

## Smartbox Report 2

Through dates Sept 28th - Nov 16th, 2021

### What has Been Done

#### Python (PI device)

- Collecting script to pull data from the sensors and current GPS location and placed into a .csv file for use.
- Script for starting and stopping data collection
- Sensor Connection
- Local wifi network running off of the RaspberryPi for connection to app
- RaspberryPi configuration
- Method for duplicating RaspberryPi configuration on to a new micro SD card

#### Flutter App

- Bottom navbar with each page: Map, Raw Data Files, IRI Files, Settings
- Map (start/stop button, maptype selector, update data button)
- Files (displays files received from Pi)
- Settings (allows for adding/updating global configs)
- FileService (creates files on the phone that are sent from the Pi)
- RaspiService (receives info from the Pi)
- ServerService (receives and sends data between the app and the server: IRI and files from the Pi)

#### Spring Server

- Set up basic spring server
- Set up SQL database
- Getting the algorithm working in a Python script run on the server.
  - Running python script (theoretically) works; has not been tested on server deployment

## What Each Member of the Team has Done

### Benjamin Schroeder

- SQL Server and implementation with Spring Boot
- Read endless pages of documentation
- Communication and organization with contacts
- Working on deployment

### Riku Morishima

- Set up Spring boot
- Reading IRI papers to get an understanding of calculating IRI
- Set up data conversion from conversion to .csv type (not used due to constraints on phone app)
- Set up running python script on Spring server

### Evan Mills

- RaspberryPi configuration
- RaspberryPi Headers configuration
- Python Script to start and stop data collection
- Research on duplicating RaspberryPi configuration to multiple RaspberryPis

### Patrick Gustafson

- Data retrieval from pi device to mobile phone
- Flutter application
  - Testing on iOS device

### Dylan Hanson

- Python data collection script
- Sensor and pi configuration
  - Needed to change data collection rate and addition of new libraries for gps to work

### Alex Irlbeck

- Algorithm development from provided papers and other sources (needed some additional translations and value names)
- Starting work on the Python script for the algorithm.
- Integrated their algorithm to work with our stuff.
- Made the java to python to java transition point so the algorithm can run on the raw data.

Drew Schmitt

- App
  - Communication with raspberry pi
  - Landscape orientation support
  - Network error reporting
  - Viewing of raw data files (up to 10,000 lines)
  - Some documentation
- Raspberry pi
  - Set up wifi AP

Articulation of issues and solution ideas:

- Python (PI device)
  - Transmit data between phone and pi
    - Just needs to be tested.
- Flutter Application
  - Running application on iOS device
    - Needs testing.
- Spring Server
  - Connect database to Spring Server
    - Sort of already exists, but can't finalize until more information is available regarding information specifics
  - Transmitting data from and to the Flutter application and Spring server