

ABSTRACT

In general, the condition of each individual human being varies according to several factors. Concentration is an important factor in the process of carrying out activities. It is not easy to identify the concentration of an individual in carrying out an activity. The object that will be tested by the author this time is analyzing a person's brain wave signals when doing activities in the form of playing the guitar without singing (concentration) by playing the guitar while singing (not concentrating).

In this study, a system designed to determine brain signal waves when a person is playing guitar without singing (concentrating) and playing guitar while singing (not concentrating) based on Alpha and Beta waves using Electroencephalography (EEG). The method used in this research is Discrete Wavelet Transform (DWT) as a feature extraction method. After getting feature extraction, then the classification process is carried out using the K-Nearest Neighbor (K-NN) method. This study uses secondary data. Secondary data contains data of someone who is playing guitar without singing (concentration) and playing guitar while singing (not concentrating) which is taken by a recording device, namely muse monitor which has 4 channels, namely AF7, AF8, TP9, TP10.

From the results of tests that have been carried out using brain wave signal data of someone who plays guitar while singing (not concentrating) and not singing (concentrating), the best parameters of k-nn, dwt, and channel are obtained based on the highest accuracy. The best channel obtained is the AF8 channel, the best dwt parameter obtained is kurtosis, and the best k-nn parameter used is k with values 1, 3, 5, 7, and 9. The highest accuracy obtained from the test results is 100% for signals alpha or beta.

Keywords: *Electroencephalography, Discrete Wavelet Transform, K-Nearest Neighbor, Alpha Waves, Beta Waves.*