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Discovery Park Digital Map
Software Requirements Specification
Version<1.0>

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1. Introduction

1.1 Purpose

Discovery Park is a difficult place to navigate if students are unfamiliar with the layout. Even if you are familiar, sometimes you need to find a new room you have never been to before quickly. The maps of Discovery Park are useful, they just can be difficult to get oriented if you don't know exactly where you are. The purpose of our digital map is to make navigating Discovery Park both easy and convenient for students.

1.2 Scope

This app will allow students to find classrooms and other points of interest within Discovery Park. The app will not connect to the internet and the user will not be able to customize the experience. It is designed to be as lightweight and easy to use as possible. The app is designed to be easily adapted and customized to other campuses and universities. In-scope items will include task creation, modification, and completion as well as a user interface with a search function. Out of scope items include path and search algorithms that work with a vector map.

1.3 Definitions

- Unity: A game engine, go to https://unity.com/ for more info
- Discovery Park: The college of engineering for the University of North Texas, separate from the main campus.
- Android: A mobile operating system made by Google for smartphones
- IOS: A mobile operating system made by Apple for smartphones
- App: A mobile application that can be run on IOS or Android
- POI: (Point of interest) a destination on campus that users would likely want to go to.
- General POI: a destination that is not distinct and can be one of several distinct destinations (bathroom, water fountain, etc.)
- svg: a file type for vector graphic images.

2. Overall Description

This is a mobile application that is designed to allow users to navigate Discovery Park at the University of North Texas. Students can enter a start point and destination, and the app will plot the shortest route to that destination. There is a text search for users to manually enter the start or destination. Users can also tap on the map to select a point of interest for the start or destination.

2.1 Product Perspective

Map software allows users to more easily go from one place to another. Offline capabilities allow the app to work even when GPS and phone signals are compromised due to an indoor environment.

2.2 Product Features

- Route plotting, users can see a route to a destination.
- Offline capability, the app will work even when no GPS or mobile signal is present.
- Walk time estimation, based on distance and average walk speed we calculate the estimated walk time to the destination.
- POI markers, allows users to find bathrooms, water fountains, cafeterias etc.

2.3 User Classes and Characteristics

Given that this is an application designed for a college campus, we expect the average user to be a young college student that is used to both mobile applications and using map software to navigate environments.

2.4 Operating Environment

A mobile application for both IOS and Android devices. We can deploy to the app store for both operating systems and users will be able to download the app from there. This allows us to save on infrastructure needed to distribute the application to users.

2.5 Design and Implementation Constraints

The app must be able to run on any mobile device for Android or IOS. This means that we must keep the computation requirements down to a minimum to allow the most users to run the software well. The unity game engine allows us to export our project to both platforms without worrying about each OS's specific Development environment and software language.

2.6 Assumptions and Dependencies

- Assumes the user has a mobile phone running either Android or IOS
- Assumes the phone has a recent enough operating system version required to run Unity applications.
- Users have basic knowledge of map applications used on mobile devices

3. Specific Requirements

3.1 Functional Requirements

- **FR1**: User should be able to select a starting point by tapping on the map.
- **FR2**: User should be able to select a destination by tapping on the map.
- **FR3**: User should be able to select a starting point by text search.
- **FR4**: User should be able to select a destination by text search.
- **FR5**: User should be able to select the nearest general POI for their destination.
- **FR6**: User should be able to zoom into and out of the map.
- **FR7**: User should be able to pan around the map.
- **FR8**: User should be able to see a route to their destination once it is confirmed.
- **FR9**: User should be able to clear their route once the route has been made.
- **FR10**: User should be able to reset their view to the default zoom and pan location.
- **FR11:** User should be able to see estimated walk time from start to destination after the destination is confirmed.
- **FR12:** User should be able to switch between the first and second floors of the map.

3.2 Non-Functional Requirements

- **NFR1**: The project should export to Android and IOS without any extra steps outside of Unity.
- **NFR2**: The project should not require an internet or GPS connection.

3.3 Interface Requirements

The interface must be simple and easy to use. It should take not more than 10 seconds on average to go from starting the app to confirming a destination.

3.4 Data Requirements

- A svg map of Discovery Park
- The locations and labels for of all rooms in Discovery Park
- The locations of all types of general POI