

## ABSTRACT

Diagnosis of lung disease based on the lung sounds which can be heard from a stethoscope, shows the doctor's subjectivity in interpretation of auscultation results. That's why we need a spectral analysis of lung sounds signals to change up the diagnosis objectivity.

In this final project, we take some samples of normal lung sounds from existing data (secondary data) at the internet, then the input signal, for this case is four normal lung sounds, there is a bronchial, bronchovesicular, vesicular, and tracheal, will be an extraction to become a feature with wavelet packet decomposition. We get 15 features from each signal. Then we calculate the energy for each signal. These features will be cross-correlated with a reference signal, and we take bronchial 1 as a reference signal.

Analysis of this result will see the cross-correlation values, that is a mean, median, max, min, deviation standard, and correlation coefficient. Then from the maximum and minimum values, we decided a range value as a classifier. From this range value so the classification of the lung sounds can be done, is that a bronchial, bronchovesicular, vesicular, or tracheal lung sounds?

From this project, we expect that the output signal is the same as input signal, then we can classify the signal with the right. From the test result, we get 58,33% accuracy. Analysis and the results will be simulated with Matlab7 program.

Key words : lung-sounds, auscultation, wavelet, extraction, cross-correlation.

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