AI-VVO sdmay22-36 Weekly Update #8

3/24/2022 - 3/31/2022

Front-end (This Week)

- Implemented LayersControl & LayerGroup to individually visualize nodes/connections
- Finished implementing switch update to backend
- Changed type display on node popups to reveal correct typing
- Implemented solar panel icon

Front-end (Next Week)

- Determine if we can use LayersControl to search for more specific data like node types
- Change the switch implementation to be a switch instead of a button
- Change popups to not display a switch status for null values
- Look into updating the style of polyline with switch update

Back-end (This Week)

- Set up a server so that there could be communication between the backend and the OpenDss program running on the windows VM
- Created an endpoint that will allow the frontend to get the voltage and other important data from OpenDss.

Back-end (Next Week)

- Make sure the get voltages endpoint is functional so that the frontend can get that information
- Create formal tests for the endpoints to make sure that future changes don't end up breaking existing features

Back-end Docker (This Week)

- In-depth look at Docker aspect of project
- Docker-compose looked solid but backend/Dockerfile and frontend/Dockerfile needs closer look

Back-end Docker (Next Week)

- Understand why last year's team chose multi-stage build.
- Mostly update to single stage build to reduce redundancies

Machine Learning (This Week)

- Wrote ExportNodeData.py that takes currents, powers, and voltages at all nodes in the OpenDSS model and exports them to be processed by the backend and displayed on the frontend
- Established functional communication between the various components
- Formulated plan to generate testing set and training set with the new real-time data

Machine Learning (Next Week)

- Generate training and testing sets by enabling different switch combinations and recording the resulting reactive powers for all nodes
- All of these control scenarios which correspond to a certain set of reactive power values will give us the input data we need for our ML algorithm.
- The controls will be the input and the reactive powers will be the output. We will approximate this relationship with the ML algorithm in order to predict what the reactive powers will be given a specific set of input controls.