

EE/CprE/SE 492 WEEKLY REPORT 11/22

January - December

Group Number: 1

Project Title: Applying and Evaluating Blockchain in Energy Delivery Systems

Client: Grant Johnson

Advisor: Dr. Gelli Ravikumar

Team Members/Roles:

Owen Snyder - Frontend/UI Developer

Josh Edwards - Backend API Developer

Emileo Xiao - Testing/Evaluation Lead

Dylan McCormick - Lab Integration Lead

Thai Pham - Blockchain Lead

Weekly Summary (Short summary about what the group did for the week. This should be about a paragraph in length. These are just a few questions to help you get started. What was the overall objective for the week? In general, what tasks were completed? Were there any changes made to the project?)

We are still working on getting our blockchain network set up and running so that we can combine our implementations and have our own network instead of using a pre-setup one to show proof of concept.

Past week accomplishments (Please describe/summarize as to what was done, by whom, when and, collectively as a group. This should be about a paragraph or two in length. Bulleted points are acceptable as well. Please keep only your technical details related to your project. Figures, schematics, flow diagrams, pseudocode, and project related results are acceptable, but please ensure that they are legible (clear enough to read) and to provide an explanation. If researching a topic, please add a few details about what was learned and how it is relevant to the project. If two or more people worked on a single task, be sure to distinguish how each member contributed to the task. Specific details relating to the assistance provided to other members may be included here. Do not include classwork, such as individual reflection assignments, and group meetings as part of your duties.)

Owen Snyder - Learning ReactJS in more depth and making progress on setting up the primary functions of the UI. Worked with Josh to begin linking the UI with API endpoints and discussed with Emileo about how Caliper will work with the UI.

Josh Edwards - Testing endpoints to confirm that they work as expected. Started adding more error codes that will aim to assist in the integrating part of the project, as clarity in this avenue is important in making that go seamless as it needs to.

Emileo Xiao - Worked with Thai to create the fabric environment for our blockchain and the gateways so people can connect to it.

Dylan McCormick - Continued work on setting up and configuring smart contracts that can interact with our api and client. Finding a good way to communicate data through web sockets from JS to python application.

Thai Pham - worked with Emileo and Grant to figure out how to connect the blockchain network locally to the VScode extension. Developing a basic network based on the fabric samples.

Pending issues (If applicable: Were there any unexpected complications? Please elaborate.)

Owen Snyder - Made a design decision to start using Axios for API communication, must learn how to use Axios

Josh Edwards - Looking into the possibility of adding an HTML Caliper report to the ledger, need to talk with Leo about that.

Emileo Xiao - Since the blockchain is almost up, I can figure out the issue of connecting Caliper on a different VM to another VM which hosts the blockchain.

Dylan McCormick - Not sure best way to cross-communicate python app and JS websocket.

Thai Pham - Blockchain network is nearly finished but figuring out the syntax for all the yaml files and modifying them is difficult and tedious.

Individual contributions (Creating this section is optional, but it is Required to include the “Hours Worked for the Week” and their “Total Cumulative Hours” for the project for each member somewhere relevant in your report. Your individual weekly hours should be at a minimum of 6-8 hours for this course. So please manage your time well. Also, ensure that

individual contributions support your claim to the weekly hours. Be honest with the reports.) NAME Individual Contributions (Quick list of contributions. This should be short.)

| Team Member | Contributions | Weekly Hours | Total Hours(from this semester) |
|--------------------|---|---------------------|--|
| Owen Snyder | Setting up react components for UI, worked with Josh to figure out what data needs to be received from GET requests, and began learning/using Axios for interaction with API. | 9 | 33.5 |
| Josh Edwards | Finished endpoints, tested endpoints, began adding different status codes to return on specific integrating errors. | 10 | 32 |
| Emileo Xiao | Worked with Thai to expand the blockchain | 8 | 33 |
| Dylan McCormick | More Troubleshooting of docker and smart contracts. More Configuring smart contracts/possible applications. | 6 | 44.5 |
| Thai Pham | Developing chaincode and modifying yaml files, as well as expanding blockchain | 10 | 36 |

Comments and extended discussion (Optional)

Feel free to discuss non-technical issues related to your project.

Plans for the upcoming week (Please describe duties for the upcoming week for each member. What is(are) the task(s)? Who will contribute to it? Be as concise as possible.)

Owen Snyder - Get an initial working version of the UI implemented with a simple dashboard. Discuss with Emileo and Josh about specific design decisions to determine what data the UI will need to display and how it will be communicated through the entire system.

Josh Edwards - Work on finishing up the various status codes on the endpoints. Look into placing a Caliper report on the ledger as that is some additional functionality we discussed with our client.

Emileo Xiao - Start creating additional tests that use the API's Josh and Dylan have created on the smart contracts and execute them on the blockchain.

Dylan McCormick - Working on communication between python application and JS smart contract, also continuing to configure smart contracts for easy cross-implementation.

Thai Pham - Finish the network and test the connection to the VScode extension, beyond that just general testing and configuring.

Summary of weekly advisor meeting (If applicable/optional)

(Provide a concise summary on the contents and progress made during the advisor meeting.)