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Meeting time: July 20, 2021 Tuesday at 12 PM

Having worked on the project for half a week, there is little change to our objective between the project plan and now. However, I'll note a few updates to our project plan here.

> **The objective** of this project is to provide an interactive tool that reasonably models vehicular traffic and emissions caused by said vehicles on a particular road in real time. This tool will likely be a map that users can zoom in and out of and look at any road they please.

Despite not being nearly as accurate as we'd like, this is still the ultimate goal of our website. In addition, we will be adding a page describing the model and some of its pitfalls.

> **Our goal** is to provide this information to the highest degree of resolution: a road by road basis. As research expands this information may be limited to city blocks, zip codes, or even cities. To do this, we will need to explore our possibilities by researching historical data sets or APIs that provide information in real time of a particular road's traffic. Using that, plus emission related data should provide us the data we need to model a road's emission cost in real time.

Fortunately, there are plenty of APIs that provide traffic conditions on a road by road basis. Some key pieces of data these APIs provide is traffic speed, a "jam factor" rating, road closures, speed limits, and lane counts. Unfortunately, these APIs don't provide an approximate number of cars on the road. It is simply not easy nor relevant for many applications for API sources to provide such a metric. However, mixing these values with the map API's lane count can give us a pretty okay approximation of the number of cars on the road at a given moment.

After research is complete, we will utilize our team of five to the fullest extent by hosting a website that pulls this data together to create the interactive tool described above. To develop this product, we will have four week long sprints with daily stand ups in our Discord chat server. Each person will have tickets that are completed when they meet their acceptance criteria and are thoroughly tested.

No update here. We have been sticking to this plan and it seems to be working well.

Given the agile **structure of the team**, no person will be wearing only one hat. During sprint planning, the team will volunteer which tickets they would like to work on for that sprint. However, team members may find themselves "specializing" on an aspect of the project due to previous experience. We feel this is the best mixture of learning technologies, having fun with the work, and utilizing our past experiences.

No updates to the team structure. Jacob is the unofficial scrum master, but otherwise the entire team chips in on ideas, discusses technologies, researches, and implements code into the project.

Milestones
- Settle on the data sets / APIs we will use for our website. This will also include how granular our tool can model traffic and emissions (Road by road basis, block, ZIP code, city, etc.).

We planned for this to be completed by sprint 1. We have nearly finalized the APIs we will be using: The Here traffic API and OpenStreetMap's Overpass API.

- Have a working website up and running. A tech stack is finalized and everyone has a working canvas to begin implementing the project.

We planned for this to be completed by sprint 1. We will be using TypeScript with ReactJS as our front end frameworks. After our midpoint meeting, we will settle on some form of backend technology to provide the traffic information without exposing our API keys.

- Have a working and interactive map. This map must at least have a view of the United States, and allow users to zoom in and out (similar to Google Maps).

We planned for this to be completed by sprint 1 or 2. This is done.
https://cs-510-explorations-car-dependence.github.io/

- Have a working model that emulates traffic and emissions on a particular road. That is, given a road/block/zipcode/city, a day of the week, and a time of day, it can predict the amount of emissions that are caused by traffic.

We planned for this to be completed by sprint 1 or 2. Right now, Zane and Jacob are still planning the model.

- Combine the traffic and emissions model with the interactive map.

We planned for this to be completed by sprint 3 or 4. No updates here.

- Polish and finalize website look and feel. The website is reasonably pretty. The user can navigate it with ease and there are no major bugs that destroy the tool.

We planned for this to be completed by sprint 3 or 4. No updates here.