EE/CprE/SE 492 WEEKLY REPORT 5

3/12/2025 – 4/2/2025

Group number: 42

Project title: Grid GPT 2.0 AI Virtual Assistant

Client &/Advisor: Dr. Gelli

Team Members/Role:

Luke Eitzmann - Power 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**
  - We got together as a group and created a game plan for our client meeting. The Grid team began integrating our altDSS code with the openDER library. Our goal is to use altDSS to get the needed information to utilize openDER for useful applications. The Grid team also continued working on implementing OpenAI into dso_gpt. The AI team continued the development of gpt models, including improving the context models. AI team added new context models of firebase and context from neo4j. Also added new features like improved UI.

- **Past week accomplishments**
  - **Luke Eitzmann**: Still working on rewriting our altdss_interface. Many methods have been altered in the source code.
  - **Ian Louis**: Ian continued to work on integrating his VPP optimization script with altdss and OpenDER. Ian finished the optimization portion of his VPP script. Now his goal is to utilize OpenDER to check if the VPP causes any issues in the distribution system. Wrote documentation for how the optimization portion of the script works.
  - **Ian Bussan**: Worked on updating the context model for db-gpt to get context

specifically from neo4j. Updated the context model to get a node and relationship schema from neo4j and feed the context to openAI. Overall improved context model.
- **Aditi Nachnani**: Met with the graduate team to fix the permissions issue, and now the AI team can upload dss files; Also, moved the UI to the appropriate page and redesigned the UI to meet the client's expectation. Also looked into setting up firebase and met with the grad team to discuss how to set up firebase to save messages.
- **Scott Rininger**: Scott worked on implementing openAI into dss_gpt. I worked with the client to better understand what the project needs.

o **Individual contributions**

NAME	Individual Contributions *(Quick list of contributions. This should be short.)*	Hours this week	HOURS cumulative
Ian Bussan	Updated db-gpt context model, implemented relationship schema and relationship schema for neo4j	8	36
Ian Louis	Continued integrating the VPP script with altdss and OpenDER. Finished the optimization portion of the code. Wrote documentation for how the optimization works.	8	36
Aditi Nachnani	Fixed permission issue, redesigned the UI, looked into firebase	8	36
Luke Eitzmann	Still rewriting opender source code (Opendss_inteface) from using py_dss to altdss	8	36
Scott Rininger	Worked on implementing openAI into dso_gpt	8	36

o **Plans for the upcoming week**
- **Luke Eitzmann**: Hopefully I finish altdss_interface.
- **Ian Bussan**: Will continue to develop db-gpt, need to continue to update the context model to not send sensitive data to OpenAI. Improve context model for more accurate results.
- **Aditi Nachnani**: Aditi will continue working on dss_gpt. After getting access to

firebase, she will set up a db to save messages. She will also look into how to send in context for huge files efficiently.

- **Ian Louis:** Ian will continue working on the VPP script. His goal is to finish the portion of the script that utilizes the openDER interface.
- **Scott Rininger:** Coordinate with the AI team to create test prompts for dss_gpt in order to ensure accuracy.

o **<u>Summary of weekly advisor meeting</u>**

- Our team met with Dr. Gelli on 3/14 and 3/28 to discuss our progress so far this semester. Ian Louis discussed his progress with adding OpenDER functionality to DSO_GPT as well as integrating the VPP optimization script with OpenDER. Luke discussed complications with converting from py_dss to altdss, and Dr. Gelli was able to provide helpful instruction for him. Dr. Gelli was satisfied with their progress and plan for DSO_GPT. Scott presented his plans for integrating openAI into dso_gpt. The AI team got feedback about our implementation of db-gpt and dss-gpt. Dr Gelli told us we needed to update our implementation to not send sensitive data to OpenAI and make sure our context models are not overwhelming the LLM with too much information and tokens.