EE / CprE / SE 492 - Team #15
Portable DAQ for Dogs
Bi-weekly Status Report #1
Client: Simon Lalflamme
Faculty Advisor: Nathan Neihart

Team Members:
Yan Jie Hui - Co-Team Lead
Rohan Yadlapati - Co-Team Lead
Daeyoo Kim - Hardware Lead
Rishab Kinnerkar - Web Developer
Matt Faronbi - Communications Lead

Past Week Accomplishments
Meeting with new adviser(Dr. Neihart):
- Give him a overview of our project in order for him to give us directions.
- Parts of the project he suggested for us to focus design anti-alias filter, write interrupt to log data, design power management system, connect a temperature sensor.
- Decided to use a 10 bit ADC rather than a 16 bit ADC

Web-Application- Rishab Kinnerkar
- Setup WordPress website locally and implemented website design
- Implemented and tested graphing application which can plot input resistance against date and/or time on website from excel(Static).
- Tested graph plotting with dynamic data. Setup intervals which would update the variables with the latest input data and update the graph. The program periodically reads data from a file and then plots it. Still need to implement it on the web-application.
- Made contact forms for user profiles and dog profiles. Made pages for the web-application and arranged functionalities(Sign-up, Login etc.) inside them.

Reconstruction of smaller version of microcontroller- Yan Jie Hui
- Look into parts of the arduino uno board that are not useful for our project and parts what we need to include on our board design.
- Sketch circuit design of microcontroller board with minimum components.

Data calibration - all group members
- Collect data from a potentiometer into the arduino
- Use multimeter to measure the correct value and compare with the 10 bit value displayed on the arduino IDE serial monitor to determine the overall accuracy.

mm (V)	arduino (V)
0.54	0.5322
0.742	0.72265
1.05	1.03
1.2368	1.21
1.5281	1.503
1.7676	1.743
2.0624	2.031
2.2976	2.265
2.541	2.509
2.75	2.797
3.071	3.032
3.255	3.212
3.582	3.544
3.822	3.779
3.966	3.9205
4.27	4.223
4.539	4.487
4.774	4.721

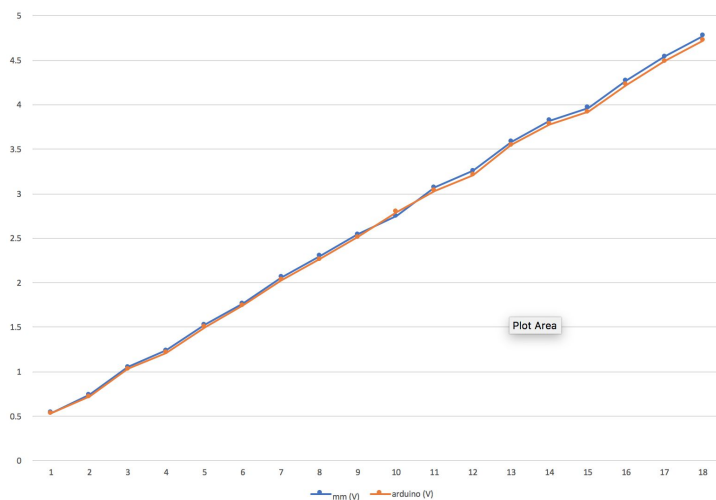Figure 1. Data Points collected to determine the accuracy of the Arduino.

Figure 2. All the collected data points from Figure 1. Plotted into a line graph.

Temperature Sensor - Rohan Yadlapati
- Determined the need to attach a temperature sensor as temperature may play a factor in the collected data
- Began looking into I2C protocol and how it can be used for our project

PCB Fabrication - Daeyoo Kim
- Practiced soldering with an example circuit on a perf board which is a simple version of pulse-width modulation (PWM) for the circuit we are going to make for the senior design project.

- Researched which PCB software is better for design. There are some softwares which are EAGLE, EasyEDA, Multisim/Ultiboard, and so on. I finally decided to use Multisim/Ultiboard for PCB.

Pending Issues

Design anti-alias filter

Write interrupt to log data

Design power management system

Connect a temperature sensor.

Finish a fully working prototype of online app.

Individual Contributions

Team Members	Contribution	Weekly Hours	Total Hours
Yan Jie Hui	Research on the arduino board and how to write interrupts on arduino and data calibration	5	5
Rohan Yadlapati	Began research into I2C protocol, which will be necessary for connecting the temperature sensor and Data calibration	5	5
Daeyoo Kim	Practiced soldering with an example circuit with a perfboard for PCB fabrication, researched PCB softwares we will use, and data calibration	5	5
Rishab Kinnerkar	Worked on the web-application and data callibaration	7	7
Matt Faronbi	Researched ways of designing and maintaining the power management system as well as a switch and data calibration	3	3

Plans for Coming Week

Interrupts to log data:
- Have a updated version of the arduino code which collect data every 100Hz using a IRS(interrupt routine service) and puts the data into the SD card.
- Continuation of research for power management system and ways this system can be properly implemented

Web-Application:
- Try to get dynamic data plotting implemented on our web-application. Test the file reading program.
- Improve the website design

Temperature Sensor:

- Familiarize myself with I2C protocol, and begin running tests so that it can be implemented into prototype

SD Card:
- Determine best way to manage collected data
- Program to overwrite data if SD card is full
- Look into getting new SD card with more capacity