Abstract

Atrial Fibrillation (AF) is a supraventricular tachycardia characterized by uncoordinated atrial activity. AF is a heart rate disorder that can increase the risk of stroke in the sufferer. To find out if someone is experiencing AF or not, can be done by reading the signal from the Electrocardiogram (ECG) record. Many studies use various methods for classification of ECG recording signals in detecting AF, but there are still few studies that conduct comparative studies and comprehensive analysis of existing methods, so that the performance of existing methods needs further assessment.

To overcome these problems, testing and analysis of the performance of the classification algorithm, which consists of Decision Tree algorithm, K-Nearest Neighbor (KNN), and Naïve Bayes. Then a prototype was designed to be able to record ECG signals and detect heart abnormalities by implementing selected algorithms based on the results of previous tests. The Decision Tree algorithm with the optimum parameters gets the highest average accuracy results of 93.125% with an average sensitivity and specificity values of 96.25% and 90.321% respectively. The resulting Decision Tree also has a high data generalization because it can detect all new samples correctly when implemented on the prototype.

Keywords: atrial fibrillation, ECG, decision tree, KNN, naïve bayes