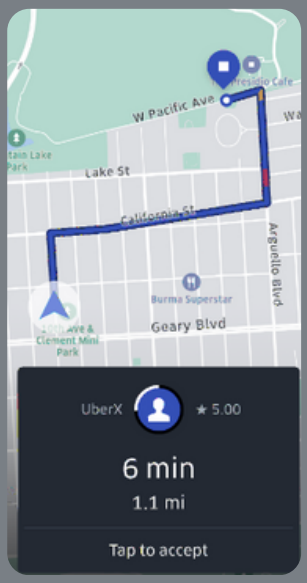
Mini Bus service

a mini bus service for 30 days free twice a Semister between dorms and academic buildings. Offering free transportation to reduce reliance on taxis or friends' rides.

MORE PROGRAMS

RideBuddy

Developing an app or platform for students to help each other with transportation if someones driving by in your area on their way to collage the app will let you know



Campus Seminars

Promoting eco-friendly transportation options through seminars campaign on campus. Educate students about the environmental benefits of alternative modes of transportation.

Student Transportation Committee

Forming a committee to gather student feedback and suggestions. Involving students in decision-making processes regarding transportation initiatives.

Creating the Electric Scooter Prototype

Developing the electric scooter prototype involves several steps

- **Design**

We will create the design and the blueprint of the scooter, considering factors like size, weight, battery capacity, and safety features, also develop the app interface for tracking scooter availability and ensuring user safety.

- **Materials**

We selected aluminum alloy for the frame as its both strong and light , lithium-ion batteries, and styrene-butadiene rubbers for the tires for grip and quality.
We prioritize durability, lightweight, and eco-friendliness where possible.

- **Assembly**

We will assemble the scooter components according to the design blueprint. We will ensure that all parts fit together and we will check for any errors at each stage.

- **Integration And Testing**

The electric components, including the motor, battery, and charging system, are integrated into the scooter frame. This process requires precise engineering to optimize performance and efficiency, after this we will stress test all the components and the scooter under extreme conditions in a safe environment for extra safety measures

Scooters Features

- A collapsible frame for easy carrying.
- Lightweight materials for portability.
- Built-in LED lights for safety during nighttime rides.
- A sturdy kickstand for stability when parked.
- A streamlined design for a modern look.
- A detachable battery pack for easy charging.
- Integrated USB charging port for mobile devices.
- Adjustable handlebars for personalized comfort.
- Shock-absorbing suspension for a smoother ride.

Testing

- **Testing**

how easy and safe the electric scooters were to use was really important in our design process. We asked students to try them out, watched how they used them, and asked for their thoughts through surveys. By doing this, we could see what worked well and what needed improving. We kept trying out different things until the scooters were even better than what students hoped for, making sure they really solved the problems we identified.

Reflections

Rawa:

- **Personal Goal: to be a successful software engineer and web app developer**
- **Impact of Design Thinking: i think it will help us alot with approaching problems and emphasizing with clients so i see it as a posative impact**
- **improvement in this Field: i think by staying up to date with the latest tech and softwares available in the market and analyzing them and also working on my portfolio**

Hanar:

- **Personal Goal: My goal is to excel academically, acquire valuable skills, and ultimately achieve success in my chosen career path.**
- **Impact of Design Thinking: Opting for a scooter over a car or taxi can positively influence my academic and career aspirations by offering a more economical and eco-friendly transportation solution, potentially freeing up resources to invest in my education and future endeavors.**
- **improvement in this Field: To enhance my industry potential, I'll prioritize scooter maintenance, optimize travel routes for efficiency, and actively seek opportunities such as internships or networking within my field of study.**

Drud:

- **Personal Goal: i want to achieve success in my field**
- **Impact of Design Thinking: since i want to be successful i would use the design thinking process towards success in the software engineering industry**
- **improvement in this Field: I will take as many internships as i can so i gain more job experience while in college so i wont be a fresh graduate**

Razawa:

- **Personal Goal: My goal is to seek opportunities when they present them selfs so i can improve more and by the time i graduate i want to have a few softwares in development**
- **Impact of Design Thinking: the impact it left on me was that team work makes dream work and i got to see this first hand and how much you can do when you network**
- **improvement in this Field: To improve in this field i will network by taking interships and also working on more prjects with my friends so i can improve in working with other people.**

Task for each Member

Rawa:

1. Introduction
2. Contribution to the Empathy Phase and the Prototype

Drud:

1. Contributed to Ideate Phase
2. Helped develop the design of the scooter

Razawa:

1. Helped with Define Phase
2. Helped develop the design of the scooter

Hanar:

1. Helped With Empathy phase and Ideate phase
2. Helped develop the design of the scooter

Team Work

as a team interviews and surveys with dormitory students were conducted to gather insights into their transportation challenges and preferences.
Compile and analyze research findings to identify common pain points and user needs.
also facilitating discussions to define the problem statement and design criteria.