

EE/CprE/SE 492 – Bi-Weekly Status Report

09/13/2021 – 09/24/2021

Group sddec21-proj07

Beaglebone Green Gateway IoT Hub

Client: Texas Instruments

Faculty Advisor: Nathan Neihart

Members:

Parker Larsen – Hardware design, Communications Lead

Taylor Weil – Software design, Meetings Scribe

Sean Griffen – Software design, Documentations Lead

Sterling Hulling – Hardware design, Meetings Scribe

Period Summary:

Hardware:

Hardware continued work on the first (and hopefully final) revision of the cape design that will attach to the beaglebone. Specifically, most work was finalizing the layout and footprints per ETG's request. Also, PCB fabricator was changed from Advanced Circuits to JLC PCB per ETG's guidance, so work was done modifying the tolerances on the pcb design, especially in the high-frequency circuit. Research was also started for a board that will connect to the zigbee network to control high-power relays.

Software:

Software continued working through TI's example projects for ZStack zigbee and UART development. While initial examples are working, work still needs to be done tailoring the software components to this project's specific needs.

Pending Issues:

Hardware:

First revision of the main board is still under review and hasn't been sent out for manufacturing. This is the priority from a hardware standpoint and has been an ongoing process from last semester.

Software:

Working through the example code for TI's ZStack zigbee setup and UART connection with the TI-RTOS has proved challenging. Software is still working through getting the example code running how they want it to and modifying it in a way that makes sense for their needs.

Goals:

Hardware:

Objective is to get the first revision of the main board done sent out for manufacturing and start work on an additional relay board design while the first revision is being manufactured.

Software:

Goal is to get UART and Zigbee communication standards working between the Beaglebone, the cape, and the data devices. Specifically with UART, a goal is to have an example project working to test the developed cape design and validate that it works as intended. A stretch goal for UART communication is to be able to flash the CC1352 over UART using the chips bootloader.

Member Contributions:

| Name | Contributions | Period Hours | Cumulative Hours (F21) |
|------------------|--|--------------|------------------------|
| Parker Larsen | <ul style="list-style-type: none"> - Attended required meetings - Worked on fixing the layout and footprints for the cape design - Worked with ETG to finalize board design for vendor requirements | 14 | 31 |
| Taylor Weil | <ul style="list-style-type: none"> - Attended Meetings - Worked through TI example projects for ZStack development on the CC1552 platform | 5 | 15 |
| Sean Griffen | <ul style="list-style-type: none"> - Attended required meetings - Worked through TI example projects for UART development on the CC1552 platform | 5 | 15 |
| Sterling Hulling | <ul style="list-style-type: none"> - Attended required meetings - Worked on verifying the footprints and layout of the 1st revision of the cape design - Started work on an additional rely board to be controlled over the zigbee network | 5 | 9 |

Advisor Meeting Summary

Discussed how cape development was doing and about the switch in PCB fabricators.
Discussed setting aside appropriate time and creating a semester schedule to better meet goals.