# GridGPT

By: Tin, Eddy, Emma, Nick, Jackson

# Project Overview

The GridGPT project aims to simplify power grid management and will explore the potential of Artificial Intelligence at this time to streamline the interpretation of complex and evolving power system data.

It will translate distribution system simulator (DSS) scripts into natural language for efficiency in the plant's maintaining employees (grid operator, engineer, technician).

**Project Goals:**

Enhance integration of new power sources

Mitigate flow issues in existing equipment

Improve accessibility and time management with easier data for a human on the job.

# Ideation

- AI model training
  - **Approach:** viewing HuggingFace models
  - **Implementation:** create and execute code on HPCs
- Understand what DSS files
  - **Approach:** learn how to read & write DSS scripts
  - **Implementation:** have our Power Systems Specialists help us along the way with understanding how DSS files are structured and how to interpret them.
- Create a user-friendly implementation of AI model
  - **Approach:** investigate already existing AI implementation
  - **Implementation:** Create sketches to better understand how the UI would look like on the code editor of the project.

# Idea/solution

- GridGPT being able to access multiple databases (MongoDB, InfluxDB, Neo4jDB)
- Clean interface for easy navigation
- Accurate data portrayal for efficient grid troubleshooting
- Present data in an easily readable manner

# Market Research

OpenAI, Github Copilot, and Google Gemini are similar AI models that are very successful in the market currently;  This analysis was done by the group on the Figma in class assignment.

**Common Traits**:

- Vast data resources in each company.
- Leaders in the AI domain.
- Generate accurate responses based on user input.

**Our opportunity:**

- Drawbacks include inefficient language model reliance in OpenAI, a pull away from creating new code repositories with GitHub Copilot, and data security issues with Gemini's ownership by Google.
- Specialized virtual assistant - focus on DSS-specific data for precise insight.
- Bringing AI into the power grid space with an effective result over using the current analysis methods.

# Product Breakdown

**Unique Aspects:**

- Open AI specializes in natural language processing which gave it ample training to become very accurate.
- GitHub Copilot gives coding in an IDE much greater efficiency when working on a task.
- Google Gemini has become an expert in many fields in order to provide specific responses.

**Market Advantage:**

- Open AI is a trusted platform for many due to the association it has with the current AI boom.
- Github Copilot streamlined the coding process for the large amount of people familiar with GitHub.
- Google Gemini has the access to Google's large data infrastructure.

# Conclusion

- The design approach for this project involves
  - Getting to know and train our AI model
  - Understand how DSS files work
  - Create a clean and organized UI model for user convenience
- With the main focus on the AI being only for DSS files, we believe that we will have an advantage over other established models by having an efficient and precise model, giving the user the exact response they are looking for.