

ePLATE - A Smart Grid Integrated Digital License Plate

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PROJECT DESCRIPTION

Problem:

- Traditional license plates are outdated and perishable. Current issues with license plates include: theft, fading, peeling, and lack of protection.



Our Goal:

- Create an improved and ruggedized alternative to traditional metal license plates.
- Make use of current technologies to add functionality and customizability to the new plate design.

ePLATE ADVANTAGES



Durability



Security



Customizability



Smart Features

REQUIREMENTS FOR ePLATE

- 12V Power Port
- Cable Passthrough on Plate Mounting Area
- Electric Vehicle
(Required for the use of smart grid features only)



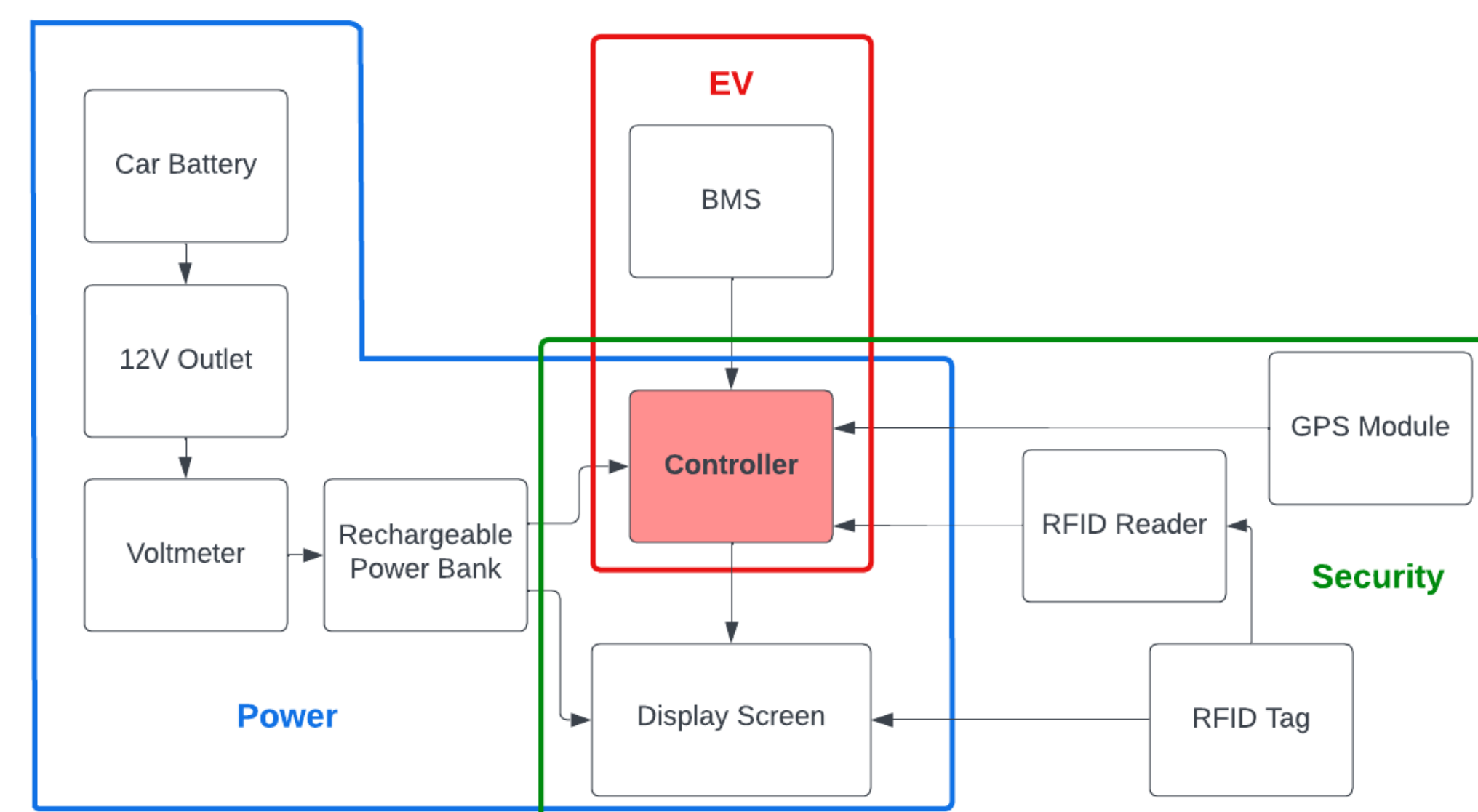
TECHNOLOGIES USED



WEB APPLICATION

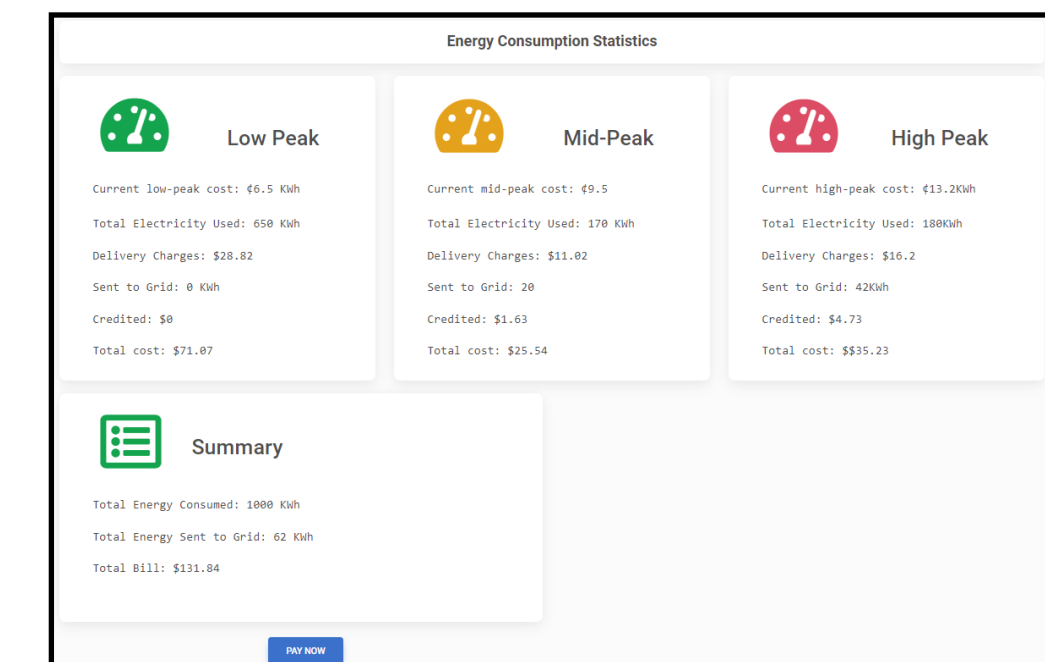
- 99.9% Availability**
 - ePLATE will always be online, as each instance of the plate is replicated.
- Advanced Security: One Secure End Point**
 - Single secure end-to-end point access for each ePLATE.
- Cost Effective**
 - No expensive servers or hardware are required.
- High Performance & Reliability**
 - No interruptions or downtime. (Significant)
 - Application is always up and running.
- Allows for Elasticity**
 - As website traffic increases, more resources are allocated to meet demand.
- CICD (Continuous Integration Continuous Deployment)**
 - Minimized downtime with new features being implemented quickly and efficiently.
- Autoscaling**
 - Resources are allocated automatically to ensure consistent performance.
- Minimalistic and User-Friendly UI**
 - Visually appealing and user accessible.
- Elasticity**
 - Ability to dynamically meet the user's demands.
- Disaster Recovery for Each Plate**
 - Implemented fault tolerance to facilitate disaster recovery.

SYSTEM ARCHITECTURE

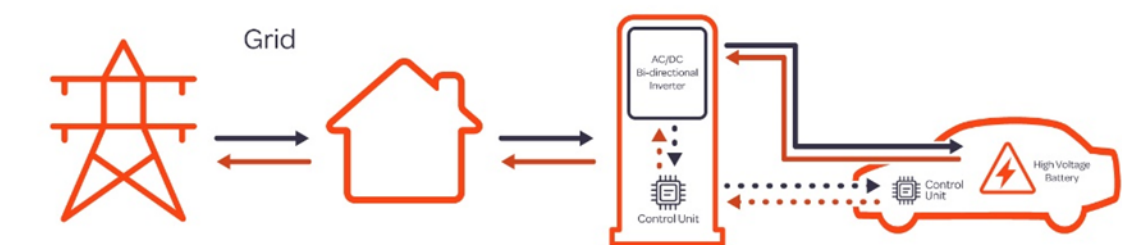


KEY FEATURES

- Smart Grid Integration**
 - EV Energy Consumption Tracking

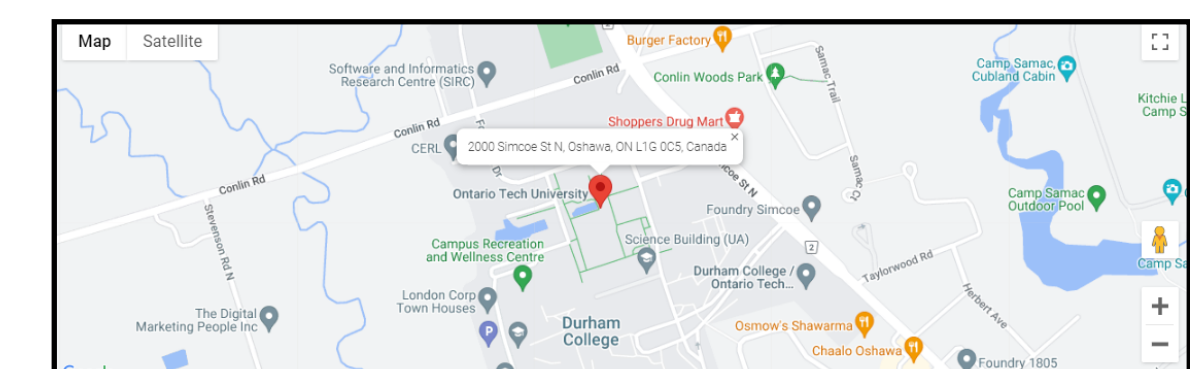


- Online EV Energy Bill Payment
- V2G Capability

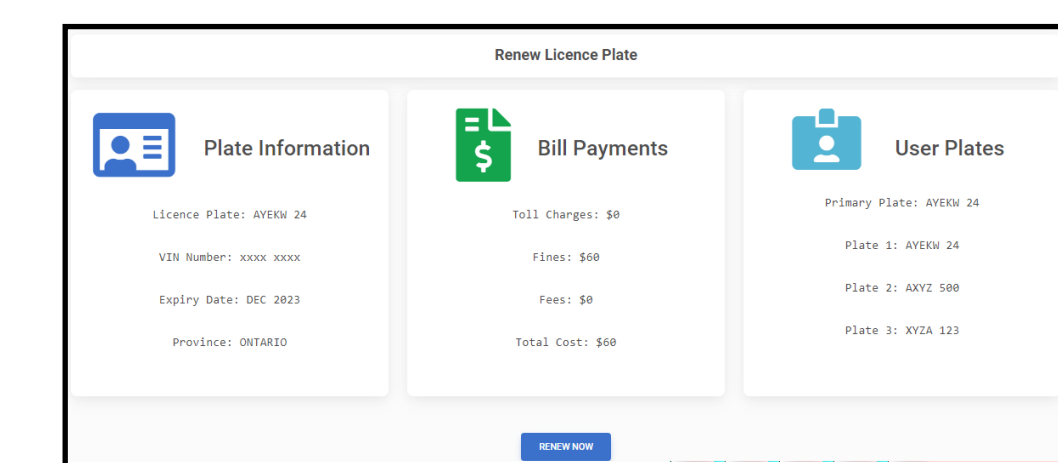


- Battery Health & State Information

- Security**
 - RFID Plate Authentication
 - GPS Tracking (Telematics)



- Online Plate Renewal**



FUTURE IMPROVEMENTS

- Toll Road Integration
- Smart Parking
- Emergency Alerts
- Plate Graphics

