Team 36

Project Title: AI-VVO (Artificial Intelligence Volt-VAR Optimization)

Date:10/24/2021

Members:

Jaden Alamsya

Demetrius Christou

Evan Dinnon

William Dulaney

Rachel Owens

Megan Phinney

Derrick Vang

What we've accomplished in the past week/what we've been researching

Jaden Alamsya – I looked through a few different options for map APIs that we could use for our grid overlay on the front-end. In the end we came to the decision that we would use OpenStreetMaps.

Demetrius Christou - I have spent a lot of time researching various database tools that we can use in our program. Mostly looking into PostgreSQL, MongoDB, Neo4j and InfluxDB and their pros and cons along with what would be the most realistic to implement.

Evan Dinnon - I spent most of this week continuing to learn PyTorch. I have finished up watching the Tutorials by one of the developers and have moved on to some other content. I also worked a little bit with our Gitlab repository in order to checkout into the branch created for myself. This will allow me to develop under my own branch without affecting the others' work.

William Dulaney - I branched the Gitlab repository into different branches for each member of the group and I used git pull and git checkout commands on my virtual machine in the PowerCyber Testbed environment to switch my working branch to my

development branch. I also researched an implementation of a deep Q learning network and decided that we will have an agent class called "GridController" and we will have a neural network class called "AIVVONet".

Rachel Owens - I researched different Map APIs that could be implemented in our web application. I looked at Leaflet, React Simple Maps, OpenStreetMaps, and Google Maps for comparison. I looked at the pros and cons of each of the different applications and talked with the other frontend team members and we decided to go with OpenStreetMaps. I also cloned my branch of our current repository to my Virtual Machine. I attempted to get it to run on my VM and looked into some of the error messages I got and worked on trying to get it to work.

Megan Phinney - I looked over the old team's Docker files. I then came up with a plan to better organize them for our project. I wrote out what parts of the project each Docker file install and set up. I then wrote up a new plan on how to separate them into smaller Docker files.

Derrick Vang - I finished another tutorial on ReactJS and learned about components and how to debug in React. I also started researching the React-D3 library and the possible map options we could implement.

What we're planning to do in the coming week

Jaden Alamsya – I plan on looking deeper into OpenStreetMaps and possibly running through some tutorials or guides on that. I also plan on getting my Gitlab branch setup on my VM.

Demetrius Christou - I plan on trying to finish up some of the tutorials that I have been working on over the past few weeks. Along with continuing to play around with the project on the VMs.

Evan Dinnon - This next week I plan to continue working on learning Pytorch. I also plan to work with Will to prototype the deep Q learning network on Google Colab. This will hopefully enforce what I have been learning

William Dulaney - Next week, I plan to prototype the deep Q learning network on Google Colab. I also plan to look into the mathematics required to model the power grid after an action in the action space is taken.

Rachel Owens - I plan on beginning work with OpenStreetMaps and understanding how we could create a component to contain the Map data. I will work on creating a

high-level design to show how OpenStreetMaps may be added into our current design. I also plan to get the cloned codebase working on my VM.

Megan Phinney - I plan to continue working on the reorganization of the Docker files as they can be more optimized and include better documentation.

Derrick Vang - I plan to start a data visualization course with D3 and React. And I also plan to continue messing around with the front-end of the project on the VM.

Issues we had in the previous week

Jaden Alamsya – I have had troubles working with the VM and getting the project to run.

Demetrius Christou - I had some trouble finding good resources on some of the database tools since some of them are not very popular.

Evan Dinnon - Given I am new to machine learning I have had trouble understanding some of the content I have been finding. However, the more I watch the better I catch on to the content.

William Dulaney - I had a little trouble switching my working branch of the Gitlab to my own development branch. After a little bit of research, it was resolved and I was able to use "git pull" and "git checkout Will" to switch to my working branch on the virtual machine.

Rachel Owens - I had trouble getting my cloned codebase to work on my Virtual Machine. I keep getting errors when trying to start it.

Megan Phinney - I had issues with understanding what each Docker file did and how each line contributed to the installation of each portion of the project.

Derrick Vang - I had issues with figuring out which map API would be the best to use for our project.