
Pending Issues

Currently there is no API for getting data from the UE.

Individual Contributions

<u>NAME</u>	<u>Individual Contributions</u>	<u>Description</u>	<u>Week Hours</u>	<u>Cum. Hours</u>
Evan Schlarman	1. Adding pinging to the GPS API 2. Created Sarima ML model	1. The data retrieval API now pings the UE to test the connectivity. If connected, it will retrieve the bus data. 2. Created the Sarima model that uses historical bus location data to forecast the next position. It uses the time series model to determine the position given the time.	16	99
Braden Buckalew	1. Analyze Historical Data	1. Wrote a Python script to analyze our year long data csv file into separate monthly files. Each file has a graph with longitude, latitude, and speed.	7	76
Endi Odobasic	1. Map Info. Container 2. SARIMA	1. Made a UI component for when the user would click on the bus icon that is traveling across the route. When the user clicks it, it would pop up with a info box that would display the buses longitude/latitude pair, its signal, and the name of the place it is located at. 2. Had looked at a little more of the SARIMA model stuff and peoples usage of it for how it might be able to get integrated with our machine learning model.	7	86
Andrew McMahon	1. Prepare frontend for historical data 2. Develop script for data cleaning	1. Learned frontend syntax and prepared all endpoints for historical data display 2. Began to format script for data cleaning with Braden. Since the historical data is uncleaned and contains multiple routes, we need to develop this script to map individual route data for display	7	75

Chiran Subedi	1. Preprocessing Research 2. ML Algorithm Criteria	1. Exploring the CSV file, I found lat/long values missing. Dropping these rows could result in data loss and reduced performance. Instead, interpolation can fill these gaps by estimating values based on nearby data, potentially improving prediction accuracy. 2. Based on requirements from talking to teammates, I created several criterias that a ML Algorithm must meet to be useful for our purpose and looked into LSTM, GRU, and VAR which seem to be close.	6	13
---------------	---	--	---	----

Plans For the Upcoming Weeks

- Continue working on the machine learning model to predict locations accurately.
- Continue cleaning the historical bus data only to contain the brown route.
- Discover how to get UE GPS data

Weekly Client/Advisor Meeting Summary

During the meetings, we focused on the brown route. This makes the focus on cleaning the historical data for the one route so that the Sarima model can predict the route accurately. This reduces the overhead of including all CyRide routes in the prediction data. We are also working on refining the machine learning algorithm so that it can be used to predict the locations of the bus given certain times on the route. We also have discussed the need to build an API for the UE model that either the ARA team will build, or specifications will need to be provided to our team.