***EE/CprE/SE 491 WEEKLY REPORT 13***

***11/14/2024 – 11/21/2024***

***Group number: 42***

***Project title: GridGPT 2.0***

***Client &/Advisor: Gelli Ravikumar***

***Team Members/Role:***

***Luke Eitzmann - AltDSS-Co-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 has also been expanding its knowledge of Google Colab and AltDSS. The AI team worked on uploading a project to GridAI and signing into the login page. The AI team also worked on expanding the functionality of the docker components. This included implementing OpenAI with threads, attempting to connect Neo4j to the docker components and looking at Swagger for documentation of the backend API.

- **Past week's accomplishments**

  • **Luke Eitzmann**: Successfully uploaded and implemented the large San Francisco model into AltDSS. I also created a how-to for uploading larger circuits.

  • **Ian Louis**: I continued working on combining my VPP optimization script with the openDSS data. I continued coding an AltDSS script to get the needed data from openDSS. I fixed the issues I ran into last week with loading solar and wind data. I also brainstormed how to better get the data from OpenDSS into the VPP script.

  • **Ian Bussan**: I ran the application this week and logged in with my account. I attempted to upload the DSS files for the website but did not work. I attempted to connect DB_GPT

docker to the Neo4j database. Also used Swagger for documentation.

· **Aditi Nachnani**: This week, I looked into how I can extract, read, and feed folders like 13Bus as context for the model. I ran into issues while I was Inputting all the files because it was exceeding the limit of 256000 characters. I researched and looked into solutions such as summarizing the files or feeding only 1 file instead of the whole zip file.

· **Scott Rininger**: I started learning how to use Google Colab. I am also learning Python to make software for DSOs. I have never used Colab or Python before.

- **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 successfully uploaded the San Fran model into AltDSS and experimented with it. | 6 | 60 |
| Ian Louis | I worked on getting the solar and wind generation data to work with altDSS. I also worked on creating a Python script to scrape the generation data from OpenDSS scripts. | 6 | 60 |
| Scott Rininger | I started learning AltDSS code which is based on Python. This will be useful for making DSO-GPT | 6 | 60 |
| Aditi Nachnani | I started working on dss_gpt and looked into how to feed big files as the context for our model. | 6 | 60 |
| Ian Bussan | Docker DB_GPT to Neo4j DB, Swagger documentation | 6 | 60 |

- **Plans for the upcoming week**

  · **Scott Rininger**: I will work on writing AltDSS code to make DSO-GPT. The code will be able to detect faults in a power grid.

  · **Ian Louis**: I will continue working on the Python script to scrape the generation data from the OpenDSS files. I will also start working on the final presentation and the team website.

  · **Luke Eitzmann**: I will continue to add and experiment with more grid analysis commands in my AltDSS code.

  · **Ian Bussan**: I will be working on connecting the Neo4j to the DB_GPT along with using

OpenAI. I will be adding new routes for the new connection and connecting to the API.

• **Aditi Nachnani**: The plan for next week is to work on the team website and the final presentation. I will also look into how to make the model more flexible and figure out how to use the folder as the context while staying within the API's character limit.

- **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 started learning how to read and write AltDSS code, Luke uploaded the San Fran model into AltDSS, and Ian Louis presented on his altDSS script. Ian showed how he fixed his altDSS script to get the wind and solar data from the OpenDSS files. 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. Ian looked into connecting DB_GPT docker to the Neo4j database. Aditi implemented code for feeding big files as the context for our model.