ABSTRACT

Heart is the important part of human body. Heart also has an important role to support the conditions of other organs. Through the electrical activity of the heart, can be detected various diseases, one of which is a sleep disorder called Sleep Apnea. Sleep Apnea is a rare sleep disorder, so that the detection needs to be done correctly. Through electrocardiogram signal, the detection of sleep apnea can be easier and correct.

This type of research is descriptive with the aim to facilitate the detection of Sleep Apnea using two comparison methods, those are Discrete Wavelet Transform (DWT) and Principal Component Analysis (PCA), and classified by Linear Discriminant Analysis (LDA).

System with PCA method produces a good accuration, which is 79.16%, sensitivity 73.3% and specifity 88.8% with taking 1-60 PC. Computation time with PCA method takes 9.2 s. System with DWT methods produces accuration 75%, sensitivity 68.75%, and specifity 87.5% by using some additional pre-processing which is windowing with overlapping 25%, using Discrete Wavelet mother wavelet, and decomposition in the fifth level. DWT method has 34 s computation time, and it is take a longer time than PCA methods.

Keywords*: Sleep Apnea, DWT, PCA, LDA*