OnTime Public Transportation Proposal (Working Title)

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Abstract

When a person schedules an appointment on their Google Calendar, our application will search through the local public transportation system, and list the times and stops that will enable them to make it to their appointment on time.

Background

Definitions

AngularJS - AngularJS (commonly referred to as "Angular" or "Angular.js") is a complete JavaScript-based open-source front-end web application framework mainly maintained by Google and by a community of individuals and corporations to address many of the challenges encountered in developing single-page applications. [1]

API - Application program interface (API) is a set of routines, protocols, and tools for building software applications. An API specifies how software components should interact. Additionally, APIs are used when programming graphical user interface (GUI) components. [2]

Domain Name - used to identify one or more IP addresses. For example, the domain name microsoft.com represents about a dozen IP addresses. Domain names are used in URLs to identify particular Web pages. [3]

IDE - An integrated development environment (IDE) is a software application that provides comprehensive facilities to computer programmers for software development. An IDE normally consists of a source code editor, build automation tools and a debugger. [4]

GIT - A version control system for software originally created for Linux development by Linus Torvalds. Noted for its branching flexibility, which allows separate branches to be created for testing new ideas, Git is a distributed system that keeps a repository with complete version history in every directory. Git functions are activated by text commands such as git add and git commit. [5]

Google Calendar - A time-management and scheduling calendar service developed by Google. [6]

Google Transit - transportation service that is open to the public, and operates with fixed schedules and routes service developed by Google. [7]

Web Server - A program that uses HTTP (Hypertext Transfer Protocol) to serve the files that form Web pages to users, in response to their requests, which are forwarded by their computers' HTTP clients. Dedicated computers and appliances may be referred to as Web servers as well. [8]

Prior Work by Others

The work that we will build off was done by Google. They created the Google Calendar and Google Transit that the application will be interacting with. In order to create something of substantial use in the real world for people outside the team, we decided we wanted to leverage existing API's.

Prior Work by You

When choosing a project, we took time to think about our experience levels and prior projects. We have worked with the Google Maps API and are comfortable setting up and configuring the API's provided by Google. We wanted to leverage this skill in order to produce a more useful application. When contemplating the platform, the consensus was to create a web application. This would be the most comfortable place for us to create our ideas.

Description

This application will look into the user's Google Calendar and grab the scheduled location. The application will also use the user's current location or chosen location, and enter them into the Google Transit. The application will use Google Transit to plot a course between the two locations. Our application will look up the public transportation times, stops, and changes. The application will then list the time and location of their departing stop. It will also list any transfers that the user needs to take as well as the scheduled times. The application will use all of the information available to get the user to where they need to be on time. It will also make sure that the user isn't too early but right on time.

Target Audience

Our target audience are people traveling to new cities or that are unfamiliar with the public transportation system.

Success Criteria

We will know if our application is successful if:

1. Our application connects to the Google Calendar API.
2. Our application connects to the Google Transit API.
3. Our application creates a route using the location given in Google Calendar.
4. Our application gives the correct stops and transfers.
5. Our application gives the correct times for the public transportation.

SCOPE

The scope of this project is to create an interface that displays all the users upcoming events and locations. Upon clicking on any event the user is presented with all possible public transportation routes to the event and when they depart. The calendar function will be used by leveraging the Google Calendar API and the public transit info will be provided by the Google Transit API.

The application will not give any navigation information outside of what is available through Google Transit. In other words, it will not navigate the user from their location to the departing stop, or from the arriving stop to the end point.

Any user with an internet connection will be able to use our application. This will give us more potential users than if we made an IOS or Android application.

SIGNIFICANCE

This project is significant because it will assist people in getting where they need to be. When traveling away from home, or new to public transportation, it can be confusing trying to get around. The distance between locations and how long it could take can be unfamiliar. This app will simplify the process and get you where you need to be on time.

NEW COMPUTER SCIENCE CONCEPTS

The API's we will be using will be new to all team members. In order to make the application useful the team will need to learn how to work with GPS coordinates in order to find connections between the user's current location and their upcoming events. Dealing with location services on a web application is something else the team will need to learn in order to provide the most accurate recommendations. The team will be coding the web app using AngularJS which has not been taught in any of our classes.

INTERESTINGNESS

This project is interesting because we will be working with Google APIs which is an unfamiliar tool for our group to learn. Public transportation is a wonderful and vital service and each city has its own unique take on it. Public transportation can be simple and user friendly when you become familiar with its systems.

TASKS AND SCHEDULE

WEEK 07

1. Build AngularJS project
2. Push project to GitHub repository
3. Get webserver/host
4. Push and test project on web server
5. Requirements Specification completed

WEEK 08

6. Handle user permissions for web application (calendar and location)
7. Connect and test Google Calendar API to framework
8. Pull in user's events

WEEK 09

9. Process events time and destinations
10. Connect and test Google Transit to framework

WEEK 10

11. Process user's current location
12. Filter transit times by location and destination

WEEK 11

13. Create UI for displaying possible public transit options

WEEK 12 & 13

14. Test Application
15. Make it pretty

REQUIRED RESOURCES WITH COSTS

Resource	**Cost**
GitHub	Free
Angular ver. 1.7	Free
Google APIs (Calendar and Transit)	Free
Text Editor/IDE	Free
Webserver (Heroku)	Free
Domain Name (Heroku)	Free

REFERENCES

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