EE/CprE/SE 492 - sddec21-21
Microgrid App
Biweekly Report 1

August 30 - September 13
Client: EPRC Anne Kimber
Faculty Advisor: Mat Wymore

Team Members:
Gabriel Rueger - Frontend Engineer
Michael Doyle - Team Leader / Backend Engineer
Micheal Thai - Backend Engineer
Patrick Shirazi - Frontend Engineer
William Bronson - Backend Engineer

Past Week Accomplishments:
- Research into Cassandra DB replacement for relational database - Will
  - Free open source non-relational distributed database.
- Spring Websocket - Mickey
  - Working towards placing a spring instance onto the team virtual machine. This is in order to get a consistent updating graph of crate battery system (Tesla Powerwall) levels.
- React Native Websocket - Gabe
  - Fixed some issues with the git repository and dependencies in order to use Stomp and SockJS
    - This matches the socket libraries being used for the Spring backend
  - Changed the frontend websocket from the default React Native Websocket library to SockJS sending and receiving data over Stomp
    - This will allow us to send JSON objects over the websocket which will be extremely useful for the websocket's primary purpose of grabbing data from the database
  - Began working on establishing a connection between the frontend and backend
- Mobile app screen navigation and setup - Patrick
  - Update IOS dependencies that was updated and broken during the summer development break.
    - Linking react-native-vector-icons properly with new React Native automatic linking feature
    - Determining issue with versioning and inclusion of flipper-folly libraries
  - Begin laying out basic screens to be used in mobile app
    - Basic screens for crate selection and crate data display
    - Leverage navigation and menu setup last semester to navigate between new screens

- Access to the Crate - Micheal
  - Learned that the crate was moved to Des Moines and we won't be able to access it

Pending Issues

- Fully establishing a websocket connection between the frontend and backend - Mickey and Gabe
  - We ran into some errors when trying to run our updated backend program on the remote desktop
  - We need to verify the frontend websocket actually functions by testing with the backend websocket
- Formalize a test process
  - The team might not get access to data generated at the crate for a time. A test application must be made to create and store dummy data into the database.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Gabriel Rueger	Changed frontend websocket to us Stomp and SockJs.	4	4
Michael Doyle	Work towards getting spring websocket communication with database on team VM	4	4
Micheal Thai	Tried to get access to the crate. Looked into powerwall's API	1	1
Patrick Shirazi	React Native mobile app dependencies and new screens	3	3
William Bronson	Research into Cassandra	2	2

Plans for Coming Period

- Create and give PIRM presentation - Team
- Backend Websocket - Mickey
  - Work with frontend websocket (Gabe) to start creating channels to send dummy data over. Begin adding logic to receive requests and send data over these channels.
- Frontend Websocket - Gabe
  - Verify the frontend websocket works by testing with a connection to the backend
  - Work with backend websocket (Mickey) to start creating channels to send dummy data over. Begin adding logic to send requests and manage data received over these channels.

- Cassandra Database - Will (+ Patrick on support)
  - Setup cassandra database on VM
  - Update backend server database connection with Spring to use new Cassandra database
  - Make necessary changes to spring entities and repositories to fit Cassandra
- Continue looking into the Tesla Powerwall Api and extract information - Micheal
- Look for any updates in the Solar Crate Box drive - Micheal
- Graphical display for crate data - Patrick
  - Find graph library for react native and import into project
  - Setup graph on data display screen
  - Generate random mock data for display on graph

Summary of Advisor Meeting
- Database change research
  - Feedback on semester presentation challenged use of relational database
  - Will presented ideas on changing from mySql relational database to Cassandra
  - Discussion on benefits over mySql and benefits to specific use cases (BASE)
  - Advisor accepted proposal, moving forward with Cassandra
- Restricted crate access
  - Crate now moved to location in Des Moines
  - Access to device data on crate will be more difficult to receive, we will need to develop a way to mock this data to use in our application