Preliminary Plan

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1. Introduction

1.1 Project overview

The purpose of Project: Part 1 is to create a prototype of an application. This prototype's objective is to help blind people navigate indoors, and the prototype itself is called Theia.

The use of traditional methods such as guide dogs and canes, as well as the Braille system, have been instrumental in helping visually impaired individuals navigate the world around them. However, in today's technologically advanced society, it is important to adapt and evolve these tools to meet the changing needs of the visually impaired community. Theia aims to do just that by leveraging the power of modern technology to provide a more convenient, accessible, and efficient solution for indoor navigation.

The goal of Project: Part 1 is to create a functional prototype of Theia that can be tested and refined through user feedback. This will ensure that the final product is tailored to meet the specific needs and requirements of visually impaired individuals. The ultimate aim of the project is to empower blind individuals to navigate indoors with greater ease and independence, allowing them to live their lives to the fullest.

Our job will be to create an application that can help blind people navigate their house. The application must convert voice to text so that blind people can speak their destination and the application can translate it. The application must then give them a route to reach their destination. The application must notify the user when they've reached their destination. Finally, the application must warn the user if an obstacle is in the way and reroute the user accordingly.

1.2 Project deliverables

Our deliverable for this part of the project will be a prototype (like a mockup) as opposed to the actual application itself. Additionally, a preliminary user manual will be provided on how to use the prototype.

1.3 Evolution of this document

Over time this document will be updated to reflect the changes of this project. Prototype and specifications of the project are subject to change as new processes and team member changes occur. Since this is in its preliminary stages, no extra steps are required.

1.4 References

N/A, this document is preliminary and doesn't use any references yet.

1.5 Definitions, acronyms, and abbreviations

- Theia: The name of the application
- Braille: Language that allows blind people to read through the use of touch

2. Project organization

2.1 Process model

For our project, we are planning on following the iterative model, in which we develop a small foundation based on some initial requirements and through testing and feedback we add on to those requirements, develop, and test again. This process will be repeated until a desirable final product is reached that can satisfy all of the requirements needed.

2.2 Organizational structure

Our team consists of 6 members:

Javier Gomez Tentative Role: Project Lead
Guojun Dai Tentative Role: Developer
Dakota Soles Tentative Role: Developer
Chih-Wei Hsu (Kevin) Tentative Role: Project Website
Sasi Thomala Tentative Role: Developer
Soham Mukherjee Tentative Role: Developer

2.3 Organizational boundaries and interfaces

The team will have open communication channels between everyone such that when any member of the team encounters an issue that they are stuck on, any of the other 5 members will be able to jump in and assist. Most of the communication interfaces for the team will occur via Email and Discord. These communication interfaces will allow the team to have multiple mediums of communication including text and voice/video calls.

2.4 Project responsibilities

All team members will be involved in all phases of the project life cycle. However, going forward the project responsibilities of each team member may vary slightly from deliverable to deliverable. Therefore all initial roles are meant to be tentative.

3. Managerial process

3.1 Management objectives and priorities

The main objective of management is to enable members to participate in the project effectively.

1. All members should be involved and can be improved in the ability of requirements analysis, design and development;
2. Members can communicate effectively;
3. Members are encouraged to put forward their ideas;
4. Regular meetings should be held to let everyone know the status and risks of the project. In response to risks, members can propose solutions and choose the best one through discussion.

The highest priority is

1. Ensure the project is on schedule;
2. Able to carry out active and effective communication among members

3.2 Assumptions, dependencies, and constraints

Assumptions:

- User is blind.
- User can speak.
- User can hear.
- User has a cell phone.
- The cell phone has a camera.
- The cell phone has working audio.
- The cell phone can download applications.
- The application is granted relevant permissions.

Dependencies:

- Frontend of the application (user authentication, using the camera, user accessibility) is dependent on the frontend developers.
- Backend of the application (voice prompt for a destination, user navigation, reaching the end) is dependent on the backend developers.
- Merging both of them (route navigation, obstacle deterrence, start and end of route) is dependent on the fullstack developers.

Constraints:

- This has to be a smartphone app, or on an accessible device for the visually impaired.
- Must have 100% uptime when the user is on the app in real-time.

- Must be a secured application.
- Must be able to operate on a valid OS system.

3.3 Risk management

Risk Name	Risk Description	Risk Plan	Priority	Status	Update_time

3.4 Monitoring and controlling mechanisms

Weekly Check-in Meeting on the discord channel to see the status of deliverables from each team.

4. Technical process

4.1 Methods, tools, and techniques

We can look into Figma or Rational Rose to do the wireframe prototypes for the application itself. Since we're not making the actual application, we won't need to work on the actual code yet.

4.2 Software documentation

4.3 Project support functions

5. Work elements, schedule, and budget

Deliverable	**Date**	**Team Leaders**	**Tool**
Preliminary Project Plan	Jan. 26, 2023	Javier Gomez	Figma, possible Rational Rose
Phase I Interim (DOC + Mockup Prototype)	Mar. 07, 2023	Javier Gomez	Figma, possible Rational Rose
Phase I Final	Mar. 23, 2023	Javier Gomez	Figma, possible Rational Rose
Phase II Interim	Apr. 18, 2023	Javier Gomez	RE-Tools, ???-SDK
Phase II Final	May. 2, 2023	Javier	

		Gomez	