EE/CprE/SE 491 WEEKLY REPORT 12

11/7/2024 – 11/14/2024

Group number: 42

Project title: GridGPT 2.0

Client &/Advisor: Gelli Ravikumar

Team Members/Role:

Luke Eitzmann - AltDSS-Lead

Ian Louis - Power Co-lead

Scott Rininger - Power Co-lead

Aditi Nachnani - Full Stack AI Co-Lead

Ian Bussan - Full Stack AI Co-Lead

- **Weekly Summary**

  This week, we met with our advisor Dr. Gelli to present our research from the previous week. The Grid team has been using AltDSS to analyze the values of OpenDSS circuits and experimenting and documenting with AltDSS through Google Colab. The Grid team finished a map of how actors in a distribution system operator interact with each other. The Grid team also collected material relevant to DSOs to use in the future. The AI team got the code base running and created a diagram of the microservices we will be implementing. We also set up the repository and created the necessary protected branches.

- **Past week's accomplishments**

  · **Luke Eitzmann**: I've been running through Google Colab examples of AltDSS and recording all relevant commands to use for our future chatbot. I've also made attempts to import larger circuits to practice with.

  · **Ian Louis**: I worked on combining my VPP optimization script with the openDSS data. To do this I started coding an AltDSS script to get the needed data from openDSS. Then pass the needed data to the optimization script.

  · **Ian Bussan**: This week, I worked on making a skeleton of GPT docker applications and ran a basic docker for db_gpt with the GridAI project. I updated the docker-compose and

docker files to create working docker components.

· **Aditi Nachnani**: This week, I familiarized myself with the codebase. I got docker and the code running on my local machine. Ian and I worked on crafting a diagram for the new dockers we need to add. We also set up the infrastructure and the docker files.

· **Scott Rininger**: This past week I worked on finishing the DSO interaction table and collected materials relevant to DSOs for us to use in the future.

- **Pending issues**

  · No issues

- **Individual contributions**

NAME	**Individual Contributions** *(Quick list of contributions. This should be short.)*	**Hours this week**	**HOURS cumulative**
Luke Eitzmann	I have been recording as many relevant commands from AltDSS as I can. I've also been trying to import larger circuits into our code.	6	54
Ian Louis	I started an altDSS script to get the values from a openDSS file to perform VPP optimization	6	54
Scott Rininger	I made an interaction table between the actors in a DSO system. I also collected materials about DSOs	6	54
Aditi Nachnani	Ian and I worked on setting up the infrastructure and the docker files. Also, created protected branches and issue board.	6	54
Ian Bussan	Docker with GridAI, docker applications testing	6	54

- **Plans for the upcoming week**

  · **Scott Rininger**: I will work on finding and or creating a code base for DSO_GPT. This will give us a starting point for creating an accurate DSO_GPT

  · **Ian Louis**: I will continue working on my altDSS script. My goal for this week is to get the solar data to run.

  · **Luke Eitzmann**: My plan this week is to be able to successfully upload larger circuits into Google Colab for AltDSS, starting with the SAF circuit.

· **Ian Bussan**: I will be building the db_docker and integrating it with Neo4j and FluxDB. This will be a docker application and docker share volume.

· **Aditi Nachnani**: The plan for next week is to finish the infrastructure and set up the routes for the dss_gpt. I also want to work on a basic implementation for dss_gpt and start the code.

- **Summary of weekly advisor meeting**

  This week we discussed our individual progress with Dr. Gelli. The Grid team presented the research we did this week about our special topics. Scott finished a Google sheet to map the interaction between the actors of a DSO and collected DSO materials, Luke documented the use of different commands in AltDSS, and Ian Louis on his altDSS script. Ian's altDSS script interacts with the openDSS model to get the values needed to run the VPP optimization script. In this weekly advisor meeting we learned about the architecture of GridGPT and how to build our components in GridGPT. We learned we will be deploying 3 to 5 containers for GridGPT. The AI team met up with the supervisor to architect the code base and understand the naming schema of the codebase. The AI team also created a diagram of the microservices we will be implementing, as well as created protected branches, the issue board, and set up the docker files.