

EE/CprE/SE 492 BI-WEEKLY REPORT 5

3/16/21 – 3/29/21

Group number: 24

Project title: AI-VVO: Cloud-based Machine Learning for VOLT-VAR Control and Optimization

Client / Advisor: Gelli Ravikumar

Team Members - Role:

- **Abdul-Salem Adedoja - Frontend Development**
- **Ian Kegley - Frontend Development**
- **Jacob Gleason - Frontend Development**
- **Rene Chavez - Backend Development**
- **Tyler Norris - Backend Development**

○ **Weekly Summary**

- We worked on continuing the modification of our dashboard panels/windows to resemble the skeleton UIs we designed for our project.
- We created a working version of our core learning algorithm. The algorithm will soon be able to be accessed by the user via API calls. The algorithm operates over a horizon of 12 hours, with 1 step being 1 hour.

○ **Past Week Accomplishments**

- Abdul-Salam: Continued working on the user interface.
- Ian: Worked with Rene to get a working version of our core learning algorithm set up. The algorithm uses Q-Learning and then creates a Policy table that can be used to decide the next action. We were able to get a policy table be saved as a joblib file
- Jacob: This week I continued to work on updating the configuration panel for our dashboard. I updated parts of our top-row navigation bar and the functionality of the start button to open the simulation panel. I also began research for adding a dropdown for our algorithm selection.
- Rene: Worked on implementing our core Machine Learning algorithm with Ian. Have been working on trying to be able to receive some kind of joblib file to be able to pass into the front end to display.
- Tyler: Reading articles regarding machine learning algorithms.

○ **Pending Issues**

- Abdul-Salam: None currently

- Ian: I was able to get a working algorithm, but now need to have the model accessible from the frontend using our API
- Jacob: I had some issues with React and how some of the components I was trying to use for our dashboard worked. With some research and continued learning, I was able to figure out their functionality. I also had issues with the docker-compose not stopping the containers as intended. By installing an older version of docker I was able to fix the issues.
- Rene: Currently have been having troubles on implementing our machine learning environment to begin working on our algorithm. Still trying to understand the basics implementing a machine learning algorithm.
- Tyler: Implementing a machine learning algorithm

○ **Individual Contributions**

<u>NAME</u>	<u>Individual Contributions</u> <i>(Quick list of contributions. This should be short.)</i>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Abdul-Salam	Working on the UI for the project	4	17
Ian	Working on core Machine Learning algorithm	13	38
Jacob	Modifying the landing page UI, updating button navigation	7	23
Rene	Working on the core Machine learning algorithm	6	22
Tyler	Reading about machine learning algorithms	3	16

○ **Plans for the Upcoming Week**

- Abdul-Salam: Continue work on UI. Work with Jacob and Ian to begin algorithm integration
- Ian: Add API calls allow the user to interact with our model, as well as necessary frontend components
- Jacob: Continue my work on creating/modifying/updating our dashboard panels to resemble our UI skeleton images from our Design Document. Also, hopefully, work to integrate our algorithm with the dashboard.
- Rene: Continue to try to implement the machine learning algorithm for our core application.
- Tyler: Assist Rene in implementing the machine learning algorithm. Cleaning up any

backend tasks that remain open.

○ **Summary of Weekly Advisor Meeting(s)**

- Discussed plans for end-to-end demo for the project this coming week.