**Group Progress Report**

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**Project**: Anesthesia Monitor

**Date:** 11/6/17

**Goals for the past week** (copied from last progress report)

1. Begin designing blocks of our electrode and array circuit
2. Learn about the characteristics of the EMG signal we are sensing
3. Test the Arduino code with multiple LEDs once it’s complete and debug the code as necessary.

**For each goal above, comment on your progress**:

1. We have proposed a basic block diagram of the muscle stimulation circuit leading to an array of electrodes. This diagram includes an Arduino, which sends signals to a multiplexer, which in turn switches the different electrodes on or off. To send pulsed stimulation signals of constant current with variable skin impedance, we considered using a MOSFET. The issue we are having is it is simple to create a current source that is modifiable through varying resistances, but the difficulty comes in when trying to incorporate mechanisms to allow an Arduino to alter the output current. We also proposed several components to the signal acquisition circuit, including a differential amplifier, bandpass filter, and peak detector.

2. We did background research on the characteristics of the EMG signal, including min/max voltage generation, peaks, and background noise.

3. Arduino code testing was put on hold for this past week, and instead we developed a 3D printed prototype of our standalone monitor as well as a simplified prototype of our electrode array using existing electrodes from the clinic.

**Goals for this week**:

1. Attempt to arrange a meeting with Dr. Warren Grill for some of his advice on peripheral muscle stimulator circuitry
2. Speak with Dr. Palmeri on the progress of the electrode circuit
3. Check in with Dr. Grant to see if we can borrow an existing monitor for testing purposes

**Are there any difficulties with which you need assistance?**

**No.**

**Other comments:**