

ABSTRACT

Concentration is something that students need in understanding subject matter in order to achieve maximum learning outcomes. Many factors can affect concentration, one of which is external factors such as sound. Music is one type of sound that can increase one's concentration. By using Electroencephalography (EEG) as an instrument to capture brain signals, we can find out what the effects of music stimulation on concentration. This final project aims to classify and analyze EEG signals against a person's concentration conditions when listening to rock music and classical music by looking at human brain waveforms from alpha signals with frequency ranges (8-16) Hz and beta signals with frequency ranges (16-32) Hz.

System input is obtained from EEG signal capture on the front head of the section using a 4-channel EEG device, namely MUSE Brain Sensing Headband. Then the recorded EEG signal will transform from the time domain to the frequency domain. Then feature extraction is performed using Discrete Wavelet Transform (DWT) as a model to improve accuracy by extracting signals against Alpha and Beta waves. Then the classification process is carried out using K-Nearest Neighbor (KNN).

The test results show that the best channels are on the AF8 channel with 96% accuracy for alpha signals and 85% for beta signals. On AF8 channel for alpha signal there are 26 data detected correctly and 1 data detected incorrectly, while for beta signal there are 23 data detected correctly and 4 data detected incorrectly.

Keywords : Concentration, Discrete Wavelet Transform, Electroencephalography, KNN.