

ABSTRACT

Heart sound is the sound generated from the heartbeat and blood flow. At the heart pumping moves then it will sound two kinds of noise caused by movement of the valves are closed secara passive. The first sound (S1) sounds at the beginning of systole (heart contraction period), the duration of S1 is longer than the duration of the other sounds. S1 is the sound produced atrio-ventricular valves during closing and ventricular muscle contraction. The second sound (S2) sounds at the end of systole and before the valve artioventrikular reopen, S2 is the sound produced by aortic and pulmonary valve closed after the process of ventricular contraction.

In this final project designed system consists of: initial processing, feature extraction and classification. Initial processing aims to produce a sample of data from the human heart sounds. Feature extraction involves several processes, namely the first wavelet process that aims to produce coefficient Approximation and Detail coefficient, both segmentation using Shannon Energy and STFT methods aim to produce a heart sound energy. Classification aims to determine the boundary segment, the middle segment and the distance between segments in order to know which is the S1 and S2.

In Final project uses six types of sounds by the method of Shannon Energy and Methods Sort Time Fourier Transform (STFT) to analyze the heart sound signal. The parameters used to determine S1 and S2 is the threshold, which threshold point is used from 0.1 to 0.5 watts. From the test results in the case of S1 and S2 are detected normally obtained 92% accuracy, this value is obtained at the threshold point of 0.1 to 0.3 watts.

Keywords: *Shannon Energy, Time Foureir Sort Transform (STFT), Voice one (S1) and two Sound (S2)*