CECS 491A - Sec 6 - Project Proposal

Project Name: ArrowNav

Team Longhorn:

Brayan Fuentes

Christian Lucatero

Curtis Nishihira

Miguel Zavala

Spencer Gravel (Team Leader)

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Overview

Our project is a mobile application for download on Android, specifically a type of campus companion, that provides useful information and assistance to both new and current students at California State University Long Beach. The application will be free to download, and its primary function will be to display locations, provide foot traffic updates, integrate student schedules into their accounts for the application, and much more. Initially, our plan is to code this application in C#, but are willing/capable of switching languages should it become necessary.

Vision

The final vision for the application will be to have a map of campus capable of displaying and locating all buildings, shops, restaurants, and points of interest to all university campuses in the state of California. Furthermore, the application will be able to integrate student schedules and display traffic flow for all campuses based on the university. The application will make it easier for students to navigate campus while still making it an interactive and enjoyable application to use on a semi-regular basis through convenience, incentives, and usability. The application will also be able to run advertisements for on-campus activities, shops, restaurants, and clubs.

Competitors

A majority of our competitors, with regard to this mobile application, are indirect. Theme Park applications have a similar UI in comparison to our application, but those applications only show wait times for rides specifically for that theme park. Our application, although similar in their UI, will display the foot traffic on walkways and routes specific to the California State University Long Beach campus.

Another indirect competitor is any application with navigation features (Google Maps, Waze, etc.). These applications are more geared towards providing directions and traffic times along roads that allow for automobiles to traverse. Although it can be argued that these applications also account for other modes of transportation (walking, biking, etc.), they only provide directions to the overall location. Our application is more focused on foot traffic and all buildings and routes of the campus. In a sense, our application is more condensed and specific to the area.

The CSULB app is another indirect competitor. This app provides information for those on campus but does not have the other unique features that our application provides. The common factor between the CSULB app and our application is the audience they appeal to. Both applications are more geared towards both new and returning students and provide useful information that could benefit students.

Lastly, apps that provide geocaching features are an indirect competitor. Our application’s primary function is to provide foot traffic updates on campus routes. The geocaching feature on our application is to help incentivize students to visit parts of campus. General geocaching apps encompass an extremely large area, whereas our application is specifically geared towards the California State University Long Beach’s campus.

Unique Features

**Display locations and traffic on campus**

* Virtual map of campus that shows and highlights all buildings and points of interest on campus as well as all routes within the campus. These points of interest would be all buildings and the special offerings inside such as shops, convenience stores and restaurants. The virtual interactive map will be limited to only show routes and streets within and immediately around the perimeter of the campus but will not model any streets beyond that. Furthermore, the app will not model the location of each and every classroom and special offering but would rather show a user the buildings these places are located in.
* Show how long it would take to travel from the current location, to an available entrance to all buildings on campus by taking several elements into account such as mode of transportation, traffic, and route used. Only modes of transportation that will be considered are the ones allowed by the university such as skateboards and bikes. Students using skateboards and bikes will only be allowed to take routes where such vehicles are allowed to be in use.(i.e. bicycle and skate paths designated by the university)
* Account for the direction the student is walking (uphill or downhill) and account for different modes of transportation (walking and skating) which will promote safe travels and avoid collisions between pedestrians and people using more convenient forms of transportation. This would be done by showing a user with a skateboard or bicycle whether a downhill path, which would be harder to maneuver and quickly brake, is more congested than another allowing them to know ahead of time which route would be safer to navigate and avoid collisions.
* Show foot traffic during different times of the day on campus. This will affect the estimated time of travel between locations based on foot traffic at the time. Overall volume of traffic will be denoted on an incremental level system i.e ("Peak Times","Off-Peak Hours","Medium-Peak Hours")

**Availability in capacity buildings**

* Show availability in capacity buildings such as the library and gym. This function of the application will not consider every single individual within these buildings but would rather consider the availability of these capacity buildings. Availability will be determined by noticeable changes in traffic flow through data gathered through the application as well as the number of users using the application within the designated capacity building that is nearing the occupant capacity.

**Schedule integration in user account**

* Input student schedules into accounts so that students can recall their schedule easily. The application will only allow for current students of the university to input their schedules, as well as only be allowed to input classes that are approved by the university. These allowed classes would be dictated by the official class schedule provided by the university.
* Provides features for editing, deleting, and viewing schedule(s) on application. Students can complete different semesters with different schedules, and therefore need a means to alter their schedules on their accounts based on what classes they are currently taking. Furthermore, students can either drop, swap, or add classes during the semester, and as such would require the schedule on the application to change accordingly.
* Display class locations for different days throughout the week to help with student time management by functioning as a sort of itinerary for a student for each day. The display of class locations will only show the building a certain class is located on the virtual map along with information pertaining to the course associated with the class.

**Reward/Achievement system**

* When certain requirements on the app are met, such as distance the user has traveled, the user account is awarded points. These requirements will be preset challenges made by the developers that will balance out the 'economy' of the rewards program
* The points will act as a form of substitutional nonofficial currency. These points are only specific to the application and not applicable anywhere else.
* Rewards for using the app consistently, creates an incentive to use the application.
* Rewards that can be purchased with these points will be decided on by the developers and will be limited to on-campus offerings. For example, these points can then be used to acquire deals and/or discounts to on-campus shops and restaurants.

**Campus information that is specific to the campus**

* Application would provide phone numbers of the Health Center, Campus Police, and local emergency services. This function will allow for these important numbers to be easily accessible at all times while the application is open.
* There is a quick dial option where these numbers are displayed as clickable links that will immediately instantiate a call. This will save time as the user will not have to close the app for the information then open and dial on another.
* The numbers that are available are limited to the emergency numbers of the specific campus.

**Geocache system**

* Weekly campus scavenger hunt where students are given a clue and search for hidden “treasure” located on campus.
* Incentivizes students to visit certain locations on campus through this fun game mode.
* Clues for the geocache are provided on the application by the developers.
* Users who find the geocache are awarded points on the application which can be redeemed for deals/discounts through the rewards system.
* Multiple easter eggs will be hidden in the app as well to provide more unpredictable and amusing rewards (i.e., you went to the library at 2:00 PM on a Friday).
* This function will be updated on a weekly basis and rewards and challenges will be set by the developers of the app. The developers will be limited to locations already on the virtual map which in itself is limited to the modeled locations of the campus.

Thank you for taking the time to look over the project proposal. On behalf of everyone here on Team Longhorn, we hope you have a nice day.

Sincerely,

Spencer Gravel