Assignment – EMG filtering for Prosthetic Controls

You will be provided two EMG sensors and a single servo motor – the goal of this assignment will be to control the servo motor using dual-site EMG. To do so, you will need to connect the teensy and custom PCB with the Bluetooth module and the EMG sensors and servo motor.

Then, please…

1) Write code to filter the EMG from the two sensors you have been provided. Consider implementing a notch filter, low-pass or band-pass filter, and then either a windowing or another smoothing function to ensure a smooth EMG signal from each of the two sensors.

2) Implement code that identifies the stronger of the two signals to use for determining desired direction of motion. Additionally, a threshold may be necessary to ensure that only voluntary contractions will trigger motion.

3) Control the robot to move in an open loop, velocity-controlled manner, based on the processed signals in 2. To demonstrate the motion of the motor add a "flag" or printed link to demonstrate the motion

Report results, please share a video of the motion of the motor being controlled by EMG, and share code