EyeBallin' Final Project Plan

Team Bob's Bullies

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1 Introduction

1.1 Project Overview

The project preliminary plan outlines the details for EyeBallin, an Android application for the visually impared that helps users navigate inside the Washington State University Everett campus.

Core features

1. Verbal two way communication with the application
2. Safely navigate to a user specified location
3. Notify the security officer at WSU if application detects user has fallen and user is need of assistance.

1.2 Project Deliverables

The MVP is an application that helps the visually impaired navigate the WSU Everett building on select floors. Since the final app deliverable is a prototype, the team will be mocking the user's location and navigating with buttons on-screen to avoid the added complexity of accurately monitoring a user's location with extremely limited GPS accuracy within a large concrete building.

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
    a. Final Project Plan
    b. Process Specification
    c. Vision Document
    d. WRS Document
6. Final Presentation and Prototype
    a. Powerpoint
    b. Prototype

Success criteria includes navigating to a destination within the WSU Everett building without looking at the application.

2 Project Organization

2.1 Process model

The implementation process will be based upon a prototyping model. This makes the most sense to the team since the assignment requires at least one prototype. There are several features that need to be implemented; this will help the application get iterated upon until all features are present.

2.2 Organizational structure

In order to coordinate all the requirements it has been decided that having a team lead would be ideal 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. Once development begins, tasks will be delegated to efficiently complete individual work items.

Team member assignments per deliverable according to expertise:

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

3 Managerial Process

3.1 Management objectives and priorities

Throughout the duration of this project, each team member will have a turn acting as the project manager. In this role, individuals will have the final say on decisions, mediate group activities, and conduct final reviews before project submissions. In the same way, there will be rotating Technical writers that are responsible for documenting and testing code. Individuals in this role will also be charged with recording user experiences with the application

3.2 Assumptions, dependencies, and constraints

The user is only visually impared. All other motor, cognitive and sense related capabilities are fully intact. The user participating is also expected to be using a white cane while using navigation functionality with the application. A visually abled third party is expected to perform the initial setup for the application including downloading and opening it for the user.

Perceived constraints include the indoor domain. The application as it stands will only be functional for indoor spaces. Furthermore, it will be preconfigured for only the half of the WSU Everett Building that contains classrooms. However, design choices were made that should allow for easy expansion into the rest of the building if needed.

The navigation capabilities will only be as useful as the map data that is configured. If there are some details left out of the map, the chosen path may not be optimal or even correct.

3.3 Risk management

Perceived Risks (in order)

1. Changing Project Requirements
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 the change control plan to deal with changes in requirements when they arise

2. Set attainable requirements for the team. If the team is falling behind after setting requirements and deadlines, communicate with the client and the team to reevaluate.
3. Set more meetings for the group to devote more time for this project.
4. Use a trello board or some other software to monitor risks and continually revise them

Monitor risks

1. Create consistent status reports and include risk management issues within the 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.

1. Inform relevant stakeholders of growing risks
2. Update the Perceived Risks list and reprioritize them.

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 that this project is aiming at?
2. As a group, it has been 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 team members.

    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

Java and Javascript will be used to program the application. The IDE chosen to work with is android studio. For testing purposes there will be a non blind person to test the app functionality. The software process model that will be used is the prototyping model.

4.1.1 Tools

Android Studio will be used for the development of the product. Android Studio mainly uses Java and XAML which most team members are familiar with. Other tools used include using the phones built in accelerometer and using the phone's messaging system. The google API that was initially planned to use is not being used, instead a graph for each floor has been created.

Android Studio will be used as the main IDE and project type for the application. It mainly uses Java and XAML which the team members are familiar with.

4.2 Software documentation

4.2.1 UML Diagrams

UML diagrams are used to present the system at a high level. Activity, Class diagrams, Data Flow Diagrams and Sequence diagrams are used in data presentation.

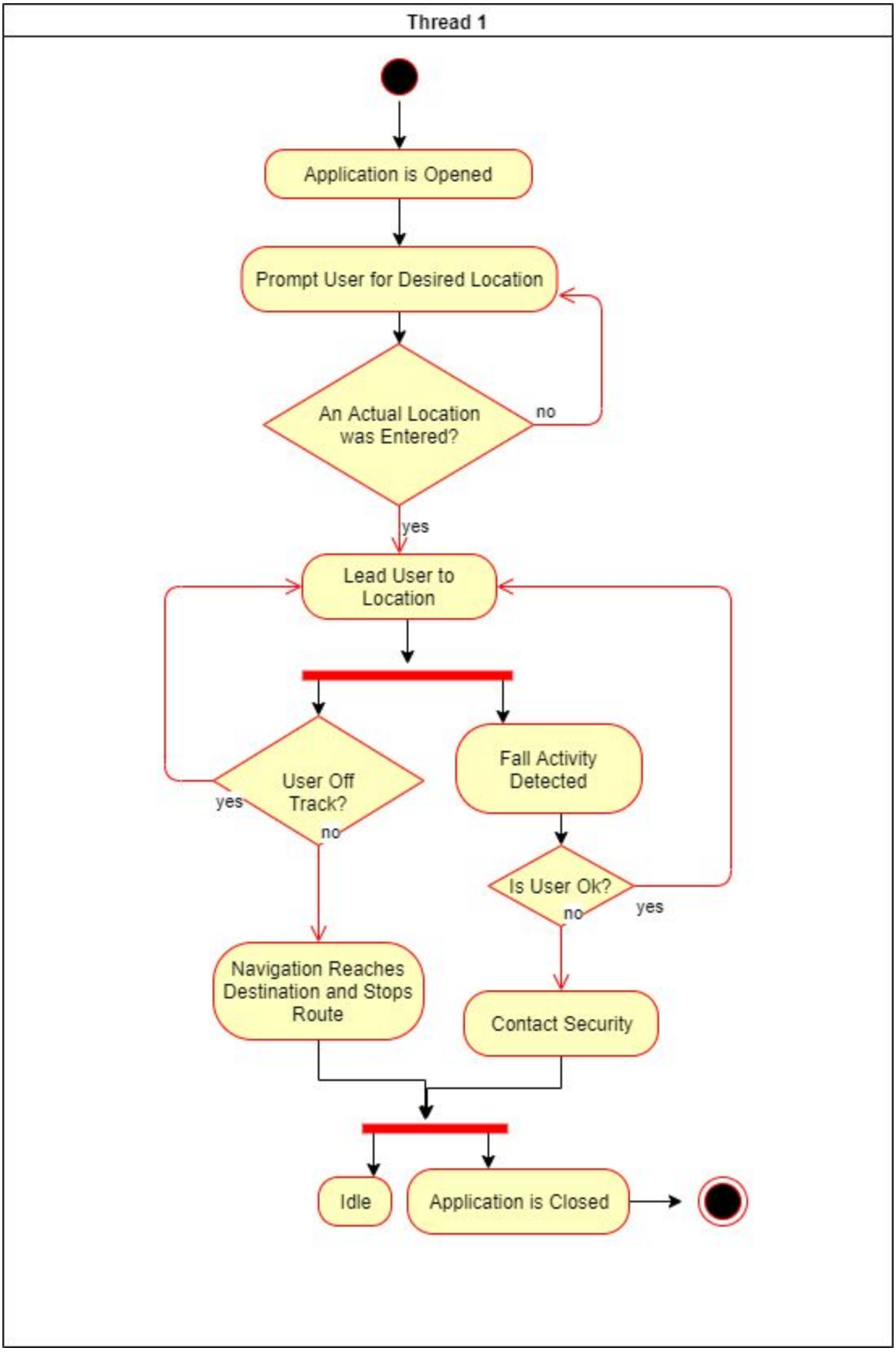

Figure 4.2.1.1 Activity Diagram for EyeBallin System

4.3 Project support functions

A form of SCRUM process model was used for development of the prototype. The team decided to have a number of SCRUM meetings per week for documentation creation, and then increase their frequency after code could begin to be written. Using this method, requirements can be refined as the prototype gets developed. And the final scope can be adjusted as needed

4.3.1 SCRUM meeting outline

Each SCRUM meeting starts with verbal communication on what work items were completed between the current SCRUM and last

5 Work elements and schedule

Phase I Milestone Plan

Milestone	Team Members	Date Scheduled for Delivery	Date Delivered
Project Preliminary Plan	Dane Erosa Isaac Shultz Rebecca Rothschild Tim Borisenko Kenzo Banaag	9/8	9/8
Checkup Meeting	Dane Erosa Isaac Shultz Rebecca Rothschild Tim Borisenko Kenzo Banaag Bolong Zeng	9/20	9/20
Project Phase 1: Final Submission	Dane Erosa Isaac Shultz Rebecca Rothschild Tim Borisenko Kenzo Banaag	10/13	10/13

Project Phase 1 Presentation	Dane Erosa Isaac Shultz Rebecca Rothschild Tim Borisenko Kenzo Banaag	10/17	10/17

Phase II Milestone Plan

Milestone	Team Members	Description	Due Date
Project Phase II: Checkup Meeting	Isaac Shultz Tim Borisenko Kenzo Banaag Bolong Zeng	N/A	10/31
Project Phase II: Voice to text system	Kenzo Banaag	Includes complete development of the voice to text system. To be used for user system interactions	11/20
Project Phase II: Fall Detection System	Tim Borisenko	Includes a detection system for when the user falls and an emergency notification system	11/20
Project Phase II: Node Distance Calculation	Isaac Shultz Tim Borisenko Kenzo Banaag	Includes manually measuring all the floors of WSU as well as setting locations of nodes	11/25
Project Phase II: Node Map Creation	Dane Erosa Rebecca Rothschild	Creating a map of all the data received from measuring and storing it in XML to allow for easy manipulation of graph data	11/27

Project Phase II: Navigation	Isaac Shultz	Create a component that can navigate through a map from the current user location to a given destination. This includes figuring out what algorithm will be used.	12/1
Project Phase II: Map Portability	Rebecca Rothschild	Creating a component to handle parsing and modification of map data in the stored XML format	12/3
Project Phase II: Route Translation	Isaac Schultz	Translating the route to be taken from vectors on the coordinate plane to english sentences that can be read to the user	12/6
Project Phase II: UI with Navigation	Kenzo Banaag	Includes creation of a few visual elements and buttons to allow for a demo of the prototype	12/8
Project Phase II: Final Submission	Dane Erosa Isaac Shultz Rebecca Rothschild Tim Borisenko Kenzo Banaag	All Document Work	12/8