ABSTRACT

Electromyography is a technique for recording the electrical activity produced by skeletal muscle. EMG is performed using an instrument called an electromyograph to produce a record called an electromyogram (EMG). This technique, can be used to help people with special needs so the quality of life can be better. In this final project designed robotic arm to help handicapped people.

The electrical activity of biceps recorded by the electrode is then amplified and filtered on the EMG module. The resulting signal becomes input for microcontroller. Then the microcontroller drives the servo motor according to the given input condition. When the user's hand condition is flexor and contract, then the robotic arm follows the lifting motion. Meanwhile, when the user's hand condition is extensor, then the robotic arm also moves straight according to the state of the hand.

With the system described above, this robotic arm can work according to the given input and can provide output in the form of robotic arm movements that match the user's hand. Shown with the average gain value of EMG module is 825 and the value of success is 83.33% (when the hand flexor) and 76.67% (when the hand extensor).

Keywords: EMG, biceps, amplification, filter, microcontroller, servo motor, robotic arm