Requirements Document

CTFastrak Application

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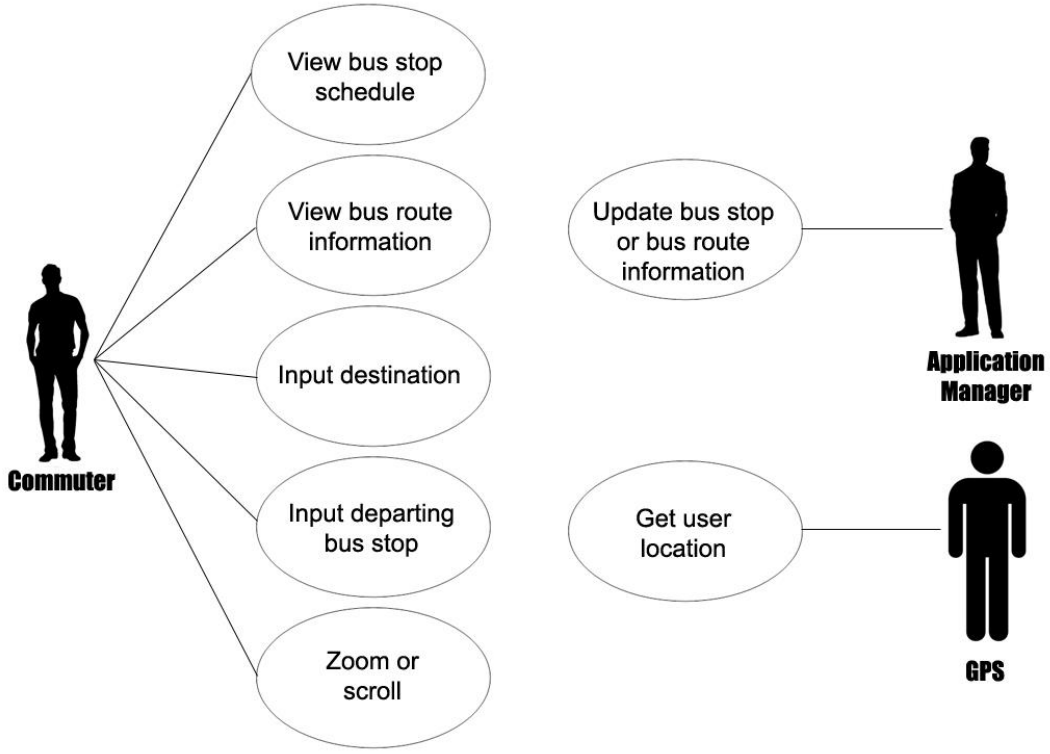
I. Overview of Systems Functional Requirements:

The CTFastrak mobile application will be a system used by CTFastrak commuters and maintained by one or more application managers. The user will be shown a map of CTFastrak routes and a search bar. The user will be able to scroll and zoom in or out of the map. For the system to find a route, the commuter must select a bus stop on the map or enter a location in the search bar as a destination. The user will have a choice of either finding the nearest departure location via GPS, or by manually entering the departure bus stop him or herself. The system will determine a route for the commuter with the departure and arrival location selected. Beyond the commuter's control, if there are any changes necessary for a bus stop or bus route, the application manager must be able to update any buses estimated arrival time, the current bus routes in place, and the information given at a bus stop.



Functional Requirements:

- The client must be able to zoom in and out of the map
- The client must be able to input an arrival bus stop
- The system must have a departure bus stop
- The system must find a route between two locations using CTFastrak buses
- The application manager must be able to change or update information regarding buses' estimated arrival times, current bus routes, or the information provided to the user when clicking on a bus stop

II. User Stories:

1. As a commuter, I want to view bus route information so that I may be able to view where a bus will stop along its route.
    - Pre Condition: Color highlighted bus routes are visible on the map or are selectable from search bar
    - Post Condition: The selected bus route is accentuated along with the bus stops along the selected route
2. As a commuter, I want to view a bus stop schedule so that I will be able to view the approaching buses that will arrive at a specific bus stop.
    - Pre Condition: The bus stop is selectable on the map or search bar
    - Post Condition: The system tells the user the bus schedule for that stop and the next arriving bus
3. As a commuter, I want to input my destination so that the app can calculate the nearest bus stop.
    - Precondition: Destination must be a real location along CTFastrak routes
    - Postcondition: App generates route to bus stop based on user location and user preferences
4. As a commuter, I want to select which bus stop to depart from because the one the nearest bus stop might not be preferred.
    - Precondition: Bus stop must still have an incoming bus for the day
    - Postcondition: The route is updated to show the user's new arrival time

5. As a commuter, I want to scroll and zoom in and out on the map so that I can examine points of interest on the map.
    - Precondition: The current section of the map is fully loaded into the system
    - Postcondition: The app displays the new section of the map
6. As an application manager, I want to update information so that the commuters can accurately see the current bus schedule for bus routes and bus stops and so that the app's data is up to date.
    - Precondition: The route or bus stop must be valid on the map and the information can only be edited by the application manager
    - Postcondition: The bus route information is updated, accounting every bus stop on the selected route

III. Complex User Stories

User stories #1-5 do not seem like they need to be broken down, but #6 seems like it would be the most complex user story considering that the application manager will be able to change both the bus routes and bus stops along a route. This may have to be broken down into smaller and more specific user stories.

IV. Non-Functional Requirements

- The different service routes will be distinguishable on the map by being separately colored
- The route between two locations will be affected by user preferences (quickest time, fewest stops, fewest transfers, etc...)
- The route should be calculated within a quick amount of time
- The client may be able to use GPS to find the nearest bus stop(s)
- The system will display the next incoming bus to a bus stop through real-time info
- The maximum map size is restricted to the areas surrounding the CTFastrak service map

V. Glossary:

- CTFastrak: A regional bus rapid transit system operating in central Connecticut.
- Commuter: A system client who intends to use the CTFastrak system as a method of transportation.
- Application manager: A CTFastrak employee who is responsible for keeping CTFastrak data up to date.
- GPS (Global Positioning System): A global navigation satellite system will provide the current location of a user.
- Accentuated: All other visible routes fade in color except for the selected route