

EE 491 Weekly Report **MAY15-23** **Week 11 (11/10/14-11/16/14)**

Advisors: Daji Qiao

Client: Halil Ceylan

Members (roles): **Brandon Wachtel, Tyler Fish (Team Communicators)**

Mitch Balke (Team Leader)

Brandon Maier, Johnnie Weaver (Web Masters)

Trieu Nguyen, Christofer Sheafe (Key Concept Holders)

Project Title: Wireless Embedded Roadway Health Monitoring

Weekly Summary

We changed the overall design of the project. Instead of doing periodic charging, we have decided to use continuous charging by placing charging circuitry beneath the nodes underground. It will increase the reliability and lifespan of the nodes and decrease the need for continuous maintenance by the DOT for charging. We have built the antennas for RF charging testing applications and are waiting on a few more components to come in to finish those. We are hoping to get the DOT to come to a weekly meeting to talk to them about the logistics of the project. We are continuing work on the new microcontrollers. Still heavily testing and working on getting a prototype built by the end of the semester. The biggest issue that we are running into is shipping times.

Meeting notes:

Created a list of questions to ask the DOT if they are able to come to the next meeting

Thinking about power and communications underground

Configuration is parallel networks of sensors down the road

Look into CAN language for data transmission

Request access for Coover 3013, antenna lab

Look for super capacitors for energy storage

Look into super capacitor charging circuitry

Decided on underground power with a lithium ion battery for storage

Decided on underground communications between sensors and base station

10/24/14 Group Meeting with Advisers

Duration: 1 hour **Members Present:** All

Purpose and Goals:

Discussed changing the charging method to being continuous and placed underground beneath each node.

Advisers liked the idea and have told us to look into the idea further. Gave an update on how the antenna design and construction has been going.

Pending issues

The PCB board for the microcontroller was bad and we need to order a new one

Need to quickly design a new format for the charging and communications systems to be underground

Plans for next week

Chris: look into data transmission box as well as receiver design

Tyler: look into data multiplexing on the bus (hardware side), look into receiver design

Johnnie: look into underground power network design

Brandon W: Look into underground power network design, continue charging circuitry testing

Brandon M: Continue working on node networking, work on microcontroller testing

Mitch: look into CAN language, continue working on microcontroller testing

Trieu: Look into EM power for power transmission

Individual Contributions (this week)

Johnnie Weaver: Attended group meeting (1hr), attended adviser meeting (1hr), worked on EM charging through concrete (1.5hr), worked on website (1.5hr)
Brandon Wachtel: Attended group meeting (1hr), attended adviser meeting (1hr), battery testing and research (6hr), research on labview and lithium ion batteries (1hr), super capacitor research (0.5hr), weekly report (0.5hr)
Tyler Fish: Attended group meeting (1hr), attended adviser meeting (1hr), worked on project plan (0.5hr), researched network communications on buses (1hr), weekly report (0.5hr)
Mitch Balke: Attended group meeting (1hr), attended adviser meeting (1hr)
Brandon Maier: Attended group meeting (1hr), attended adviser meeting (1hr)
Trieu Nguyen: Attended group meeting (1hr), attended adviser meeting (1hr), worked on EM charging (1.5hr)
Christofer Sheafe: Attended group meeting (1hr), attended adviser meeting (1hr), patch antenna assembly (2hr)

Total weekly contributions (this week) for the project

Johnnie Weaver: 5 Hours
Brandon Wachtel: 10 Hours
Tyler Fish: 4 Hours
Mitch Balke: 2 Hours
Brandon Maier: 2 Hours
Trieu Nguyen: 3.5 Hours
Christofer Sheafe: 4 Hours

Total contributions for the project

Johnnie Weaver: 44 Hours
Brandon Wachtel: 52.25 Hours
Tyler Fish: 45.75 Hours
Mitch Balke: 45.25 Hours
Brandon Maier: 41 Hours
Trieu Nguyen: 39.75 Hours
Christofer Sheafe: 41.75 Hours