“EyeBallin, a Navigation Application”
Preliminary Plan

Submitted to:
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Table of Contents

1 Introduction

1.1 Project Overview

The project preliminary plan outlines our application for the visually impared that helps navigate the person in an indoor setting, ie; through rooms, different floors, elevators and rooftops. This application will also help the navigator avoid miscellaneous obstacles by using the smart-phone camera to signal to the user that there is an obstacle ahead of them and that they need to move, in forms of vibration.

The main features of this application will include:

1. Voice control to interact with the app
2. Determine location and use it as context for navigation to room numbers and floors specific to that building
3. App's emergency dial reaction if user falls.

1.2 Project Deliverables

Our main and final deliverable is to deliver a navigation application that would help the visually impaired travel indoors successfully.

1. Project Phase 1: Preliminary Project Plan, 9/08/19
2. Project Phase 1: Checkup Meeting
3. Project Phase 1: Project Submission/Presentation, 10/13/19
    a. WRS document
    b. Revised Phase I plan based on your preliminary plan.
    c. A collection of your meeting records. This could be one single document, a zip package of documents, or a link to your google doc/drive address, etc.
    d. PowerPoint slides you use for your presentation.
4. Project Phase 2: Checkup Meeting
5. Project Phase 2: Final Submission

2 Project Organization

2.1 Process model

We are considering the use of prototyping as our software process model for the beginning of the project. We will make use of mockups to refine the requirements. This will allow us to further establish the user needs for the mobile application as we go from version to version. When we feel requirements are in a good place, we will change to another process model, we have not yet decided, but Agile and Spiral model are our top considerations.

2.2 Organizational structure

In order to coordinate all the requirements we have decided on a team lead to distribute and manage tasks for the entire group. A technical writer will take charge of proofreading the requirements document.

2.3 Project responsibilities

Ultimately the entire project team is responsible for the successful delivery of the product. Though we will assign individual group members to specific tasks to increase productivity. Delegating tasks will be integral to efficiently completing individual work items.

Team member assignments per deliverable according to expertise:

1. Project Plan – Entire Team
2. Requirements Specification – TBD
3. Analysis – TBD
4. Architecture Spec – TBD
5. Component/Object Specification – TBD
6. Source Code – TBD
7. Test Plan – TBD
8. Final Deliverable – Entire Team

3 Managerial Process

3.1 Management objectives and priorities

We have a very unique hands off and hands on management style that enables each team member to be creative with their own assigned tasks. We will be using a rotational system to elect a team lead for every milestone deliverable to allow the development comfortability in a leadership position for each member of the team. Our team leads for the milestones is the designator to remind the team of upcoming meetings, create the meeting times for our client and let our communication liaison know of when that will be. The team lead will also be the final reviewer and package creator for our deliverables before sending it off to our communication liaison. We will have a Technical Writer that tests the code as well as documents it for not only the client's ability to navigate the course of the process, but to also relay and present it to the consumer base in real terms.

Our end game goal is to create a quality user friendly application that a consumer will actually use, so our team leader has an important and specific role to help solidify our goal.

3.2 Assumptions, dependencies, and constraints

Our product is a navigation application for the visually impaired. As such, we are assuming that the person using the application is only visually impaired, not both blind and deaf at the same time. We are also assuming that a non-blind person is doing the initial setup for the application including downloading it from the play store

and etc. Another assumption we made is that the visually impaired humans will have hands with which they will interact with the device.

Unlike Google maps, this navigation system is constrained to work indoors, for that reason its sole purpose is to navigate people through the indoors, and we assume the maps of the building has been laid out and preloaded in the form of a pdf map of the building. Whatever details the map is missing is exactly what will be missing from the navigation application. So for a person to successfully travel indoors with just the application, depends heavily upon the quality and detail of the map provided.

3.3 Risk management

Perceived risks (in order)

1. Project requirements changing (Bolong has hinted at this)
2. Not being able to complete all the requirements
3. Time management- with so many projects this quarter it may be difficult to spend time on this one
4. Failure to monitor risks

Risk management plan in respective order

1. Use our change control plan to deal with changes in requirements when they arise
2. Set attainable requirements for ourselves. If we are falling behind after setting our retirements, communicate with our client and among ourselves to solve the problem.
3. Set more meetings for our group to devote more time to this project.
4. Use a trello board or some other software to monitor our risks and continually revise them

Monitor risks

1. Create consistent status reports and include risk management issues within our team
2. Revise risk plans according to any major changes in project schedule
3. Review and reprioritize risks, eliminating those with lowest probability
4. Think of potentially new risks after changes to project schedule or scope

Communicate risk status throughout project.

3.4 Monitoring and controlling mechanisms

Keeping stakeholders informed

1. Regular meetings with Bolong.
2. Regular group meetings twice a week to keep the group up to date on current progress.

Assessing progress related to scope

1. Assess work items according to schedule during group meetings.
2. If items are not being completed by the expected completion time, reassess schedule.

3. If items are being completed ahead of schedule, discuss possibly expanding the scope.

Change requests

1. How to measure the impact of a change on the project.
    a. What requirements does it affect?
    b. Will it require code refactoring?
    c. Will it change the demographic of the clients were aiming at?
2. As a group, we decided to unanimously vote on changes that the team lead would enforce.

Updates to project documents

1. Documents will have a version number produced by our Technical Writer.
    a. Starts at 0.1, incremental updates change the decimal point, full rewrites change the one's place.
2. Track all project documents with version control in google docs.
3. Updated documents should be marked with current version number on the title page and added to the git repository documents folder.
4. The team will be notified of the change on discord.

4 Technical Process

4.1 Methods, tools, and techniques

We will use Java and Javascript to Code the Application. The IDE we have chosen to work with is android studio. For testing purposes we will have a non blind person test the app functionality while blind-folded. The software process model we while be using is the prototyping model.

4.1.1 Tools

We are considering the use of Android Studio as our main development platform. Android Studio mainly uses Java and XAML which all of us are familiar with. We are looking into using Google Maps Indoor API to be integrated in Android Studio to allow indoor navigation and location mapping.

4.2 Software documentation

4.2.1 UML Diagrams

We will be using UML diagrams to present data in a higher level. Class diagrams, Data Flow Diagrams and Sequence diagrams will be useful in data presentation. We will make use of the free website draw.io to create our diagrams.

4.3 Project support functions

Functions to be determined as we go deeper into the project.

5 Work elements and schedule

Milestone	Team Members	Date Scheduled for Delivery	Date Delivered
Project Preliminary Plan	Dane Erosa Isaac Shultz Rebecca Rothschild Timothy Borisenko Kenzo Banaag	9/8	9/8
Checkup Meeting		9/20	
Project Phase 1: Final Submission	Dane Erosa Isaac Shultz Rebecca Rothschild Timothy Borisenko Kenzo Banaag	10/6	
Project Phase II: Checkup Meeting		10/31	
Project Phase II: Final Submission	Dane Erosa Isaac Shultz Rebecca Rothschild Timothy Borisenko Kenzo Banaag	12/8	