Project Management Plan

for

Visually Impaired Mobility App

Version 2.0 Final 1

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Revision History

Name	Date	Reason for Changes	Version
Preliminary Plan	9/14/25	initial draft	1.0 draft 1
Revised Preliminary Plan	9/20/25	Updated to include revisions from instructor	1.1 draft 2
Final Plan	10/12/25	Finalized plan to ensure correctness	2.0 final 1

1. Overview

1.1. Project Purpose, Objectives, and Success Criteria

Our goal for this project is to develop a mobile application that assists blind and visually impaired individuals with indoor navigation. The app will help users travel between locations within a building or access connected buildings, such as classrooms, offices, restrooms, or labs. Its features include voice-based destination input, real-time route guidance, obstacle detection, and emergency assistance in case of falls or disorientation.

The system will use smartphone sensors such as the accelerometer, gyroscope, and camera to provide accurate navigation support. An accessibility staff member can also configure the app and receive alerts during emergencies.

The project's success will be measured by user safety, navigation efficiency, and usability for blind individuals.

1.2. Project Deliverables

1. AS-IS/TO-BE Scenarios: These are important example scenarios that present the benefit the application has. These are included in the final presentation - *Anthony Devito*
2. WRS Document: Includes all requirements and information to support those - *Ivan Quintero*
3. User Manual: instructions on usage of the prototype application - *Shawn Will*
4. Meeting Records: detailed record of team meetings - *Eli Lawrence*
5. Final Phase 1 Plan: Includes explanation of phase 1 deliverables, schedule, and the team organization - *Riley Nielsen & Eli Lawrence*
6. Final Phase 1 Presentation: This presentation includes the AS-IS/TO-BE scenarios as well as demo of the prototype - *Anthony Devito*
7. Prototype: a concept of the app which shows basic functionality - *Jace Dunn*

These deliverables may have incremental deliverable dates, while all finished versions will be required at the end of phase 1, October 12, 2025. Each team member has a specific deliverable focus, but will work together to ensure completion of all the deliverables.

1.3. Assumptions, Dependencies, and Constraints

We are not making any assumptions at this point in the project, however, this section will update as our project progresses.

- DE-1: Users are expected to have phones with as many sensors as possible
- CO-1: The domain is to remain indoors

1.4. References

1.5. Definitions and Acronyms

Agile Development: A software process in which a project is broken up into small portions and tasks are grouped to be completed in relatively short time periods.
IDE: Integrated Development Environment

2. Project Organization

2.1. Process Model

The team will use the Agile development model. This will allow us to be flexible in our development, and maintain work that meets client requirements. To meet the needs of impaired individuals, continuous communication with clients/instructors will be important. The development process will be divided up into sprints, consisting of dividing up tasks between team members and regular meetings to share progress and adapt our goals.

Our primary interface outside of the project is with the instructor and client to receive guidance and feedback for current and future development. This communication will be handled primarily by the team manager and liaison, but extends to all members. Secondary interfaces may involve the users which include the blind and visually impaired, caretakers, emergency responders, etc.

2.2. Organizational Structure

The project team is organized in a flat structure for collaborations and easy communication with members. Since the team is relatively small, we defined each member's task as one of the major deliverables. In this way, each member will have their own area of expertise. Along with the specified tasks, each member has a duty to undertake cross-functional work (as stated by the requirements). All members of the team plan to communicate via discord and meet when deemed necessary. Group decisions will be made via general consensus. This framework makes accountability transparent.

2.3. Roles and Responsibilities

- Project Lead: Riley Nielsen

The project lead has a responsibility to direct project development. This would include leading meetings, delegating tasks, and fostering collaboration within the team. The goal of the lead is to maintain progress towards milestones, and to shine a light on areas that may need work.

- Technical Writer: Shawn Will

The technical writer must focus on the creation of accurate documentation of the prototype. This would include a user manual detailing usage of the prototype as well as other technical documents needed for the project.

- Project Liaison: Eli Lawrence

The project liaison's responsibilities include managing resources, communicating with the client, and distribution of information to team members. This job also includes keeping a log of the discussed topics and decisions during team meetings.

- Demo Lead: Anthony Devito

As demo lead, one must develop a professional and accurate presentation for the client. The demo lead is in charge of displaying necessary information that highlights important functionality of the prototype and the accomplishments made by the team.

- Requirements Analyst: Ivan Quintero

The requirements analyst must develop system requirements that accurately describe the problem our project aims to solve. Within this task, they oversee the Written Requirements Specification (WRS) document that clearly defines the requirements for the system.

- Prototype Developer: Jace Dunn

The prototype developer handles implementation behind the interface and user interaction. This would include the GUI, audio output, user-friendly navigation, and other components that meet the needs of impaired users.

Though each member has a specific role, these are more ambiguous roles as different team members can aid and take up extra responsibility when needed to progress development. Each member is expected to develop some product functionality, communicate constantly with other members, and provide regular updates to the team lead.

3. Managerial Process Plans

3.1. Management objectives and priorities

The management objectives and priorities for our project are the following, meet project deadlines, organize team roles, and keep a clean code base. Project deadlines will be set up across the semester and tracked regularly to ensure steady progress. We will use a kanban board to set up/track stories that count towards a bigger milestone in an agile style way. Team roles have been clearly assigned into four categories: Project Lead, Product Manager, Front-end Developer, and Back-end Developer. Each team role has been clearly assigned and the responsibilities are well defined. To maintain a clean code base, we will implement version control and clean code philosophies to achieve this. This in return will allow easy future scalability, promote component ownership between developers, and help minimize conflicts.

3.2. Assumptions, dependencies, and constraints

In order to plan and execute this project, we will make the following assumptions, dependencies and constraints in regards to our management:

We will assume all members will attempt meetings when available and that deadlines are met by finishing work within an appropriate time frame. The stakeholders will attend frequent feedback sessions, and the development tools will be available throughout the entirety of the project. Dependencies: Project planning will depend on the project deadlines, deliverables depend on coordination between all members of the team. Our constraints will be the requirement to complete the project within the academic semester, the scope is restricted to indoor navigation, and our team coordination depending on each member's availability.

3.3. Risk management

As our project progresses, we will be identifying new risks primarily when new environments are added. Whenever a new outside factor is added to the project, proper risk assessments will be taken to ensure we don’t hit any major snags. Of course, internal risks will also be assessed, however, those will be dealt with person to person. What we mean by this is the sections of the project each person is assigned to work in are also the sections they are expected to do risk management of. Whenever a risk is identified and action needs to be taken, as a team we will discuss how the risk will be dealt with so that no one person gets stuck fixing something (unless the assessed risk is so minor that a single person can deal with it.)

4. Technical Process Plans

4.1. Methods, tools, and techniques

Our team will use a combination of modern development practices and tools to ensure a high-quality, accessible, and maintainable final product.

- **Development Methodology:** As mentioned previously, we will follow the Agile development model. For Phase 1, our primary task is to develop requirements models and a specification for the app, with a prototype. Our work will be organized into stories on a Kanban board to track progress towards milestones.
- **Programming Language and Environment:** This application will be developed using React Native. Our primary IDE will be VS Code. The development will target modern smartphones that use sensors and the camera to provide navigation support.
- **Software and Collaboration Tools:**
    - **Version Control:** We will use Git for source code management, hosted on a GitHub repository.
    - **Communication:** All team communication will be centralized in our Discord server.
    - **Documentation Collaboration:** We will be using Google Drive to collaborate as a team on documentation.
    - **Prototyping:** For the Phase 1 mock-up, we will use a design tool like Figma or Adobe XD to create the concept drawings or GUI demonstration.
- **Quality Assurance:** To ensure the app is reliable and safe, we will implement peer code reviews through pull requests on our repository.

4.2. Software Documentation

Document	Template or Standard	Created By	Reviewed By	Target Date	Distribution
Project Plan		All	Riley	09/14/25	Canvas
WRS Document	WRS Template	All	Ivan	10/12/25	Canvas & Team Repository
User Manual	Custom	All	Shawn	10/12/25	Submitted with WRS
Meeting Records	Standard Minutes	All	Eli	Weekly	Canvas
Prototype/Mock-up	Design Tool	All	Jace	10/12/25	Presented during Final Submission
Final Presentation		All	Anthony	10/12/25	Zoom Meeting with Professor

4.3. Timeline

Dates	Plan	Meeting	Deliverables
Sept 8 - 14	- Beginning of Project -	Initial Meeting to discuss project and roles	Preliminary Project Phase 1 Plan - *Sep 14*
Sept 15 - 21	- Review feedback on Phase 1 Plan - Begin to identify requirements	None	
Sept 22 - 28	- Refine requirements - Began working on WRS and mock-up	None	
Sept 29 - Oct 5	- Develop AS-IS and TO-BE scenarios - Plan final presentation	2nd Meeting to discuss powerpoint structure and roles in presenting	
Oct 6 - 12	- Present powerpoint - Review feedback on powerpoint - Finalize deliverables	3rd Meeting to review feedback 4th Meeting to finalize WRS and mock-up	All Final Deliverables - *Oct 12*