Electric Vehicle Ecosystem Exhibit (EVEE)

**Purpose**

EVEE is an interactive, user-directed exhibit in which a scale electric vehicle (EV) is controlled throughout a model electric grid by a custom web app. EVEE is an educational tool that demonstrates how proper use of EVs and mass deployment of renewable energy can improve electric grid resilience, power quality, and create a more efficient energy system.

**The Car**

- Contains a battery manager PCB and a microcontroller PCB
- NFC sensor on bottom to know where it’s going + a peg to keep the car on the track
- Qi receiver to charge wirelessly
- Reports its battery status and location to the web app and model via Bluetooth

**The Exhibit**

16’x8’ in size

- Over 400 individually programmed LEDs to simulate flow of energy
- 50+ NFC tags placed at intersections to allow for car’s navigation
- Everything in the exhibit is connected to a custom power distribution board to dissipate power from a single wall outlet
- All pieces are modular and removable for easier transportation

**Progressive Web App**

- NodeJS Backend
- Next.JS Frontend
- Hosted on Vercel, accessible through standard app icon on tablet
- Enables interactive, remote user control of the exhibit
- Contains educational blurbs to teach user about the model electric grid

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