ABSTRACT

In this study, it discusses the classification of the quality of an angklung instrument through digital audio signal processing through a system that can identify the sound quality contained in an angklung musical instrument through sound processing. The system for identifying the quality of this musical instrument consists of characteristic extraction and classifying the tone of the angklung musical instrument.

The test scenario in this final project is to identify the existing tones of the angklung musical instrument. The tones to be tested to be detected are the basic notes *do, re, mi, fa, sol, la,* and *si.* In detecting the tone, there are training data and test data that have been made.recorder is *Digital Voice Recorder* used to record *audio* which is saved in * .wav format. Each tone is made 40 audio samples with 20 good tones and 20 regular tones with a duration of 2 seconds each. Testing is done in real time by playing angklung so that 280 samples are obtained for the overall training data and 280 samples for test data. In testing, several downsampling values were carried out as well as the k values being tested. The downsampling values consist of 512, 1024, and 2048, while the k values used are 1, 3, 5 and 7.

With the feature extraction method used is *Discrete Wavelet Packet Transform (DWPT)* and the classification method used is *K-Nearest. Neighbor* (K-NN). The system can produce a maximum accuracy of 97.5% with the accuracy of the Downsampling value system at 512, as well as the best parameters for the Euclidean type and the value of k = 1.

Keywords: *Angklung, Discrete Wavelet Packet Transform, K-Nearest Neighbor.*