UNIVERSITI TEKNOLOGI MALAYSIA

TECHNOLOGY AND INFORMATION SYSTEM

(SECP1513)

SEMESTER 1, SESSION 2023/2024

DESIGN THINKING PROJECT:

OMNISPECS (SPACE-X)

SECTION 03

LECTURER:

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INTRODUCTION

This report is about Space-X's Design Thinking Project. Our team is required to make a product prototype of a technology that implements AI. Our project strives to deliver a state-of-the-art product seamlessly integrating technology into the fabric of everyday life. Our focus rests on the meticulous development of Smart Glasses called OMNISPECS with implementation of an AI called OMNI-AI, a revolutionary device aimed to enhance communication across the world and also help in their daily endeavour.

We got this idea after we saw the difficulty of communication between international students and local students and their difficulty to be accustomed to this country. After that we conducted a survey to further understand the problem. Then, we came up with the idea of OMNISPECS which has 2 main functions perfect language translation and error-correction that are supported by AI.

The language translation function empowers users to effortlessly transcend language barriers, it is tailored for seamless communication in diverse settings, from travel and cross-cultural engagements to exploration of varied environments. Moreover, our project introduces an advanced error correction feature, enhancing user experiences across diverse applications. Whether refining written content or providing real-time feedback on current works you are doing,with this function we aim to help users with their works to unprecedented levels.

Join us on this transformative journey as we harmonise design thinking principles with the limitless potential of AI technology. Together, we're not merely crafting a product; we're sculpting an experience that transcends boundaries, enriching the way we connect with the world. Rejoice of the arrival of OMNISPECS – an intersection where innovation seamlessly meets practicality.

DETAIL STEPS AND DESCRIPTION OF DESIGN THINKING

In the development of the Omnispecs smart glasses, featuring the innovative OMNI-AI system, we have employed a rigorous Design Thinking methodology. This user-centric approach ensures that the final product not only integrates advanced technology but also addresses real-world needs and enhances user experience.

1. Empathise: Our initial focus was on empathising with potential users. We conducted extensive user research by doing survey and interview, engaging with individuals who could benefit from error correction and language translation. This research included interviews, surveys, and observational studies. From this, we developed a simple survey to find out what users need and what users will expect with our product.These survey helped us in identifying key pain points, such as the need for real-time translation and also the error correction.

Survey result link:
https://drive.google.com/file/d/1Zl_feEfVTkeWniF42yC750n7yFadicE3/view?usp=sharing
Interview link:
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2. Define: Armed with a deep understanding of our users, we moved to define the core user needs. Our team synthesized the research data into a clear problem statement: Users require an efficient, real-time method to translate spoken language and correct textual errors, facilitating seamless communication and understanding. This phase involved setting specific goals for the Omnispecs, such as enhancing communication in multilingual settings ,supporting language learning and error detection.

3. Ideate: The ideation phase was marked by creative brainstorming sessions, where we explored a multitude of ideas without constraints. The team proposed various features, designs, and technological integrations, assessing their potential impact and feasibility. Key considerations included how OMNI-AI would handle different languages, dialects, and accents, error detection and solution and how these capabilities could be integrated into a user-friendly smart glasses design.

4. Prototype:During the Prototype phase of our Design Thinking process, we concentrated on developing a conceptual prototype for the OMNI-AI system in Omnispecs smart glasses. This stage involved creating detailed simulations and mock-ups of both the software interface and the user experience, rather than a physical product. We are focusing on core functionalities

like basic translation and error correction. Simultaneously, we developed physical prototypes of the glasses, with the fancy and user-friendly design.

5. Test: Testing was an iterative process, involving real users trying out the Omnispecs in various scenarios. We gathered extensive feedback on all aspects of the product - usability, functionality, design, and overall user experience during the presentation section. This feedback was invaluable, highlighting areas for improvement and refinement.

DETAIL DESCRIPTION

Problem

From our survey we can see that almost all of the respondents, which are mostly international students, are having trouble communicating with the native. It is because they didn't learn the native language. So technology that can assist them with translating the language so that they can understand. But the problem lies in the incompetence of the current technology, for example Google Translate. Even though it can do language translation well, it still has trouble in doing real time translation which is a crucial aspect that is required to solve the problem for the international students.

Next, the international students are also having a hard time trying to be accustomed to the new environment of this country so they need something or someone as a guide for them to show them the correct ways of doing things and correct what they do wrong. Paying a guide would be weird and awkward and also expensive, thus the other solution would be by referring to the internet or AI chatbot such as ChatGPT. But this solution is still not ideal as most of the time the students do not even know they were wrong.

Solution

After a long brainstorming session, we came up with a solution that we need to make a device that can solve both of these problems. Also the device needs to be easy to carry and also compact. Thus we decide to make a smart glass that has an implementation of AI technology.

Firstly, we develop an AI called Omni-AI that has the capability of real time language translation and error correction. To train our AI language translation function, we analyse how the ‘interpreter and translator’ (an occupation) do their work. Next, we train our AI to achieve their speed of translation. Not only that, to further broaden our AI capabilities of translating language, we add many more languages to its language module.

Next, to solve the second problem,we use our AI's error correction function.This function can provide assistance with many things .We train our AI with all the data in range of daily routine to school teaching including every cultural activity and norm of every country in the world. We also implement a visual recognition function to the AI so that it can give feedback in real time.

Lastly, to meet the requirement of the device which is a device that is easy to carry and compact, we chose to implement our AI into glasses thus making our project an AI Smart Glasses, Omnispecs.

DESIGN THINKING ASSESSMENT POINT

a. **During the end of the project demonstration**

The assessment can be done when we present Omnispecs's functionality and when the example scenario is given.

b. **During the transition between design thinking phases**

For empathise phase assessment can be done with the survey and interview result.

DESIGN THINKING EVIDENCE

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REFLECTION

MUHAMMAD ZULQARNAIN BIN ALI

In this course, my goal is to gain insights into IoT (Internet of Things) and AI systems while forming connections with like-minded peers. Joining this exciting project allows me to conduct AI system research and understand the evolving trends in IoT. This valuable experience will undoubtedly contribute to my future pursuits. To improve my industry potential, I am focused on intensifying my efforts in programming language proficiency and delving deeper into the workings of AI systems.

SIA JUN YI

In pursuing my IoT course, my primary goal is to develop a comprehensive understanding of IoT concepts and applications. Engaging in the design thinking process has been instrumental in achieving this goal as it provides a structured framework for creative problem-solving. Our team's project, focused on designing AI-integrated smart glasses for SpaceX, allows me to apply theoretical knowledge to real-world challenges. To enhance my potential in the industry, I recognize the importance of hands-on experience. Moving forward, my plan includes actively participating in more projects, collaborating with diverse teams, and gaining practical insights into IoT implementations.

MOAZ MOHAMED SHABAN

My aspirations in the IoT course extend beyond learning – I dream of contributing to cutting-edge technology, particularly in the integration of AI. The design thinking approach significantly impacts my dream by ensuring our project aligns with the latest advancements and user needs. This iterative process allows us to refine our smartglasses design based on continuous feedback and emerging technologies. To improve my potential in the industry, I am committed to staying updated on technological trends, attending workshops, and consistently refining my skills in AI.

TAN LI JI

In this IoT program, my goal is not only to gain knowledge but to excel by contributing innovative solutions. Design thinking plays a crucial role in achieving this by emphasising a user-centric approach. Our smartglasses project is guided by understanding and meeting the actual needs and preferences of users. Recognizing the importance of effective teamwork in the industry, I plan to improve my potential by focusing on enhancing communication and collaboration skills. Engaging in more collaborative projects and refining problem-solving abilities will be key in achieving this improvement.

ZIAD YASSER MOHAMED

Standing out in the IoT field is my goal, and contributing innovative solutions is at the core of that ambition. Design thinking aligns with this objective by fostering a mindset that values experimentation and iteration. Our project, particularly the smart glasses design, benefits from this approach as it allows us to refine the product based on user feedback and technological advancements. To improve my potential further, I plan to actively participate in hackathons and collaborative projects, gaining exposure to real-world challenges and refining my problem-solving skills.

YOUSSEF ABDELRAHMAN ABAKER

Being part of groundbreaking IoT projects and making a meaningful impact is my ultimate dream. Design thinking plays a pivotal role in aligning with this dream by emphasising empathy and understanding user needs. Our smart glasses project, incorporating advanced AI, is not only technologically robust but also caters to practical user requirements. To improve my potential, I recognize the importance of seeking mentorship opportunities, learning from experienced professionals, and staying adaptable in the dynamic landscape of IoT and AI technologies.

TASK OF EACH MEMBER

MUHAMMAD ZULQARNAIN BIN ALI :

1. Create a survey and compiled its result
2. Analyse the survey and interview result
3. Do the brainstorming for the project based on the result with all the member
4. List the detail of the smart glasses function
5. Make the project presentation draft
6. Plan and do the presentation for the project prototype
7. Make the report for the project

SIA JUN YI

1. Write the summary for the interviews and survey
2. Do the brainstorming for the project based on the result with all the member
3. List the detail of the smart glasses function
4. Do the presentation for the project prototype
5. Make the report for the project

MOAZ MOHAMED SHABAN

1. Do the brainstorming for the project based on the result with all the member
2. Host the meeting for the project
3. Make the draft for the project
4. List the detail of the smart glasses function
5. Do the presentation for the project prototype
6. Make the report for the project

TAN LI JI

1. Do the brainstorming for the project based on the result with all the member
2. List the detail of the smart glasses function
3. Do the presentation for the project prototype
4. Make the report for the project
5. Write the progress of each phase of design thinking

ZIAD YASSER MOHAMED

1. List the detail of the smart glasses function
2. Do the presentation for the project prototype
3. Make the report for the project
4. Write the progress of each phase of design thinking

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