ABSTRACT

Electroencephalography (EEG) *is an instrument to record the brain wave activity in specific time.* EEG *can be used to diagnose epilepsy disease. Epilepsy can be analyzed with one of an event that appears in* EEG *signal called Tonic Clonic Seizure* (TCSZ).

In this final project has been made a system to detect Tonic Clonic Seizure signal in frontal cortex part in EEG *signal using Mel Frequency Cepstral Coefficients* (MFCC) *as features extraction and Artificial Neural Network* (ANN) *with Backpropagation method as classifier. The output of* MFCC *was 13 coefficients and was the input for the classification process with* ANN.

The result of testing showed that the highest value of accuracy was 80% by using 60 dataset that consist of 30 training dataset (15 TCSZ *and 15 normal) and 30 testing dataset (15* TCSZ *and 15 normal). The best feature was the combination of all the first 13 coefficients (1st coefficient until 13th coefficients) with 3 hidden layers and 15 neurons as parameters in* ANN.

Keyword : EEG Signal, Tonic Clonic Seizure, MFCC, ANN, Epilepsy, TCSZ