Bi-Weekly Status Report 3

Dates: 9/23/2018 - 10/6/2018
Group Number: sddec18-02
Project Title: Steam Heat Controller Retrofit
Client/Advisor: Lee Harker

Team Members - Role
Sarah Coffey - Reporting Lead
Ken Wendt - Webmaster
Liz Wickham-Kolstad - Design Lead
Jevay Aggarwal - Technical Lead
Joe Filbert - Client Lead
Thomas Devens - Planning Lead

Summary

Our group was able to make a lot of progress in the last two weeks. A meeting with our advisor resolved the on/off switch and battery issue we were facing with the RCU. The PCB for the MCU has been finalized and is ready for printing. The web team was able to get reads/writes to the database functional from the website, as well as getting a VM provisioned so that we can host the site externally. The software team developed motor controller software for the MCU as well as database reading/writing scripts. This code will poll the database at set intervals and update the valve position if there are new requests. The team was able to demonstrate a prototype for the full-circle communication from the website to the motor controller as a result of our efforts.

Pending Issues

Our PIRM meeting revealed the need to prioritize security in our software, so we are actively working to implement solutions to the identified weaknesses. This is involving more research than previously accounted for.

Going Forward

The hardware team is finalizing the PCB layout for the RCU based on the on/off switch decision; this should be complete soon so that we can order the PCBs. The web team is working on getting Shibboleth permissions on the server, as well as getting SSL certificates to make the site use https. The software team is verifying the Feather to Pi communication. For security, the team is also trying to integrate secure connections and data transfers between the Feather and Pi and the database accesses from the Pi.

Individual Contributions

Name	Contribution	Hours Worked	Total Hours
Sarah	Helped resolve posting data from the site to the server and back to the DB. Investigating SSL certificates and connections for the website and database.	11	38

Ken	Worked on solving the power consumption issue with the RCU. Current working method is cutting all power with a switch.	9	29
Liz	Worked on Communication with Database. Can now access Database and move motor accordingly. Working on uploading data to database.	11	34
Jevay	Worked on the RCU to get it to send temperature changes to the MCU with button press. Working on adding encryption to the RCU.	12	32
Joe	Finalized Raspberry Pi hat for MCU, submitted fabrication documents to ETG, along with Parts order. Beginning Enclosure design for MCU.	8	23
Thomas	Improved the temp controls on the room web page, and began experimenting with styling of the website	11	26.5

Meeting with Client/Advisor

- Discussed plan to add power switch to thermostat which got approval. This should solve our power consumption problem on the RCU
- Got feedback on our PCB for the MCU which has now been finalized and sent to Lee for ordering