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 (fc = 600Hz) and HPF (fc = 50Hz). 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.