

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

10/11/2021 – 10/22/2021

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:

- Assembled the first revision of the ZigBee Cape
- Powered up and tested IOs, UART, programming. Zigbee testing is coming later this week.
- Collected information on changes that are needed for revision 2
- Completed relay board schematic
- Completed switch board schematic, BOM and layout
- Both boards are being reviewed

Software:

- Established the Zigbee communication on demo projects
- Send timed messages or instant messages on variable change
- Display variables on UI over USB
- Programmed the newly assembled cape and communicated over UART
- Able to use GPIO pins on new cape to communicate data
- Able to send strings from the CC1352 to the Beaglebone, but not the other way around in a convenient way

Pending Issues:

Hardware:

- No pending issues

Software:

- Zigbee “cluster id” does not work when changed
- Sending strings from the Beaglebone to the CC1352 is cumbersome

Goals:

Hardware:

- Complete and order switchboard
- Finish switchboard documentation
- Assemble switchboard if it comes in early enough
- Start revision 2 of the Zigbee Cape
- Complete documentation for revision 2 of the ZigBee Cape
- Finish the schematic reviews of the relay board
- Finish the layout and BOM of the relay board

Software:

- Read sensor data
- Display sensor data
- Send Sensor data
- Send received sensor data over UART
- Begin customizing the CC1352 project to our use-case
- Extra: Store data to web server and update the web client

Member Contributions:

Name	Contributions	Period Hours	Cumulative Hours (F21)
Parker Larsen	<ul style="list-style-type: none"> • Attended required meetings • Assembled the Zigbee Cape • Met with team to program and debug board • Corrected errors on the Zigbee Cape • Completed switch board • Helped review the relay board 	25	70
Taylor Weil	<ul style="list-style-type: none"> • Attended required meetings • Worked through TI example projects for ZStack development on the CC1552 platform • Met with team to program and debug board 	20	45
Sean Griffen	<ul style="list-style-type: none"> • Attended required meetings • Established one-way string-based UART communication between the CC1552 and the Beaglebone • Worked with hardware to debug first cape revision flashing/programming as well as GPIO assignments 	10	30
Sterling Hulling	<ul style="list-style-type: none"> • Attended required meetings • Completed relay daughter board schematic • Began BOM and Layout for daughter board 	6	19

Advisor Meeting Summaries

Meeting 1:

Did not meet

Meeting 2:

Discussed accomplishments and goals to keep moving forward, project on pace to exceed MVP.