

ABSTRACT

A control system is a tool that can control the state of a system. The growing age of control systems is increasingly used to help human work. One of them is the control system using EEG. By using EEG we can detect electrical activity that exists in the human brain. Control systems with EEG is fairly good, as EEG can capture brain activity well which can be used to identify information.

EEG(Electroencephalography)is a system used to measure electrical activity in the human brain. EEG signal is one of the information that will be obtained when recording using EEG. In this study, EEG was used for the capture of human brain waves utilizing a single-channel neurosky device. Neurosky will connect to Arduino Uno via Bluetooth module HC-05, previously will be configured using AT command between neurosky and Bluetooth module HC-05. The selection of baud rate is one of the important things so that brain waves can be conveyed properly.

The results of the data acquisition will be followed by pre-processing to calculate the signal energy. Next, determine the mean value of 100 signal energy data, and will perform an analysis to determine the best parameter to become the threshold value. The light will light up if the energy value generated during the implementation of the tool is greater than the threshold value. The result of this final project is to know which type of high beta wave is a good signal used for a lamp control system compared to a high alpha signal wave. The results of the implementation accuracy of the tools used by respondents are 95%, it can be interpreted that the mean method as determining the threshold value is the right choice. The decrease in accuracy results can be influenced by several factors, namely the characteristics of the data and the sensitivity of the device.

Keywords : EEG, EEG signal, signal energy, neurosky, threshold, arduino uno