EE/CprE/SE 491 Weekly Report *MAY1622 Week VIII*

Date (10/21/15-10/27/15)

Advisors: Daji Qiao
Client: Halil Ceylan
Co-Advisor: Christofer Sheafe ()
Members (roles):
Shen Fu (Team Leader)
Matt Rose (Team Communication Leader)
Qichen Yan (Team Webmaster)
Darnell Melvin (Team Key Concept Holder)

Project Title: Wireless Embedded Roadway Health Monitoring

Meeting notes

10/21
Began documenting comparisons for possible microcontrollers, as per Daji's request. Confirmed that the CC1310 was the best choice. We also found a better replacement for the flash memory, the MX25R, and a better battery.

10/23

- Parts have been approved for purchase:
    - CC1310
    - MX25R4035F flash memory (4Mb)
    - AdaFruit breakout boards
    - CR2477 battery
    - XDS100v2 ARM Cortex Debugger
- Look at size of data packet being sent (from previous team's report)
    - OR design a new data packet format
    - What is trade-off between amount of readings stored and transmitted at once versus the power cost of transmitting?
        - Is it more efficient to transmit small packets often?
        - Or to transmit large packets infrequently?
- Antenna: we can use any whip antenna, need to think about how it will connect to board
    - Connect via SMA (.5" diameter)
    - Connect directly to board
    - Print antenna to board (works best with high frequencies)
- Use a dual-sided PCB?

    - MCU on one side
    - Battery on other side
- After parts are ordered, we should start designing the board layout digitally and simulating interactions as well as writing software.
- Search Digi-Key for cheaper parts

10/26

Team began setting up development environments (Code Composer Studio, Android Studio).

10/23/2015 Group Meeting with Advisors

Duration: 1 Hour
Members Present: *All*
Purpose and Goals:

We presented our new table comparing different aspects of microcontrollers, flash memory, debuggers, batteries, and breakout boards. This information was used to choose new parts, and those parts were approved by Daji and the parts have since been requested. A member of the other team that Daji is advising joined our meeting in the hopes that we could find a debugger to share since they are quite expensive. Our chips were not similar enough that we could share a debugger.

Weekly Summary

The team has put in a purchase order for the new parts and moved on to digital circuit and code design.

Pending issues

None

Plans for next week

Next week we would like to have the parts so that we can start testing them. Until then, we are beginning circuit design and coding.

Budget

N/A

Next Meeting

10/28/2015 4:00 PM, Coover Senior Design Lab

Hourly Contributions

Team (together): 5 hours
Matt: 3 hours
Shen: 3 hours
Qichen: 3 hours
Darnell: 3 hours