

**Group number: May1719**

**Project title: Portable Nutrient Data Collection System - Phase II**

**Client &/Advisor: Dr. Qiao & Dr. Qeu**

**Team Members/Role:**

**Ben Theisen - Group Leader**

**Michael Rupert - Webmaster**

**Zakk Belloma - Key Concept Holder**

**Ben Engebrecht - Communication Leader**

**Logan Boas - Communication Leader #2**

**Ryan Young - Key Concept Holder #2**

### **o Weekly Summary**

We were able to jump back into our project without much incident. During our weekly meeting with our advisor, we were able to learn that the graduate student in the lab over winter break has developed a better way of taking measurements. This new measurement system will hopefully provide better data acquisition on our end.

### **o Past week accomplishments**

- ❖ First meeting with our advisor of the semester, laid out a plan for moving forward with design and implementation
- ❖ Set up trello to keep track of work moving forward.
- ❖ Set up weekly group meeting time.
- ❖ Set up advisor meeting time

### **o Individual contributions**

| <b><u>NAME</u></b> | <b><u>Individual Contributions</u></b>  | <b><u>Hours this week</u></b> | <b><u>HOURS cumulative</u></b> |
|--------------------|---|-------------------------------|--------------------------------|
| Michael Rupert     | Updated the website with new documentation, set up Trello board.              | 3                             | 49                             |
| Ben Theisen        | Looked into enclosure options. Analyzed costs of several options.             | 3                             | 51                             |
| Zakk Belloma       | Worked on receiving mock data in the app over bluetooth from the Raspberry pi | 4                             | 48                             |

|                |  |   |    |
|----------------|--|---|----|
| Ben Engebrecht | Researched libraries that will facilitate hardware/software communication                | 3 | 53 |
| Logan Boas     | Researched material for constructing voltage booster, that are rated for proper voltage. | 3 | 48 |
| Ryan Young     | Researched and mocked up sending data from raspberry Pi to android via bluetooth         | 3 | 53 |

**o Plan for coming week**

- Set up dedicated testing system with the raspberry pi that we received - All
- Get data retrieval through bluetooth working -Zakk
- Implement sending data over Bluetooth - Zakk
- Work on developing a system for extracting data from the spectrometer and analyzing it over the raspberry pi- Ben E, Ryan, Michael
- Assemble the voltage booster - Logan B
- Implement Firebase database in app for backing up data - Rupert, Ben T

**o What we learned this week**

- ❖ Some more information about the samples being tested, and their make-up
- ❖ Python methods for serial communication
- ❖ How to set up a trello board, and organize the board with the team
- ❖ Semester breakdown for class expectations.

**o Summary of weekly advisor meeting (if applicable/optional)**

We listened to a presentation from Shenmin, a graduate student working with the spectrometer involved in this project. He worked on calibration for the spectrometer and detecting different concentrations of nitrate in the sample. Currently, there is some trouble detecting different concentration levels of nitrate in samples. Also discussed what needs to get done for the first prototype phase. This first prototype phase will be presented around the middle of February. After this first prototype, the case and battery system will start to be developed for the end of the semester.