GridAI

Lightning Talk 2: Problem and Users

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Project Overview

- We are developing an AI integrated system to help grid operators and energy producers manage the complex electrical grid more efficiently. This tool will address challenges in handling large datasets and optimizing grid operations through intuitive interfaces and predictive analytics.

- Key features of the system include real-time data visualization, predictive fault detection, and automated decision-making support.

- The system addresses significant challenges, such as the ability to handle large datasets efficiently and ensuring the reliability and scalability of grid operations.

Problem Statement

- **Problem:** Power grid operators struggle with managing vast amounts of real-time data, which can lead to system inefficiencies, downtime, and delayed decisions. The current system for monitoring the grid lacks usability, and complex graphical systems are hard to interpret quickly.

- **Impact:** This issue can lead to longer downtime, power outages, and general lack of system insight, affecting both operators and consumers.

- **Solution:** GridAI aims to simplify these systems by providing real-time insight improving visualization, and providing AI assistance to deliver faster solutions and optimized decision making.

List and Descriptions of Users

- **Grid Operators:** They manage real-time operations and need fast, intuitive tools to analyze the grid and avoid outages.

- **Energy Producers:** They focus on maximizing grid efficiency and benefit from tools that help predict potential issues.

- **Graduate Students & Researchers:** They analyze grid data and need reliable access to various data points for research, experimentation, and development of the system.

- **Consumers:** They are indirectly affected by outages and expect a stable power supply; better management will improve service reliability.

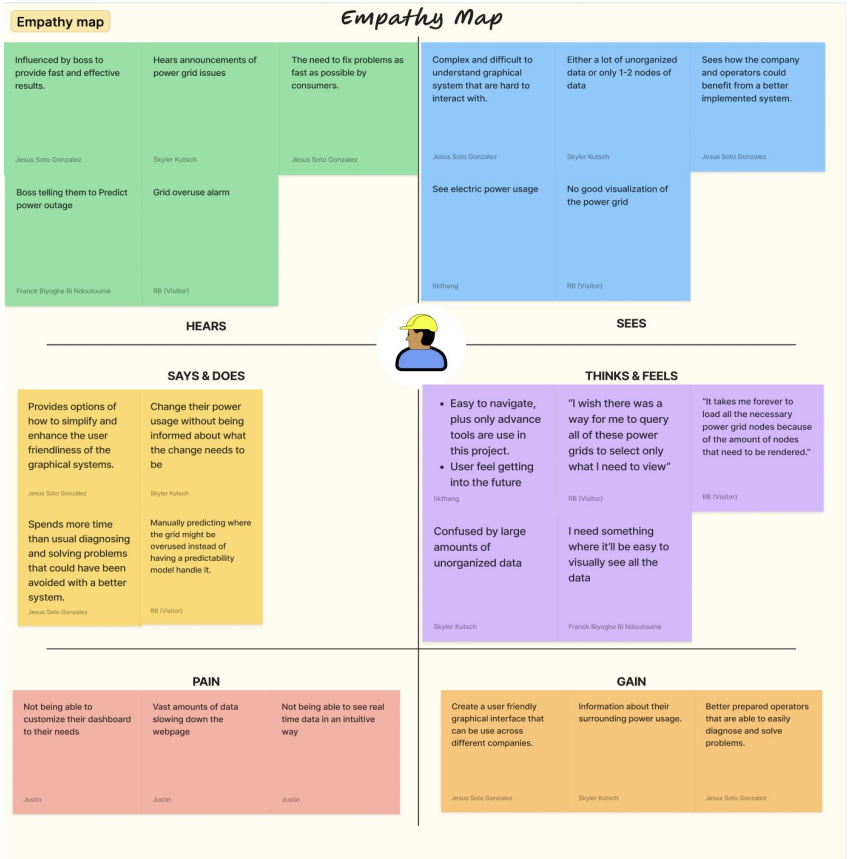
Users needs

- **Grid Operators:** Need an intuitive UI, customizable dashboards, and predictive models to act on grid data efficiently.

- **Energy Producers:** Need real-time alerts and detailed analytics to ensure grid optimization.

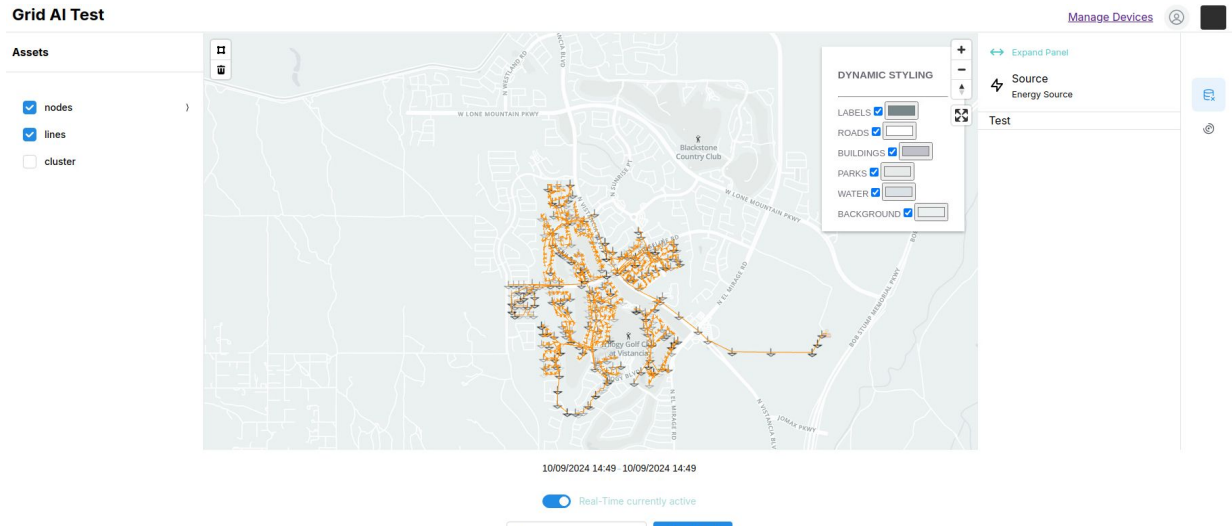
- **Researchers and Consumers:** Need easy access to grid information and reliable performance insights to contribute to research or understand energy use trends.

Empathy Map


Empathy map
Empathy Map
Influenced by boss to provide fast and effective results.
Jesus Soto Gonzalez
Hears announcements of power grid issues
Skyler Kutsch
The need to fix problems as fast as possible by consumers.
Jesus Soto Gonzalez
Boss telling them to Predict power outage
Franck Biyoghe Bi Ndoutoume
Grid overuse alarm
RB (Visitor)
HEARS
Complex and difficult to understand graphical system that are hard to interact with.
Jesus Soto Gonzalez
Either a lot of unorganized data or only 1-2 nodes of data
Skyler Kutsch
Sees how the company and operators could benefit from a better implemented system.
Jesus Soto Gonzalez
See electric power usage
hkthang
No good visualization of the power grid
RB (Visitor)
SEES
SAYS & DOES
Provides options of how to simplify and enhance the user friendliness of the graphical systems.
Jesus Soto Gonzalez
Change their power usage without being informed about what the change needs to be
Skyler Kutsch
Spends more time than usual diagnosing and solving problems that could have been avoided with a better system.
Jesus Soto Gonzalez
Manually predicting where the grid might be overused instead of having a predictability model handle it.
RB (Visitor)
THINKS & FEELS
Easy to navigate, plus only advance tools are use in this project.
User feel getting into the future
hkthang
"I wish there was a way for me to query all of these power grids to select only what I need to view"
RB (Visitor)
"It takes me forever to load all the necessary power grid nodes because of the amount of nodes that need to be rendered."
RB (Visitor)
Confused by large amounts of unorganized data
Skyler Kutsch
I need something where it'll be easy to visually see all the data
Franck Biyoghe Bi Ndoutoume
PAIN
Not being able to customize their dashboard to their needs
Justin
Vast amounts of data slowing down the webpage
Justin
Not being able to see real time data in an intuitive way
Justin
GAIN
Create a user friendly graphical interface that can be use across different companies.
Jesus Soto Gonzalez
Information about their surrounding power usage.
Skyler Kutsch
Better prepared operators that are able to easily diagnose and solve problems.
Jesus Soto Gonzalez

Goals

- ➔ Increase the reliability of the electrical grid, minimizing outages and maintaining stability.
- ➔ To have better views



Conclusion

- **GridAI simplifies power grid management** by providing intuitive interfaces, real-time insights, and AI-driven decision-making tools for operators and energy producers.

- **Grid Operators and Energy Producers benefit** from customizable dashboards, predictive analytics, and real-time alerts to optimize grid efficiency and prevent outages.

- **Impact**: Improved decision speed, enhanced grid reliability, and reduced downtime, delivering stable power supply and better service for all users.