

**Team: P19043**

**Engineer: Kyle Nolan**

**What were the outcomes of the prior phase?**

18. What did I plan to do?

- I will either find or create all parts to be used in Cadence: by 11-30, 5-10 Hours
- I will create a working schematic from the parts: by 12-7, 5 Hours
- I will determine a testing procedure to be used on human subjects to fill out the IRB form: by 12-10, 2 Hours
- I will expand upon the Power, Communication, and Schematic Drawing on Edge: by 12-10, ~ Hours
- I will review for our design review:by 12-10, ~ Hours

19. What did I actually do?

- I created all parts to be used in Cadence: by 11-30, 5-10 Hours
- I created a working schematic from the parts: by 12-7, 5 Hours
- I helped determine a testing procedure for human subjects to fill out the IRB form: by 12-10, 2 Hours
- I will reviewed for our design review:by 12-10, ~ Hours

20. What did I learn? How were plan and reality different?

Through this design phase I was able to complete almost everything I set out to. On top of that, I was able to coordinate communication between the parties involved in our project. We were able to elicit written confirmation that our current design is adequate for our customer.

**Team level goal for next phase**

**What do I plan on doing to ensure that my team has a successful review at the end of the next phase?**

- I will use the schematic and wiring diagram to determine correct electrical construction of our device.
- I will conduct battery thermo testing to ensure that in our housing the battery remains cool
- I will update the electrical layout of our device as needed
- I will create molex connectors to reduce the tension on our wires.

**Team: P19043**

**Engineer: William Shambach**

**What were the outcomes of the prior phase?**

18. What did I plan to do?

- Determine and Test Preliminary Electrode Setups
- Determine and expand Risk section, and categorize by sub-system
- Create Test plan for human subject approval
- Evaluate Preliminary electrode placement

19. What did I actually do?

- Created Human Subject Consent Form (2 hours)
- Evaluated Electrode Placement Setup (3 hours)
- Helped create IRB (2 hours)

20. What did I learn? How were plan and reality different?

I learned the Process for the IRB, and how documentation for the Human Consent forms is laid out. By making the Human Consent Form and determining what questions to ask subjects after using our device, I was able to put myself in the mindset of the user to gain a better understanding of what will be important for our group going into the prototype development stage.

**Team level goal for next phase**

- Prototype subsystems
- Test batteries
- Create housings
- Create Prototype

**What do I plan on doing to ensure that my team has a successful review at the end of the next phase?**

- Ensure that amount of electrodes is sufficient
- Ensure that protocole for positioning electrodes is easy to understand and perform, and is accurate for our device
- Help team to push IRB through and receive approval
- Work with others to understand the Bluetooth communications system and help integrate it into our system
- Help with subsystem testing to make a better prototype

**Team: P19043**

**Engineer: Sean Rogerson**

**What were the outcomes of the prior phase?**

- Created software block diagram for computer software
- Created software block diagram for Arduino software
- Implemented real time plotting into .kst file
- Worked with Jay to integrate KST plot real time display into C++ code and tested with past groups hardware
- Revised communication system analysis

**What do I plan on doing to ensure that my team has a successful review at the end of the next phase?**

- Work to implement HC-05 into device
- Begin modifying software to use HC-05 bluetooth communication
- Make decisions on default axis settings for real time KST plot
- Read through Jay's C++ code over break so I understand it and can work with it next semester

**Team:**   P19043                        **Engineer:**   Savier Kerns  

**What were the outcomes of the prior phase?**

- 1.) Created BOM
- 2.) Completed IRB form
- 3.) Purchased battery and charger
- 4.) Research essential tremor scholarly articles
- 5.) Transcribed team notes and diagrams
- 6.) Assisted locating EMG sensor positions

**Team level goal for next phase?**

- 1.) Create battery housing
- 2.) Challenge myomuscles against AD instruments (EMG rationale)
- 3.) Challenge IMU vs uniform motion (IMU rationale)
- 4.) Test battery heat dissipation
- 5.) Purchase BT accessories
- 6.) Kill switch
- 7.) Accurate arm placement dimensions
- 8.) Overall Device Specs (Length, Size)
- 9.) Purchase and long lead time items
- 10.) Prepare for MSD II

**What do I plan on doing to ensure that my team has a successful review at the end of the next phase?**

- 1.) Purchase 2 myowares, bluetooth module, velcro straps, power level indicators, and housing materials
- 2.) Transcribe team notes and diagram
- 3.) Complete EMG deliverables
- 4.) Submit IRB

**Team: P19043**

**Engineer: Jay Humphreys**

**What were the outcomes of the prior phase?**

18. What did I plan to do?

- Make the data collection of the C++ executable more robust/easy-to-use
- Simplify the layout of the GUI
- Get GUI to work with KST plot
- Get KST plot displaying real-time data

19. What did I actually do?

- Got GUI sampling data at 100Hz (Max rate)
- Simplified GUI window
- Got KST plot taking data from GUI

20. What did I learn? How were plan and reality different?

Simplifying the GUI was easy and just involved figuring out what exactly we wanted the user to be able to control. Sampling rate just involved upping the baud rate of the device and the serial port in the GUI. Linking KST plot with the GUI was much easier than we figured. A .csv file was used as an intermediate file for data transfer.

**Team level goal for next phase**

**What do I plan on doing to ensure that my team has a successful review at the end of the next phase?**

- I will increase the robustness of the entire GUI and KST plot interface
- Get the GUI and KST plot portable
  - a.) Have all required files in a .zip file or a single folder
- Update EDGE to keep team members up to date on GUI progress
- Get all EMG sensors and IMUs hooked up, all displaying real-time data

**Team:** \_\_\_\_\_ **P19043** \_\_\_\_\_

**Engineer:** \_\_\_\_\_ **Frank Howard** \_\_\_\_\_

**What were the outcomes of the prior phase?**

- Setup manager plan and working schedules
- Completed CITI training for IRB preparations
- Collaborated with P19043 on joint efforts
- Refined ERs with values and some rationales
- Designed housing models for IMUs and the Arduino Mega suite

**Team level goal for next phase**

- Have housing models done for all components
- Finish IRB
- Have accurate dimensions on overall device size
- Ensure group accomplishes their team goals

**What do I plan on doing to ensure that my team has a successful review at the end of the next phase?**

- Design Myomuscle Model/Housing
- Design Battery Housing
- Refine test plans
- Finish IRB
- Work on finishing a human consent form
- Add any micro-details to housing designs
- Test batteries to see heat dissipation