

ABSTRACT

Electroencephalography or EEG signal is one of the biosignals that has become a topic of research today. EEG signals have many benefits such as assisting the disabled, detecting epilepsy, sleep disorders, or inputting in computer applications. The input in the application requires a classification with adequate performance. Current technological developments allow us to measure and process EEG signals. Previously, to measure the EEG signal, conductive waves were needed to assist electrodes placed on the scalp. This is quite inconvenient for both the subject and the object of measurement, so the method needs to be improved. Currently, a more practical tool for measuring EEG signals has been developed, one of which is Mindlink. This tool is used to measure the user's EEG signal and has several types of output data obtained when the user thinks or concentrates on a particular thing. The output will be used as a robot control parameter. The headset output data used as parameters for the robot's motion are eSense Attention and Poor Signal Quality.

The implementation of this research produces a bionic hand using an Arduino nano as a controller. The result of this final project is to be able to control five servos using brain control or Electroencephalography which is implemented into bionic hands for therapy in stroke patients. The results of the accuracy of this tool are 60-70% for ball grip movements, 50-70% for opposite movements, and 30-50% for pinch movements.

Keywords: Stroke, Mindlink, Attention, Electroencephalography (EEG)