EE / CprE / SE 491 – sdmay19-01

Athlete Motion Tracking

Week 7 Report

3/7/19 – 3/13/19
Client: Nathan Johnson
Faculty Advisor: Phillip Jones

Team Members:

Nathan Mazarelo –– *Weekly Reporter/Software Developer*
Monte Friestad –– *Spokesperson/Software Developer*
Madeline Rogers –– *Meeting Facilitator/Hardware* Maintainer
Ryan Hansen – *Scribe/Hardware Maintainer*

Weekly Summary

This week our team continued integrating the Arduino with the pressure sensors. Possible power sources were determined for the sensors using 9v batteries. Research was completed on how to program the Arduino and the wiring configurations needed for the specific model of Arduino and shield. In the data analysis program, the ability to see multiple angles at once in the subplot was added and the angle subplot was synced to the animation subplot to view over a set time interval. Unit test were also created to begin testing some of the angle calculations.

Past Week Accomplishments

- Arduino and Pressure Sensors, Power source, Computer configurations- Ryan
    - Arduino and Presser Sensors
        - Worked with Maddie on getting the Arduino setup with the pressure sensors.
        - Made a breadboard circuit in lab and tested the functionalities using a multimeter and oscilloscope.
        - Soldered pins to the datalogging shield and attempted to map the correct pins to the Arduino.
    - Power Source
        - Determined ways to make the pressure sensors work using only 9V batteries, without needing a DC power supply.
    - Computer configurations
        - I have also been in steady contact with Nathan Johnson about a computer configuration that he would like to purchase to use with all three of the intended systems.

- Arduino interfacing research, Shield wiring - Maddie
    - Arduino interfacing research
        - Began exploring the Arduino Mega and learned how to code and uploading thus code
    - Shield Wiring
        - Researched the Shield and how the wiring needs to be configured for the specific Shield and Arduino model.
        - Many different takeaways from about how the wiring will need to be configured to minimize the resistance
    - Pending Issues
        - Ran into issues with finding reliable information as to the pin outs. Tied multiple pins with the Mega and Shield was having difficulty interfacing with the card to verify that it worked.

- Continued work on data analysis program- Nathan
    - Pressure sensor data
        - Continued working on creating the subplot to hold and visualize the pressure sensors data. Started to write code to accept test data from the pressure sensors
    - Angle subplot
        - Added the ability to see multiple angles at once in the subplot and synced up angle subplot to the animation subplot to view over a set time interval
    - Testing
        - Began writing unit tests to check functionality for the angle calculations

- Continued work on web application – Monte

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Ryan Hansen	Worked with Maddie on getting the Arduino setup with the pressure sensors. Determined possible power sources for the sensors. Soldered pins to Shield and attempted to map pins to Arduino. Came up with a computer configuration capable of running system for the client to purchase.	7	112

Madeline Rogers	Learned how to interface with the Arduino Mega, in terms of coding and uploading code. Researched wiring configurations for the Shield and Arduino.	6	112
Nathan Mazarelo	Continued creating a subplot to hold pressure sensors data. Added the ability to see multiple angles at once in the subplot. Began writing unit tests for program.	7	118
Monte Friestad		0	106

Plans for Coming Week

- Maddie & Ryan
  - Continue interfacing pressure sensor with Arduino and Shield
- Monte & Nathan
  - Prepare for integration of the web application and data analysis program