ABSTRACT

Heart is one of the vital organ in the human body. Heart disease can cause fatal damage for the patient. To help doctor giving a diagnosis, a system is required to detect many threat as soon as possible. With rapid evolution of biomedical technology, this system is expected to provide quick explanation about the disease. One of the disease that can be known using software is heart disease. It detected from the signal that produced by ECG called electrocardiograph.

To obtained a quick diagnosis, the detection demands a real time process. Therefore, detection system is designed to be able to classified heart diseases in real time. Definition of real time here is every process occured continuously and automatically. There are four stage in this system such as data acqusition, preprocessing, future extraction using decomposition wavelet and classification using LS-SVM method (Least Square Support Vector Machine).

Combination of methods decomposition wavelet and LSSVM in this thesis achieved an accuracy of 99,2% with Radial Basis Function kernel (kernel) and One against One multi class strategy with data acquistion processing time for 10.84 second, future extraction processing time for 1.8 second and classification processing time for 0.22 second.

Keywords : electrocardiograph, *Least Square Support Vector Machine* (LS-SVM), wavelet packet decomposition.