

ABSTRACT

Biometrics is a measure distinguishing characteristics (distinguishing traits) in the body or behavior of someone who used to perform automatic recognition of the identity of the person by comparing it with the characteristics previously stored in a database, which automatically introduction here is to use computer technology. That way, the introduction of personal identity can be done in real time (real time), does not require hours or days for that recognition process.

In this final part of the body are used as pattern recognition is the heart, where the heart sounds or Phonocardiogram (PCG) serves as a distinguishing characteristics. cardiac sound is recorded in the form *.wav for 10 seconds with a sampling frequency of 8,000 Hz. cardiac sounds were recorded in 4 conditions (relax, wake up, after the street and the heart beat faster). There are 2 scenarios in testing the system on this final, for the test without the addition of noise (scenario 1) and with the addition of AWGN noise with SNR 10dB, 20 dB, 30dB, 40dB, 50dB, 55dB and 60dB are tested on each condition separately (scenario 2). To extract the characteristics of heart sound is used 5 levels of wavelet decomposition and a used K-NN classifier classify.

The value of classification accuracy for the test without the addition of noise obtained by 20%, this suggests that the cardiac sounds are not fit for use as an individual recognition modalities and for testing with the addition of noise obtained an accuracy of 5%-100%, in scenario 2 cardiac sounds signal has the resilience to noise when $SNR \geq 50$ dB.

Keywords: Biometrics, *Phonocardiogram (PCG)*, wavelet decomposition, AWGN, *K-NNclassify*