Software Engineering CTFastTrak API Project
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# Project proposal: CTFastTrak Live Map and Routes

## 1. Intended use of the system: who and how will use the system?

The intended users for this system are:

- People with internet access looking to view live data on a computer or mobile device.
- People traveling within the New Britain/Hartford area.
- People without cars.
- People commuting to and from work.
- Responsible college students enjoying the night life.

The system will primarily be used for these actions:

- Getting locations - Looking up where the nearest bus to individual is, getting an individual's location and comparing it to the nearest arriving bus.
- Setting destinations - Users deciding where to go use the system to figure out at which stops to get on and off.
- Picking routes - The system will provide multiple options for routes based on destinations and bus availability. The optimal route is displayed first.
- Getting bus information - The system can provide information about bus number, arrival/departure time, current location, etc.
- Getting bus stop info - The system will provide information about bus stop locations, next arrival, and next departure times for stops.
- Displaying notifications - In the situation that a bus is broken down, delayed, or a time change or other event, the system will notify the user via some type of message (whether it be on the web app, email, etc).

A typical use case includes:
A rider is looking for the information described above (locations, destinations, routes, bus and bus stop information, and notifications).
A map API takes care of location and route information and calculates route data to display to the user.
A GTFS feed provides notifications for real-time changes or updates based on traffic and bus conditions.

## 2. Its overall functionality: what will the system do, how will the system help its users accomplish their tasks?

The system will provide live and accurate information with real-time notifications to allow users to plan an optimal transit route via the CTFastTrak system. The system will visually display CTFastTrak data in a meaningful way for users and do calculations on top of the CTFastTrak data and map data in order to plan the optimal user route based on the user's given parameters.

## 3. Main components of the system: break down the system into logical or architectural components and provide the rationale for this breakdown.

1. The map API and tools for the visual representation of data. - This is a big component that has to be learned and integrated with the data from CTFastTrak.
2. The GTFS data for real-time updates from the system. - This is the most valuable data set from CTFastTrak that has to be designed with proper notifications on mobile.
3. The JSON data for information about the system. - The backbone of the system that allows the user to get bus information.
4. The client-side interface for the user (both computer and mobile responsive). - The component that requires visual and design work and needs to provide a smooth user experience.