EE/CprE/SE 4920 STATUS REPORT 6

11/1/24 - 11/14/24
Group number: 22
Project title: CyRide Visualization
Client: Mohammed Soliman
Advisor: Mohamed Selim

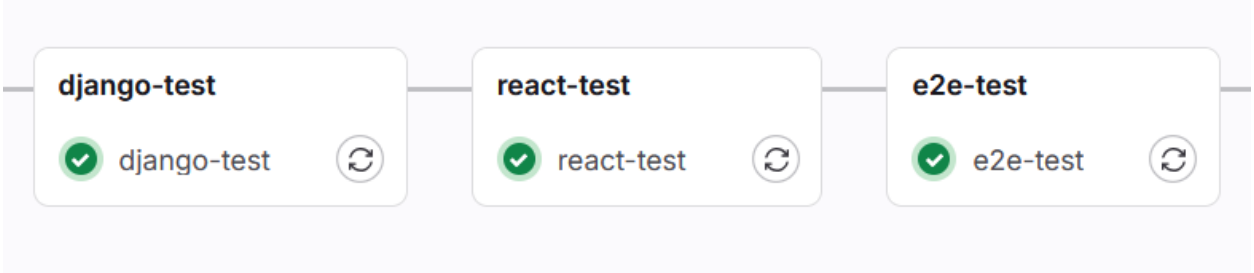
Team Members & Role:
Braden Buckalew: Programmer
Endi Odobasic: Programmer
Evan Schlarmann: Programmer
Andrew McMahon: Programmer
Chiran Subedi: Programmer

Week Summary

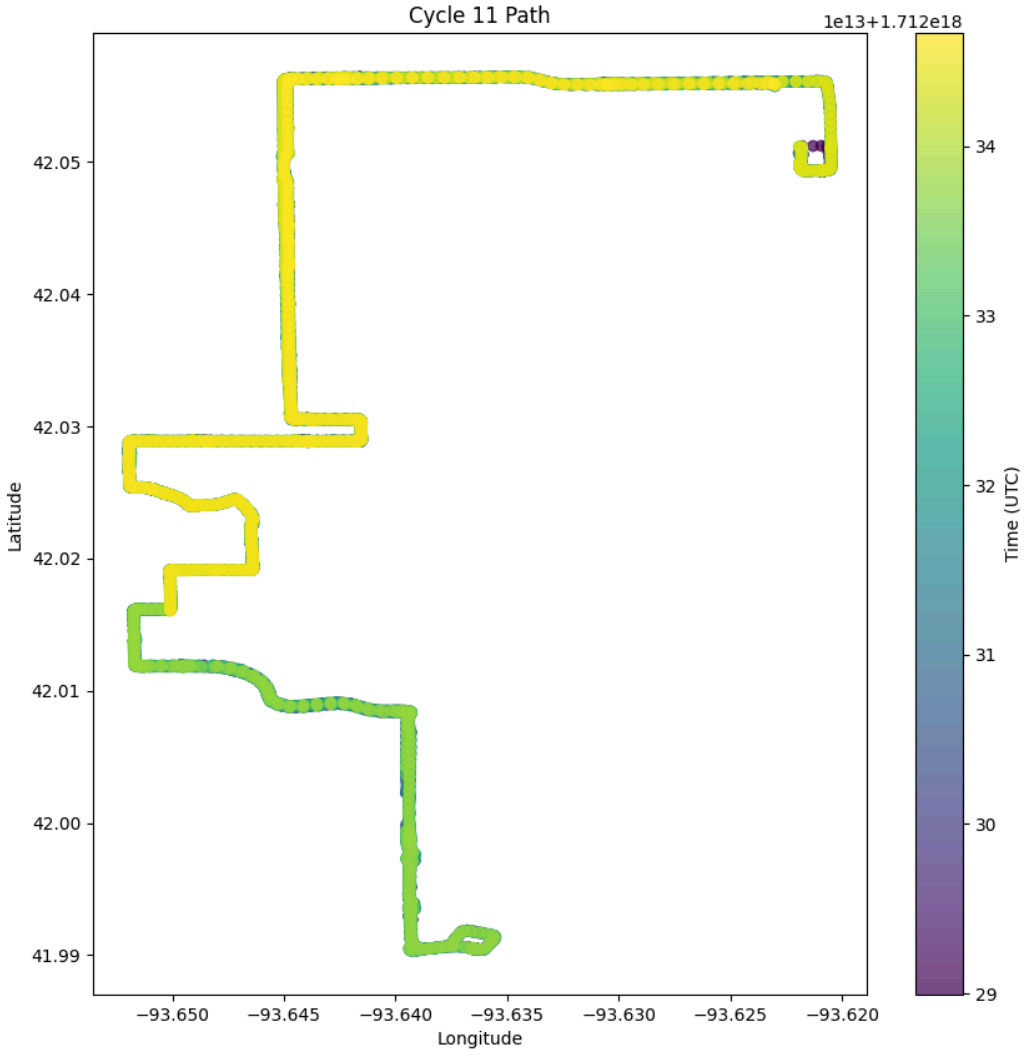
We completed the creation of our test suite and integrated it into the CI/CD pipeline. We also continued refining the GRU ML model to predict bus locations. We created a Python script that can parse historical location data into routes and route cycles.

Accomplishments

Created the test suites that are in the pipeline.



Complete Bus Route Cycle detection, inputs include historical gps data and route coordinates zones.



Pending Issues

Currently, we are unable to post to the backend from the UE due to blocked ports. ITS firewall rules will need to be adjusted for traffic to be allowed.

Individual Contributions

NAME	Individual Contributions	Description	Week Hours	Cum. Hours
Evan Schlarmann	1. Created Django unit/integration tests 2. Created Playwright end to end tests 3.Integrated and updated CI/CD pipeline 4. Simplified codebase setup	1. The test suites use Django tests and test the models, serializers, and endpoints of the application. 2. Created Playwright tests that test the end to end functionality of the application with Chromium and Firefox browsers. 3. Integrated all the test suites into the pipeline that is run during deployment. 4. Created a simplified way to download and keep track of Python dependencies.	16	123
Braden Buckalew	1 Completed the Bus Route script	1 Finished the script if given the routes coordinates zones and historical data will output all the cycles of the route	12	125
Endi Odobasic	1. Tests 2. UI Bugs	1. Created tests for the front-end side of our application to get them into our CICD pipeline for seamless integration. 2. There were a few bugs regarding the bus icon on our front end with web sockets when switching over to our other interactive map (leaflet) so had to make it work for it.	10	100
Andrew McMahon	1. Presentation	1. As requested by the Client, reviewed project documentation, weekly reports, and other previous team documents to create a presentation to be given in December.	9	91
Chiran Subedi	1. TrainModel.py 2. Predicter.py 3. Feeder.py	TrainModel.py is a Python program that trains and saves our GRU model using historical route data. Designed for ease of use within our application, this program can also train the GRU model on additional routes in the future. Predictor.py loads the trained model and, using the current context, predicts the next point	14	52

		along the route. Feeder.py is a testing program I developed to simulate live data from the bus. It uses a single route from our historical data, feeds it into the predictor, and introduces 'out-of-range' scenarios where no route data is provided. In these cases, the predictor must estimate the bus's location based on previous inputs.		

Plans For the Upcoming Weeks

- Continue working on the machine learning model to predict locations accurately.
- Collect live data from UE
- Practice presentation
- Improve the presentation sides based on the feedback from Dr. Fila and Dr. Soliman

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Weekly Client/Advisor Meeting Summary

We presented our first final presentation and got feedback from our client on what to improve on or add. We then discussed plans to try and incorporate the machine learning and historical data parser into the application, to be used with live data in the future. Additionally, we are trying to communicate with ARA team members to gain firewall access to collect live bus data from our API.