**Project Proposal - CTFastrak Application**

**Team V.T.D.**

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**Intended use:**

A web based geographic information system designed for riders of the CTFastrack public transportation service operating in the central Connecticut region. All riders with access to an internet enabled device equipped with a modern web-browser will be able to access the system website. The system will calculate routing information based on a user provided criteria such as a starting location and destination(s). Detailed information about buses and bus stops will also be accessible by clicking on their corresponding map objects.

**Overall functionality:**

The application will provide the following functions:

* Calculate a ride based on time, location, and one or multiple destinations.
* Allow user to rearrange their destinations
* Suggest the best route.
* Provide alternate routes to minimize distance, time, or fare.
* Display complete routes from start to final destination.
* Real time calculation of expected travel time.
* Users can zoom in or out of the map.
* Locate the nearest bus stop to the current location and destination.
* Detailed display of a chosen bus (e.g. its number, distance/estimated time to next stop).
* Display service alerts about events that may affect travel.
* Email subscription for service alerts.
* Form for user input, review, and suggestions.

**Main Components:**

Service Provider- This is an external resource that will provide our application with live data. The Datafeeds component will send out requests and accept data from the service provider.

Google API- This is an external resource that will provide us with map services. This will include the base maps and methods for interacting with geographic data.

Datafeeds - Datafeeds will send out requests for live data. Then it accepts, extracts, and formats the raw data. It will be able to handle the data in JSON or GTFS-realtime formats as provided by the Service Provider.

Interface Controller- This component can accept data from the Google API and the Datafeeds. This dynamic data will be stored by the Interface Controller and updated as necessary. Queries from the User Interface is interpreted by this component. This component will respond to queries from the User Interface and send live data updates.

User Interface- The user interface is the only component that interacts directly with the user and accepts user queries. In response to user interaction, this component displays real-time information and details about the routes, bus-stops, and other map data. This component feeds user queries to the Interface Controller.

Email Service- The email service will take the user input through the Interface Controller and give updates to the user by processing the real time information from our external service providers.