

Weather Ways

Tracking Weather Along a Route

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Abstract/Problem

- 50 million U.S. adults take road trips every year.
- Weather conditions may negatively affect safety and enjoyment.

- Goal: Create an application where the user may track the weather on a route
 - May re-route if desired.
 - Informs of hazards.
 - Easy viewing of conditions.



Objective:

Create a mobile app that tracks weather along the user's road trip



Background: Related Work

Morecast 

- Mobile and web based application which show weather on your route
- However, the mobile app does not allow
 - No alternative routing options
 - Unappealing GUI when mapping route
 - Difficult to locate routing option in the GUI

Background: Key Concepts

Google API

- Maps API:
 - Allows you to build static and dynamic maps
- Routing API:
 - Allows you to generate the best route to get you from point A to B
 - Provides high-quality directions and real-time traffic updates

Open Weather

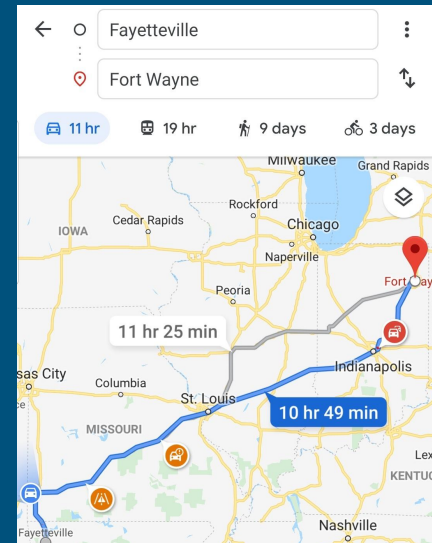
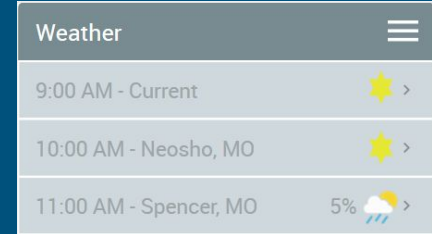
- Allows access to current weather data for any location
- Hourly forecast, allowing for higher accuracy

Heroku

- Container-based cloud Platform as a Service
- Heroku makes it easier to deploy, manage, and scale your app

Design Goals

- App for common Android devices
- Create route from user's location to destination
- Hourly forecast using location
 - 3 Hours into the future
- Continuous weather prediction updates
- Weather alerts
 - Flash Flooding, Tornado Warning ect.
- Radar Map



High Level Architecture and Design

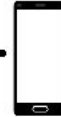
Open Weather API:

- Provide weather at specific times for several locations
- Uses geographical information along route to track weather
- Specific Location over time feature for more information



Google Maps API:

- GPS Functionality
- Longitudinal and Latitudinal data along route
- Updates relating to current route



UI:

- Maps Screen
- Route Weather Screen
- Specific Location Screen
- Radar
- Settings

Database:

- User Data
- Route Data
- Weather Data
- Application Preferences

Tasks

Research

Software Development Approach

Design

Implementation

Testing

Documentation



Schedule

Research	01/13/2020 - 01/27/2020
Software Development Approach	01/27/2020 - 02/03/2020
Design	02/03/2020 - 02/10/2020
Implementation	02/10/2020 - 03/09/2020
Testing	03/09/2020 - 03/16/2020
Documentation	03/16/2020 - 04/03/2020

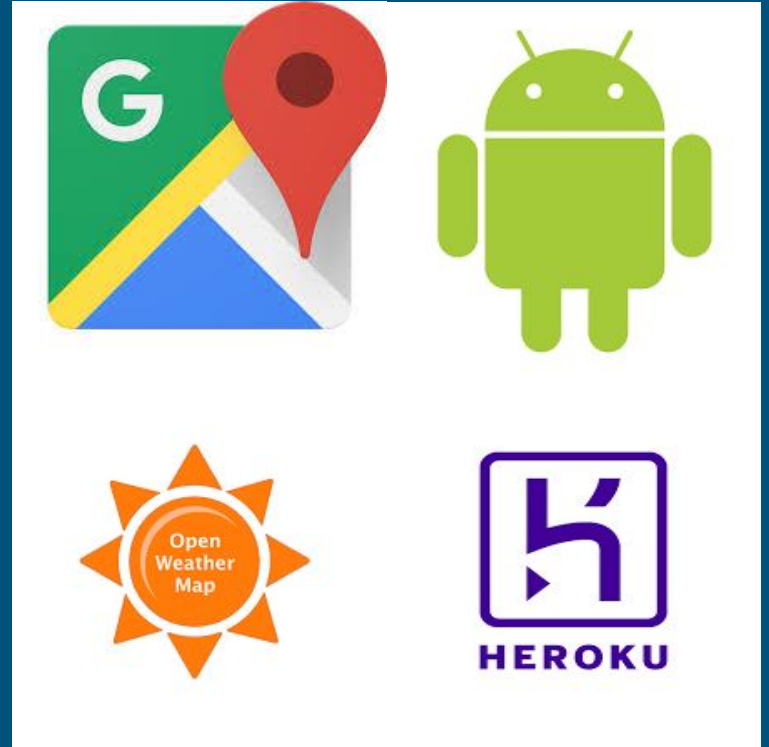
Facilities and Equipment

Google Maps API for Android - Free

Google Maps Routes - \$5 per 1,000 requests

Open Weather - Free under 60 calls per minute

Heroku - Free for single user account



Deliverables

- Android Studio Java code
- Heroku server for storing data
- Final Report
- Website code

