

EE 492 Biweekly Report 6

Timeframe: 3/23/18 – 4/6/18

Group: 38

Project: Sensors for Measuring Chemical Content in Soil

Client and Advisor: Dr. Liang Dong

Team Members – Broken down into 3 group roles (Control Box, Sensor, and Software).

Colin Cox – Software

Jarrold Droll – Sensor

Rachel Hoke – Sensor

Wage Miller – Control Box

Scott Rowekamp - Software

Tyler Thumma – Control Box

Summary:

Control Box – Control box was cutout via Boyd lab. The PCB was soldered with voltage charger and circuit.

Software – Sever has API calls for addUser, login, uploadData, and getData. The basic UI is partially implemented. The Microcontroller software is complete and fits on the mcu with a few bytes to spare.

Sensor – Continued to solder leads onto sensor boards in order to begin testing. After soldering we began testing sensors in various nitrate solutions and recorded all of our results.

Accomplishments:

Control Box – Control box is now cutout and PCB is ready for testing.

Software – API calls done for the server are done. The mcu software has been rewritten and optimized so that it can fit on the board with all the functional requirements including the late addition of an external adc. Started the process of pulling in the latest updates of the API for the Android App.

Sensor – We received results that were consistent with the theoretical data. We received similar results from multiple sensors. We successfully implemented a sensor into our Nbox connector and had no errors.

Pending Issues:

Control box – An issue with using capacitors for the PCB arose as there were multiple types of capacitors however this issue was resolved.

Software – The UI is partially done, but the different components need to be connected. One line of the SD card lib software needs to change, in order for this to be maintainable we should create a copy of the sd card library and package it with the rest of the software we have developed. With the new microcontroller software, we will need more updates to the Android App to support the new interface. All of our software still needs to be documented so we can pass it on to the next developer/s.

Sensor – Had an issue with the ISM curling during the soldering process. ISM also started to peel off after approximately 30 minutes inserted into nitrate solution. Waterproofing on the side of the sensor board still poses an issue.

Individual Contributions:

Name	Contribution	Hours	Cumulative Hours
Colin Cox	Wrote new microcontroller software and began second version of android app	15	45
Jarrold Droll	Soldered leads onto sensor boards and began testing for sensors in nitrate solution.	10	38
Rachel Hoke	Soldered circuit board for Nbox. Assisted Tyler with Nbox cutout.	15	43

	Soldered leads onto sensor boards and began testing for sensors in nitrate solution.		
Wage Miller	Completed box cutout and assisted in the soldering of PCB boards. Researched possible waterproofing and epoxy methods.	13	40
Scott Rowekamp	Worked on the server	7	42
Tyler Thumma	Completed Box cutout and assisted in the soldering of our PCB boards.	15	43