Project Title: Electromyographic Phone Controller for Patients with Severe Motor Impairment

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Abstract: Smartphone based Augmentative and Alternative Communication (AAC). The goal is to develop affordable Communication devices for individuals with limited mobility and inability to speak or sign. Communicating with patients who suffer from severe impairment is always a challenge. This project hopes to provide a simple, affordable AAC solution that could be used by nearly any patient.

Innovation: The innovative approach to this project is making this technology affordable and compatible with existing Android technology, providing patients of these disabilities with a convenient way to communicate, regardless of the disability type or severity.

Materials: Gel electrode, microprocessor, components, signal amplifiers, USB 3.0 - USB C converter OTG, casing.

Subtasks: Test Designing circuit, programming microprocessor, integrating android, testing.

Timeline: Test android single button accessibility Week 3
          IRB Week 3
          Test old hardware Weeks 3-4
          Develop working circuit on breadboard from previous lab Weeks 5-7
          Integrate serial port communication Weeks 8-9
          Streamline design Weeks 10-11
References:

Commercial Product electromyography controller, designed for users with full mobility: Myo Controller - https://developer.thalmic.com

DIY Muscle Sensor Circuit for Microcontroller
http://www.instructables.com/id/Muscle-EMG-Sensor-for-a-Microcontroller/

Enrico Costanza, Samuel A. Inverso and Rebecca Allen: Towards Subtle Intimate Interfaces for Mobile Devices Using an EMG Controller. *Liminal Devices*