ABSTRACT

Guitar is arguably the most popular musical instrument these days because guitar is relatively easy to learn. The most basic thing in learning a guitar is the chord,and you will need a good hearing ability to distinguish one type of chord, unfortunately most of the beginners did not manage to do that. Therefore, a chord detection system that is able to determine the exact type of chord is needed and it depends on the quality of the fingering.

In this final project the chord detection system is made by utilizes the characteristics of a chord as a database feature that will then be used to classify the type of chord that is inserted into the system. The process itself is data acquisition, pre processing, feature extraction, classification and displaying results. Data acquisition is done by using an electric guitar that is connected to the computer device via the sound card. Pre processing done by changing the data format from stereo to mono, crop data, and normalization. Feature extraction technique done by the decomposition with Wavelet Transformation, followed by Fourier transformation and calculation of average value of each frame and finally the K-Nearest Neighbor (kNN) for the classification.

Real time chord detection system using Wavelet transformation is proven to work well as real-time detection system by giving the best accuracy of 95% and computation time of 0.98 seconds to 1.57 seconds by a single chord input. This condition is achieved when the k value is 1, using the Haar mother wavelet, and the overlap value is 0.5.

Key words : Chord, Detection, Wavelet, K-Nearest Neighbor (KNN) , realtime