

## **ABSTRACT**

*Heart's sound in several cases of hearts' sick has special patterns which can be recognized. Because of that heart's sound is used to diagnose heart's sick. The technique which usually used is auscultation, hearing heart's sound using stethoscope. There are several problems with this technique, i.e. low frequency of heart's sound, low amplitude, noise factor, and likeness pattern between one types of heart's sound to the other type. To overcome these problems, it has been developed a method heart's sick detection using phonocardiogram analysis (heart's sound record) based on software.*

*This project aims to produce a tool to diagnose heart's sound and classify heart's sick type, besides to analyze performance of orthogonal wavelet filter. Generally, the system of heart's sick detection consists of two main parts, i.e. feature extraction using wavelet packet decomposition and feature classification using Learning Vector Quantization (LVQ) neural network. Heart's sound spectral signal is divided using wavelet packet decomposition. Thus, Result of decomposition process which several sub-band is calculated the energy to get unique features. These features are recognized used LVQ neural network.*

*From experiment with feature extraction using wavelet filter coiflet 1 and decomposition level 6 is obtained the accuracy of heart's sick detection is 100% for training data and 95,56% for testing data set.*

*Key words : heart's sick, phonocardiogram, wavelet packet decomposition, LVQ neural network.*