CECS 491A - Sec 6 - Project Proposal

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Overview

Our project is a web application that will be available on the current version of Firefox (mobile version 37.0). This application is 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's primary function will be to display locations, provide foot traffic updates, integrate student schedules into their accounts for the application, and increase student productivity while on campus through a variety of features. During development, the developers will stick to web standards and should Firefox update at any point during development, developers will continue to produce the application to run on Firefox (mobile version 37.0).

Vision

The final vision for the application will be to have a map of campus capable of displaying and locating all buildings, shops, and restaurants 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 and increase their productivity on campus while still making it an interactive and enjoyable application to use on a semi-regular basis through convenience, incentives, and usability. In the future we hope the application will be able to have up to date traffic monitoring and building capacity through traffic data monitoring and also be able to run advertisements for on-campus activities, shops, restaurants, and clubs.

Competitors

A majority of our competitors, with regard to this web 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.

Fitness apps will be another indirect competitor as our application promotes physical fitness for the user through our feature that focuses on maintaining physical well being such as setting fitness goals, having a stepper tracker and having a water intake tracker. In our application however these functions are specifically tailored to the campus, with the water intake tracker being linked to a location feature that will tell the user where on campus they can refill on water and the function of setting fitness goals having schedule integration so that it will fit into the busy schedule of an on campus student.

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 (and eventually other California university campuses).

Unique Features

**Display locations and traffic on campus**

* There will be an interactive map of campus that allows the user to scroll through the campus to select and highlight buildings and various other points of interest on campus.
* This is a complete list of what will be on the interactive virtual map:
  + 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 and 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
  + all routes and streets within and immediately around the campus
* Routes and streets shown will be limited to those within and immediately around the perimeter of the campus but will not model any streets beyond that. Routes will denote the type of transportation that are allowed on them and what forms of transportation are not allowed to be used on them.
* All locations and all services will have their specific hours of operation displayed on the virtual map.
* The application 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.
* The application will 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) Additionally the location of bike racks and skate lockers would be available to users.
* 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").
* The application will also show the busyness of the three important recreational buildings on campus, the student union building, the gym and the library.
* Due to the limit of the project's current resources this foot traffic and building capacity will start off with a model prediction based on data about the campus that is already available regarding peak times of foot traffic and building capacity.The application will then use an anonymous surveying system where the user just states the location they are currently at, the time, the date and report on foot traffic or building capacity based on the parameters set by the incremental level system i.e ("Peak Times","Off-Peak Hours","Medium-Peak Hours"). The survey will also ask for any out of the ordinary occurrence that may be taking place at the user's location which might be affecting the foot traffic or building capacity such as protest demonstrations, special events such as a club rush, etc and take those factors into account.
* We will be surveying users until the application has enough data from our user base to build a baseline of data in order to transition from the original model to using location and traffic data from the users to provide more accurate data for foot traffic and building capacity.

**Quick Find Feature**

* 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.
* The application will provide the user with a list with all the locations modeled in the virtual map in alphabetical order.
* The user can then scroll through the list, or use a search text mechanism with filter options, to find the specific location they had in mind and click on it which will then automatically scroll to the location on the virtual map and put a pin to it generating a route to this location. The filter options mentioned earlier are to find specific services within locations such as restrooms in a certain building.
* The quick find feature also has a function that will allow the user to "favorite" certain locations so they can immediately access one of their favorite locations on the 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.

**Availability in capacity buildings**

* The application will show availability in the capacity buildings of the three most important capacity buildings on campus that all students can utilize: the USU, library, and gym. 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.
* This function of the application will not consider every single individual within these buildings but would rather consider the general availability of these capacity buildings using the same way foot traffic is determined. Availability will be determined through a rudimentary predictive system based on data that's already available.
* The app will survey the users anonymously to build a baseline of data regarding the fullness of these capacity buildings. It will ask for date, location and fullness of the location from the user and also ask for any out of the ordinary events taking place such as finals weeks which would change the normal fullness of the library and weather events such as rain which would change the normal fullness of the USU and be taken into account.
* When surveying the user for the capacity of the building they are at, the fullness of a building will be based on specific criteria for each rating so it is not opinion based. This criteria will include if they can walk freely without bumping into other students, if all the seats in a building are taken, if there are seats available, if there are more than 10 seats available, and if there are at least 10 computer or gym equipment available.
* The capacity is graded on a scale of 1-3 to represent completely empty (1), medium filled (2), or completely full (3).

**Schedule integration in user account**

* The main functionality of this feature will allow students to manually input their schedules into their accounts so that students can recall their schedule easily.
* They will input each class's time which includes the days, and the location of the class. The location of the class will be highlighted on the map on the day those classes take place.
* 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. The display of class locations will only show the building and classroom number of a certain class that is located on the virtual map along with information pertaining to the course associated with the class.

**Reward System**

* When certain requirements on the application 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.
* Awarding points for using the application consistently creates an incentive to use the application.
* Rewards that can be purchased with these points will be decided by the developers along with mutual agreements and partnerships between parties offering said rewards. These rewards will be limited to on-campus offerings. For example, points can be used to acquire deals and/or discounts to on-campus shops and restaurants.
* To keep the rewards system interesting and updated, a weekly campus scavenger hunt will happen where students are given a clue through the application and search for a hidden “treasure” located on campus.
  + Incentivizes students to visit certain locations on campus through this fun game mode.
  + Clues for the treasure hunt are provided on the application by the developers.
  + Users who find the treasure will find a code. Inputting the code into the application will award the user points to redeem for deals and discounts. Codes can only be input and redeemed once. Attempts to redeem a single code multiple times will not work or award more points to the user’s account.
  + This function will be updated on a weekly basis and rewards and challenges will be set by the developers of the application. The developers will be limited to locations already on the virtual map which in itself is limited to the modeled locations of the campus. The treasure will be accessible to all users using the application (i.e. someone who is physically or mentally handicapped can still gain access to the treasure).
* Multiple easter eggs will be hidden in the application as well to provide more unpredictable and amusing scenarios for gathering points (i.e., you went to the library at 2:00 PM on a Friday).

**Student Wellness Hub**

* There will be a student wellness hub which 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.
* There will be 3 sections in this feature: a Hydration reminder, a Mental Health section and the Physical Health section.
* There is a hydration reminder and this feature is aiming to solve the problem of students neglecting their water intake during their busy schedule.
* Their intake function will give the user periodic reminders during the day to promote hydration. It takes into account the users daily recommended amount of water they should drink which will be determined by information input by the user.
  + The formula takes the user's weight in pounds and multiplies it by 2/3 (0.66) to get their daily amount of water in fluid ounces. This amount is just a base amount and the user may add ounces of water to that amount to take into account any dehydration caused by physical activity.
* This feature has a notification function where the user may customize the amount of times per day and at what time intervals they would like to be reminded to drink water. (For example if the user will be on campus for 8 hours and would like to be reminded four times during the day the amount of water they would need will be split into four portions and be reminded to drink a portion in two hour intervals)
* When the user gets a reminder, the student will be shown the closest water fountain or water bottle refill station on the map relative to his/her location and generate a route towards it.
* The user may log the amount of water they drank and the application will take it into account until they reach their set daily intake.
* In the physical health section it immediately shows the student all physical health service locations on campus by highlighting them on the map and then the student may choose one to be immediately given a route to. This includes recreational locations for fitness such as the gym, swimming pools and other facilities on campus that are open to students such as open sporting fields. This section also includes the BMAC which is a building dedicated towards health service for students with disabilities, in this case it would be for students with physical disabilities.
* In the mental health section it immediately shows the student all mental health service locations on campus by highlighting them on the map and then the student may choose one to be immediately given a route to. This includes the BMAC which is a building dedicated towards health service for students with disabilities, in this case it would be for students with mental disabilities. This also has a list of locations that will help students in handling their stress by listing recreational locations such as the USU or gym as well as quiet locations around campus for meditation or silent study such as the koi pond or the quiet study areas located in the library.
* For all facilities and services mentioned prior, hours of operation that are specific to the facilities and services will be displayed for users as the hours of the facility and service may be different to each other despite that service being located within a facility.
* The recreation time for the improvement of physical and mental health mentioned before can be scheduled by the user and it is customizable for the user by setting reminders daily or planning out a complete week of activity ahead of time to aid in a user's time management.
* The application will only let the user set reminders for recreational time to be scheduled in gaps between classes to ensure the user may use any of the facilities and services at times that do not conflict with his/her classes. The application will also let this user schedule use of facilities and their services at times that are within their specific hours of operation.