CECS 491A - Sec 6 - Business Requirements Document

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# **1** **Document Revisions**

| Date | Version Number | Document Changes |
| --- | --- | --- |
| 10/06/21 | 1.0 | Initial Draft |

# **2** **Approvals**

| **Role** | **Name** | **Title** | **Signature** | **Date** |
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| Client | Vatanak Vong | Professor/  Client |  | 09/24/21 |
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# **3** **Introduction**

## **3.1** **Project Summary**

### **3.1.1** **Objectives**

· Help students navigate their campus with a location based navigation service that can generate routes to desired locations and calculate it's ETA.

· Help with student's productivity through features such as schedule integration, the student wellness hub, showing availability in capacity buildings and the quick find feature.

· Make the application enjoyable to use daily through the reward's system.

### **3.1.2** **Background**

The project came to be proposed through identifying a need for students to increase their productivity through the form of campus companion. This campus companion revolves around its navigation features which would help with the student's productivity while at the same time familiarizing them with their campus.

**3.2** **Project Scope**

### **3.2.1** **In Scope Functionality**

· Display locations and traffic on campus for navigation

· Quick Find Feature for locations on map

· Display availability of capacity building

· Schedule integration

· Reward System

· Student Wellness Hub

### **3.2.2** **Out of Scope Functionality**

· Branch out the functionality of the application to campuses across the state

· Live updates of foot traffic and building capacities.

· Running advertisements for on-campus activities, shops, restaurants, and clubs.

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# **4** **Business Requirements**

**4 Requirements**

4.1

Functional:

**Requirement**: Display Locations and Routes on Interactive Map

**Scope:** A virtual map UI will be implemented showing the map of the campus with all modeled locations and routes on campus as well as the location of the user. The locations that are modeled are classroom buildings, administrative buildings, enrollment services, financial services, the Horn Center, tutoring centers for the various colleges of the university, health services building, physical health services, mental health services, Student Union building, gym, designated recreational areas, restaurants, cafeterias, shops, theaters, auditoriums, arenas, sporting fields, aquatic centers, parking structures, parking lots, water refill stations on campus and drinking fountains, gendered, unisex, and family bathrooms, family rooms, significant landmarks such as statues and water fountains found on campus and all routes and streets within and immediately around the campus. The map may be traversed by being able to scroll through it and zoom it in and out. Modeled Locations on map display info when selected such as hours of operation and location name and the routes always display information showing their foot traffic and denoting the type of transportation allowed on these routes.

**Dependency:** This feature is not dependent on any other feature in the application, every other feature in the application is dependent on this feature being implemented as other features constantly reference or redirect to locations modeled on the interactive map.

**Value:** This feature helps the user know where everything is on campus allowing them to explore the campus through the map and shows them where a preferred location they would like to travel to is on campus.

Non-functional:

4.2

Functional:

**Requirement:** Route generation

**Scope:** Generate route from the user's current location to any preferred location through the routes that are modeled on the map when the location is selected anywhere in the app and the route calculates the ETA of routes generated by taking into account foot traffic (which comes from a default model of foot traffic data then later on baseline data gathered from a survey), distance and transportation method.

**Dependency:** Route generation is dependent on the Interactive map feature as it uses the user location, modeled routes and modeled locations from the interactive map to create a route to a desired location. The foot traffic used to calculate ETA will eventually be dependent on baseline data gathered through surveying users when the default foot traffic model is phased out.

**Value:** Route generation helps a user by navigating them to a preferred location on campus and its ETA information allows them to arrive at their destination on time aiding students with their time management.

Non-functional:

4.3

Functional:

**Requirement:** Show availability in capacity buildings

**Scope:**  Shows availability in the three most important capacity buildings on campus that students can utilize: the USU, library, and gym. Availability will be determined through a prediction model based on data that's already available then based on baseline data gathered through user surveys.

**Dependency:** Availability of capacity building will be shown when they are selected on the virtual map therefore it is dependent on the virtual map feature as information regarding building capacity is linked to the modeled location of these capacity buildings on the map. Information provided is also dependent on the data gathered by users in surveys to determine the availability in capacity buildings.

**Value:**  This feature is meant to save users the potential time wasted should they arrive at a location (such as the gym or library) and not be able to use the resources they offer. Time is a nonrenewable resource and therefore is crucial in optimizing its use.

Non-functional:

4.4

Functional:

**Requirement:** Quick Find feature

**Scope:** The Quick Find feature has an alphabetical list of all locations on campus that are modeled on the interactive map for the user to scroll through to find a specific modeled location and a text search function to find a specific modeled location and select it so that the app will highlight the location on the map. Once highlighted on the map the user may select it to generate a route using the route generation function on the interactive map.

**Dependency:** This function is dependent on the interactive map as the locations that can be found through the Quick Find Feature have to be modeled on the interactive map in order for it to be highlighted on the map when selected. Once highlighted on the map the user can select it to generate a route.

**Value:** If a user has a specific location in mind the Quick Find feature can help them find it in a more efficient manner than scrolling and looking for it in the virtual map. This feature makes it easier for users to find specific locations on campus without wasting time scrolling through the map trying to find said location.

Non-functional:

4.5

Functional:

**Requirement:** Schedule Integration

**Scope:** In the schedule integration feature the user can customize their schedule by adding, editing or deleting classes. When creating a class the user must insert the name of the class, the date and time of the class and the building in which the class takes place so that it may be highlighted on the map on the day that the class takes place.

**Dependency:** The schedule integration is dependent on the interactive map feature as it needs for the buildings in which classes take place to be modeled on the map so that it may be highlighted on the map on the days the class takes place. Once highlighted on the map the user can select it to generate a route.

**Value:** This will show the user where on campus their classes will take place on the day the classes take place in order to help the student navigate through campus and gives them a reminder of which class they have for the day so that they do not forget and miss a class.

Non-functional:

4.6

Functional:

**Requirement:** Student Wellness Hub

**Scope:** The Student Wellness hub has three sections to it, the mental health section, the physical health section and the hydration reminder. The mental health section highlights recreational locations for stress relief, psychological services and services for mental disabilities on the map. The physical health section highlights medical service locations, recreational locations for fitness and services for physical disabilities on the map. Recreational time for the improvement of student wellness can be scheduled weekly by the user through setting up reminders. The hydration reminder section takes in the weight of the user to calculate their hydration baseline and allows them to edit the amount of water they will drink during their time on campus. They can customize their reminders by dividing the amount of reminders they want in between the time they are on campus. Once a reminder is sent the nearest water fountain or water refill station will be highlighted on the interactive map.

**Dependency:** The Student wellness hub is dependent on the interactive map feature as all locations from all three sections whether it be the mental health section, the physical health section and the hydration reminder section have to be modeled on that interactive map first for it to be highlighted when accessed from the Student Wellness hub. Once highlighted on the map the user can select it to generate a route.

**Value:** The student wellness hub will aid students in maintaining their health. Although this feature does not guarantee that the student’s wellness will be improved, the information that this feature provides can provide assistance to the student should they choose to pursue it.

Non-functional:

4.7

Functional:

**Requirement:** Reward System

**Scope:** Developers create new weekly locations objectives and random easter eggs which rewards user's with points when they complete the objectives or find the easter eggs. These points can be used to redeem them for prizes which are discounts for use on stores and restaurants on campus.

**Dependency:** The reward system will need the user's location from the interactive map in order to determine if the user has found the easter egg on campus to gain points and to determine if the user has completed the objectives of visiting certain locations.

**Value:** This introduces a gamification strategy to the application in order for the user to come back and continue using the application on a daily basis with the incentive of prizes.

Non-functional:

4.8

Functional:

**Requirement:** User Surveys to build baseline data

**Scope:** Users are anonymously surveyed by the application to build baseline data for foot traffic and building capacity. The survey asks the user for their location, whether it be a specific route or one of the three capacity buildings, to state the date and time they visit their location and to rate a route on an incremental level of "Peak Times","Off-Peak Hours","Medium-Peak Hours and to rate a capacity building on a scale of 1-3 to represent completely empty (1), medium filled (2), or completely full (3) based on criteria given to them by the app.

**Dependency:** This function is based on both the route generating feature and the capacity buildings feature as the baseline data that it generates through it's surveys will be used to display the foot traffic and the availability in the capacity buildings.

**Value:** This feature will help the app display up to date and accurate information for the foot traffic and capacity building which will help students with their time management through the other features that this feature is dependent on.

Non-functional:

**NFR**

**Non-Functional Requirement:** After an interaction, changes in the UI should load within 5 seconds.

**Scope:** Users interact with the applications to accomplish a task.

**Dependency:** Based on whether or not a user interacts with the application, creating a need for a change in the UI.

**Value:** Ensure that the application does not get stuck/locked and responds to the user’s input.

4.2.2

**Non-Functional Requirement:** Hide/censor inputting password when logging into the application.

**Scope:** Users log into the application using their account username and password. Once entered, the user is granted access to the application.

**Dependency:** The login requires the user’s username and password in order to access the application.

**Value:** Keep pertinent information confidential and help ensure user account security.

4.2.3

**Non-Functional Requirement:** Display error messages when there is an invalid input

**Scope:** Whenever the user is required to input information into the application, the entered information may not be specific to what is being asked by the application. Accounting for these instances through error messages provide a way for the user to understand what they submitted was not what was asked.

**Dependency:** The type of information provided by the user is not what was asked by the application and therefore cannot be sent through.

**Value:** Helps the user in realizing they did not properly input the information asked, and prevents the application from crashing or not operating.

\*\*Use for copying a pasting when writing other NFRs, delete later

**Non-Functional Requirement:**

**Scope:**

**Dependency:**

**Value:**