

## ABSTRACT

*CPM is a passive movement that continuously functions to train the performance of the arms and elbows. CPM is effective in restoring full movement stiffness applied after surgery. Electromyography is a method used to record and analyze myoelectric signals. In addition, EMG is also used as a therapy paralysis, physiotherapy, medical research and measurement of muscle sports activities. Continuous Passive Motion (CPM) Elbow With Control Electromyograph (EMG) is a combination of EMG and CPM that serves to unify the two functions of each tool so that this tool can optimize treatment for patients.*

*This EMG control system intercepts the muscle signal to trigger mechanical movement of the arm, the signal will be tapped using instrument and filtered using LPF ( $f_c = 600\text{Hz}$ ) and HPF ( $f_c = 50\text{Hz}$ ). Then the output will be processed on ATmega16 microcontroller and displayed on 2x16 LCD in the form of voltage.*

*Based on the measurements and calculations, the average voltage will be the reference point to make the signal categorization range. The weak signal is a signal that has a voltage of 0 - 0.2 V. The medium signal is a signal that has a voltage of 0.3 - 0.5 V. Strong signal is a signal that has a voltage of 0.6 to 0.92 V.*

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**Keywords:** CPM, EMG