Senior Design 492 Weekly Report 21

Week 18 (2/23/16 – 2/29/16)

May1624 -- Programmable Wireless Sensor Package for CprE Education

Advisor/Client: Dr. Thomas Daniels

Team Members -- Roles:

Yidong Liu – Team Leader

Xinian Bo – Team Webmaster

Niklas Jorve – Team Communication Leader

Branden Sammons – Key Concept Holder, Secretary

Jonathan Krueger – Key Concept Holder, Manager

Weekly Summary:

This week we finished connecting the data pins for the components on the PCB. We figured out that one of our key components was nonfunctional and ordered a new part. This allowed us to finalize our data connection pins and work on completing the first iteration of the PCB. Within the next few days, we should have a working PCB model that can be breadboarded out.

Weekly Accomplishments:

1. Finalized PCB data connections
2. Ran joystick data through ADC and level shifter to Edison

Advisor Meeting (2/24/16):

Duration: 2 Hours

Members Attending: Niklas Jorve, Jonathan Krueger, Branden Sammons, Yidong Liu, Xinian Bo

Notes: During our advisor meeting we worked on solving the lingering issues with the 9DOF and the level shifter. We discovered that the inconsistencies we were viewing through oscilloscopes was due to our method of reading and there was no inherent flaw in the system.

Advisor Meeting (2/25/16) 8am:

Duration: 4 Hours

Members Attending: Jonathan Krueger, Branden Sammons

Notes: Met up with Dr. Daniels to work on the issues plaguing our 9 degree of freedom sensor. We spent 2 hours with Daniels before he had to leave, during which we diagnosed issues with our system. After Daniels had left we did more investigating and found out that our Edison is storing data little endian, so our values are being sent out in a different byte order than intended. It was from this discovery that we theorized that we may need a new board, but we should test to be sure.

Group Lab Meeting (2/25/16) 6pm:

Duration: 4 Hours

Members Attending: Niklas Jorve, Yidong Liu, Jonathan Krueger, Branden Sammons, Xinian Bo

Notes: Attempted I2C communication with our 9 degree of freedom sensor to make sure it is broken, and with no successful communication we have ruled the sensor broken and have ordered a new one. We also hooked up joystick to our ADC/DAC and created a small sample program that reads the joystick's position. Lastly, we finalized the charging circuit for our batteries so that it can be used.

Group Lab Meeting (2/27/16):

Duration: 1 Hours

Members Attending: Yidong Liu, Jonathan Krueger, Branden Sammons, Xinian Bo

Notes: During this meeting we progressively went through each part we knew needed to be on the board and drew them on a whiteboard. We then labeled all the pin outs for the board and marked the ones we need to connect, along with references to other chip pins we need to connect together.

Plans for Next Week:

1. Finalize the first version of the PCB
2. Send the PCB design to Lee Harker to approve design
3. Send design out for production

Individual Contributions:

Niklas Jorve	Worked on report, attended advisor meeting and group meeting, worked on joystick

Yidong Liu	PCB design, voltage regulator selection, team meetings
Branden Sammons	Worked on joystick and SPI, Attended all meetings.
Jonathan Krueger	Troubleshot 9 degree of freedom SPI and I2C, worked on new 9 degree of freedom SPI, attended meetings, worked with advisor, worked on software for sensor data collection, worked on software for services, worked on software for getting data to user.
Xinian Bo	Team meetings, Pcb design.

Project Contributions:

Member	Project Time this week (hours)	Total Project Time (hours)
Niklas Jorve	9	118
Yidong Liu	8	110
Branden Sammons	11.5	103.5
Jonathan Krueger	18.5	143.5
Xinian Bo	8	98