TeamSpark Project Proposal

Objective:

Public transit is an important tool for those looking to ease their commutes. Our objective is to build a website which provide access to real-time transit information which are quick, convenient rapid transit connecting all parts of the city for CT bus rides.

This website will be used by the individuals to commute from one place to another, and also locate near-by bus stops, plan trips and they can set alerts in real time. Notifications banner if any important news to convey about the route.

Features and functionalities:

1. Trip Planner

a) Finding a route between source/your location and destination

- Will provide a source textbox, destination textbox where users can enter source/current location and destination.
- There will be a search button, once user click on the button system will pull data about possible routes and display to the user.
- Also, system will display all bus stops present on that particular route.

b) Finding a route for a line

- There will be a search box to provide route number and a search button which user can click to extract the route information.
- System will pull route information and display users.
- System will display all bus stops present on that particular route.

c) Bus stop's schedules:

- Each bus stop will display next few approaching buses information.

d) Locate nearest Bus stop:

- Once user identify the route
- There will be a search box to search user location, once after user hit on search button, system should display 2 or 3 nearest bus stops, so that user can pick anyone which is closer to him/her.

2. Exploratory Map View

- Display bus stops on the map
- Bus View- Identify buses on the map

3. Notification

- User can set alerts for bus arrival time. This feature will help people who are busy with other work or unfamiliar with the area to make sure they don't miss their bus.

Added features:

Website have user login, adding routes to favorites and can view recent destination.

Future Enhancements:

- This system can be enhanced to accommodate admin functionalities, like route update, addition or removal of route, addition or removal of the bus stops.

- **Service Alerts:** Whenever transit schedules change infrequently like reroutes, skipped stops, or canceled service

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Main components of the system:

Component 1 : User Interfaces

1. Main & Admin Page
2. Query component (to accept the user inputs and provide the result on the Map)
3. Help (instruction manual)
4. Settings Page
5. About (contains brief explanation of the system and contacts)

Component 2 – Google Map API

1. Identify the current user location
2. Identify the nearby bus stops

Component 3 -Routing Analyzer

Routing analyzer determines the best path based on the input constraints and can display multiple possible routes and presents the respective map for the same.

Component 4 -Stops and Location Tracker

Users will have an option to select the bus stop and view next few approaching buses. The location tracker will detect the current location of the bus and send the information back.

Component 5- Data store: Static and Real time

Data store is aggregation of feeds and operators. Transit applications are developed based on the data feeds to provide real-time information to transit riders. Real-time data feeds are available for vehicle positions, trip updates, and alerts as well as a combined feed, which includes all three. These feeds are provided in both GTFS-real time and JSON formats.

System Design Diagram: