Project proposal: CTFastTrak Live Map and Routes

Software Engineering CTFastTrak API Project

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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.