

ABSTRACT

An electrocardiogram (EKG) is a device capable of measuring the rhythm and electrical activity of the heart. One of the parameters of the ECG, namely Heart Rate Variability (HRV), is the variation of the interval between two consecutive beats. So far, HRV analysis on the ECG output has been done manually by cardiologists. However, this manual method will be very difficult if someone want to monitor within a certain time. Therefore, many methods have been used to automatically classify HRV using computer assistance to assist cardiologists in performing analysis and classification.

Through this research, the HRV classification method is proposed using the Neural Network method with back propagation algorithm to detect Arrhythmias automatically. The author gets the highest accuracy with the two HRV features, namely 96.43% and the lowest accuracy with one HRV feature, namely 50%. The system also succeeds in real-time classification of arrhythmias, with 2 subjects detected as Arrhythmia, and 8 subjects detected as normal.

Keywords: electrocardiogram, heart rate variability, artificial neural networks, back propagation, real-time, arrhythmias.