ABSTRACT

Nowadays, the world of music has been greatly expanded and the number of songs that have been produced around the world are very enormous. Almost all people love the music in the form of songs. We can enjoy music in a restaurant, coffee shop, shopping malls and other public places. Sometimes when someone is enjoying a song that she/he likes in a public place, she/he does not know what the title of the song. To provide a solution to the problem, in this Final Project has built a system that can detect the title of a song. Chosen object of study is a song that comes from the piano. In previous research has been built tone recognition system on a piano which can recognize both single notes on the song with a moderate tempo. However, these systems have weaknesses in recognizing tone slow and fast tempos.

The working principle of this system is to detect the title song on the piano, which which will be adapted to practice the test on the database. MFCC (Mel Frequency Cepstral Coefficient) were used as feature extraction techniques. LVQ neural network and Euclidean Distance are used as methods of classification which serve to recognize the characteristic vector of the input data results MFCC feature extraction and classify these characteristics based on predetermined targets.

The system has the best performance with the highest accuracy in the detection of the song on stage offline when MFCC having 25% overlap using *Euclidean Distance*, with the specifications: threshold = 0.2, with an accuracy rate of 93.33%. While in the online stage, for the detection of 5 attempts 15 songs by giving butterworth filter, the system obtained a 84% accuracy.

Keywords: Detection, Piano, Tune, Mel Frequency Cepstral Coefficient, ANN, Learning Vector Quantization, Euclidean Distance.