

## *EE/CprE/SE 492 BI-WEEKLY REPORT 1*

*January 27th – February 10th*

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**Group number: *sdmay23-13***

**Project title: *Prosthetic Arm***

**Client &/Advisor:**

***Dr. Santosh Pandey***

**Team Members/Role:**

**Erik Raman — Software**

**Jack Vetsch — Electrical**

**Jacob Eisbrenner — Mechanical/ Electrical**

**Scott Bolek — Electrical**

**Sean Gray — Software/Electrical**

**Jeremy Wallace — Electrical**

**Leo Forney — Software**

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**Bi-Weekly Summary:** *The goal for this period was to get together with our adviser and meet with our team members to kick start the semester. Also, we needed to finalize some orders to send out so we can get the parts shipped in a timely manner. Also, some work needed to be done on the signals received from the EMG pads and the software for the motors.*

**Past accomplishments over winter break and during the time period:**

**Over winter break:**

Over winter break, **Leo** got some work done on sending signals to our motors to produce movement. There were some parts that came in that we ordered the first semester and we were able to check those off our list. **Jacob** also was able to get around to designing the forearm of our unit and adjust our initial hand design and get it reprinted. There was also some research done into how we would interpret the data coming from our emg pads and converting it into usable data for the motors.

**During the two week period:**

**Leo and Erik:**

Continued progress with the motors and tinkered with them using a raspberry pi and an Arduino microcontroller.

**Jacob:**

Continued work on the motherboard for the prosthetic arm which is the primary control board for the electronics and where any signal processing will occur. He also continued to work on the forearm design for the prosthetic arm. There was a plan to create a new prosthetic arm to scale the design up but was scrapped due to time constraints and other technical issues.

**Jack and Scott:**

Researched and looked for a BMS that would be appropriate for our battery and circuit. With this and also started to work on the driver board in Ki Cad.

**Jeremy and Sean:**

Started work on the signal processing from the emg pads. An amplifier was built and there was testing done via the oscilloscope. The testing involved seeing the best areas to place the emg pads to pick up a signal and seeing if the amplifier was effective enough.

**Pending issues**

There were issues with getting clear signals from the EMG pads within the lab. We suspect we might have to change our amplifier design for the next period.

**Individual contributions**

<b><u>NAME</u></b>	<b><u>Individual Contributions</u></b> <i>(Quick list of contributions. This should be short.)</i>	<b><u>Hours this 2 week period</u></b>	<b><u>HOURS cumulative</u></b>
Jack Vetsch	BMS circuit, Motherboard, Driver board	10	56
Jacob Eisbrenner	Forearm and Hand design, Motherboard, EMG, Driver board	26	122
Erik Raman	Software design, Motor control	5	61
Jeremy Wallace	EMG signals, amplifier design, BMS research, Documents	6	79
Leo Forney	Software design, Motor control	7	71
Sean Gray	EMG signals, amplifier design, Software design	5	62
Scott Bolek	BMS work, EMG signals, amplifier design	6	56

**Plans for the upcoming week :**

- Continue work on getting the signals from the EMG pads.
- Finish search for the BMS circuit.
- Finish Motherboard design.
- Continue work with the motors.