

EE 492 Biweekly Report 1

Timeframe: 1/12/18 – 1/26/18

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 – A final design was created for the PCB, the end result is roughly half the size of the original PCB with the same functionality.

Software – Started researching possible solutions for the server component of the software. This period was mainly focused on database storage.

Sensor – Continued work on finalizing the design for the soil sensors.

Entire group – Came together at the end of the biweekly period to meet with client/advisor to discuss the progress that has been made and rework/fine tune the timeline for the near and distant future of the project.

Accomplishments:

Control Box - Tyler used Ultiboard in order to create a PCB for the circuit with much smaller dimensions. He also worked on implementing the voltage booster onto the circuit. Wage helped create the voltage booster in Multisim as well as looked up battery alternatives for the control box.

Software – Scott has determined that MongoDB is the best solution for data storage. It is easy to implement with client libraries already implemented on most of the popular server software programs. MongoDB is also good for our project since we will be storing data of various sizes. Colin implemented a proof of concept android application that polls the existing control box and waits for the data to settle and then displays the reading to the user.

Sensors – Jarrod worked on the redesign of the wafer that the sensors are printed on using CAD software. Drawing up the wafer and the sensor in this updated design will help with the application of silver to the sensors during the fabrication process. Rachel reviewed over sensor design options that were design during last semester. We discussed and decided on the application of the shadow mask to the sensors to improve the issues we were facing during the fabrication process.

Pending Issues:

Our next steps are getting the final approval for our current designs in order to send them out for parts and fabrication. The pending Issue is just making sure to get these orders out on time.

Individual Contributions:

Name	Contribution	Hours	Cumulative Hours
Colin Cox	Created sample android application for current control box	5	5
Jarrod Droll	Worked with CAD software to redesign sensor files for fabrication	5	5
Rachel Hoke	Reviewed remaining sensor designs. Coordinated group meetings	5	5

	with team and advisor/client		
Wage Miller	Created voltage booster in Multisim and found alternative battery options.	5	5
Scott Rowekamp	Started researching different tools and frameworks for hosting a webserver.	5	5
Tyler Thumma	Designed Final PCB design in Ultiboard. Waiting on approval from Advisor.	5	5