

## ***EE/CprE/SE 492 WEEKLY REPORT 2***

***2/27/2025 – 3/12/2025***

***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 worked on implementing OpenAI into the AltDSS plans. The AI team continued developing GPTs and worked with the team to fix crucial bugs that prevented development. The AI team also implemented context state management and improved LangChain models to use context.

- **Past week accomplishments**

- **Luke Eitzmann:** Worked on converting the openss\_interface source code from Py\_DSS\_inteface to AltDSS. Is taking a long time because it requires remodeling a 700 line script.
- **Ian Louis:** Ian continued to work on integrating his VPP optimization script with altdss and OpenDER. Ian's goal is to have this feature ready to demo for Dr. Gelli in the next client meeting.
- **Ian Bussan:** Worked with the development team to get the project to run correctly and upload the project working as expected, including fixing bugs to

make the project work. Also implemented context state management for db-gpt with Firebase.

- **Aditi Nachnani:** Worked on getting the codebase fixed and dss\_gpt - added memory management to the model to keep track of the conversation history, and modified the code to read DSS files as context. Currently working on implementing LLMChainExtractor which is a document compressor that uses an LLM chain to extract the relevant parts of documents.
- **Scott Rininger:** Scott worked on incorporating the AltDSS with OpenAI. He wrote skeleton scripts to feed OpenAI that uses the AltDSS code to give the user valuable information while having OpenAI make changes to the dss files and summarizing the results.

○ **Individual contributions**

<b><u>NAME</u></b>	<b><u>Individual Contributions</u></b> <i>(Quick list of contributions. This should be short.)</i>	<b><u>Hours this week</u></b>	<b><u>HOURS cumulative</u></b>
Ian Bussan	Fixed bugs, Firebase context management, db-gpt implementation	8	28
Ian Louis	Continued integrating the VPP script with altdss and OpenDER. Created code to read in real world DER data from CSV files to use in the model.	8	28
Aditi Nachnani	Fixed codebase, memory management, LLMChainExtractor	8	28
Luke Eitzmann	Rewriting opender source code (Opendss_inteface) from using py_dss to altdss	8	28
Scott Rininger	Started combining the AltDSS and OpenAI together.	8	28

○ **Plans for the upcoming week**

- **Luke Eitzmann:** Planning to continue work on rewriting source code.
- **Ian Bussan:** Will continue to develop db-gpt, and integrate the current implementation with a working system that uses the neo4j data. Further integrations of db-gpt to make it work for the user.
- **Aditi Nachnani:** Aditi will continue working on dss\_gpt. Before, since the codebase was not working, the chatbot was on a temporary page. Now she will update the UI

so the chatbot is in the right location. Also, she will continue working on LLMChainExtractor and get that working.

- **Ian Louis:** Ian will continue working on the VPP script. His goal is to demo this feature to Dr. Gelli in the next meeting. Ian will also work on using OpenDER to detect issues in the distribution system.
- **Scott Rininger:** Create a working version of the AltDSS and OpenAI plans to show to Dr. Gelli

○ **Summary of weekly advisor meeting**

- Our team met with Dr. Gelli on 2/38 and 3/7 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 skeleton prompts to feed OpenAI and how they will work. The AI team got feedback on using FastAPI instead of FlashAPI and advised us to look into logging later. He also recommended the AI team to use open web UI to improve the frontend design.