11/22 (Paper due during finals week)

Project Proposal (end of semester goals)

- set up timing to take reliable data
- moving the arm & hand in a smooth manner in complex ways

Intellegent Prosthetic Arm & Hand

Project Deliverables

Milestones

Tasks (WBS)
- Tall pole - picking out longest tasks that will hold up the project
- mitigation - red/yellow/green light project knowledge

Project Deliverables:

1) - Smooth movement of Arm & Hand
2) - Read brain signals
   - find patterns
3) + Recognize EEG/EMG signals with a Controller
4) + Use these signals to move Prosthetic

Project Milestones:

1.) Smooth movement of Arm + Hand
- basic gestures
- complex gestures

2.) Read brain signals using PowerLab 8/35 + LabChart 8
- Understanding patterns
- Mapping out patterns for certain motions
- convert to raw data (sampling)

3.) Recognize EEG/EMG signals w/ μ controller
- Create database from collected raw data
- build Amp. circuit - include gain for database
- Algorithm

4.) Use signals to Move Prosthetic
- Create algorithm to control servos based of signals
- Corrections [if needed go back to D. 2)

Tall pole mitigation

WBS:

1.) Smooth movement of Arm & Hand

Green 1.1 use microcontroller to control individual servos
Green 1.2 control multiple servos (basic servos)
Yellow 1.3 Smoothing out movement (algorithm)
Green 1.4 Test complex gestures

2) Read EEG/EMG signals

Green 2.1 Learn to use PowerLab 8/35 & LabChart 8 ($$)
Yellow 2.2 Experiment with finding proper place to place electrodes
Red 2.3 Map out patterns based off gestures
Red 2.4 Convert patterns to Raw Data

Next Semester

3.) Recognize EEG/EMG signals w/ µ Controller

3.1 Build Amp. circuit
3.2 Create database w/ raw data (accounting for gain)
3.3 Develop algorithm to process data

4.) Use signals to move Prosthetic

4.1 Develop algorithm to control movement
4.2 apply correction intellegence