

Abstract

Premature Ventricular Constriction (PVC) is one type of mild arrhythmia triggered by irregular heart rhythmic heart that causes abnormal ventricular constriction. In many cases PVC may turn out to be a more dangerous arrhythmia. Recent years have been proposed many methods to detect the occurrence of PVC. In general, this detection method analyzes ECG signals (Electrocardiogram) from the patient. There are 3 stages in detecting PVC, preprocessing, feature extraction and classification of ECG signals. At the classification stage, the accuracy value obtained from the whole detection process becomes a reference parameter of system success. Therefore the selection of appropriate classification algorithms becomes very important. Of the many literatures that propose PVC detection methods, many of them classify ECG signals using binary classification methods. The use of KNN classification algorithm with euclidean distance method has been done a lot, it is necessary application of other distance measurement method that can increase the value of detection accuracy. On the other hand, to accelerate the PVC monitoring process, the selection of feature reduction methods is required to monitor quickly and accurately. To overcome the above problems, this final project proposes the development of classification algorithms that support the improvement of the accuracy of PVC detection, performing classification method in multiclass. The method used in this thesis research is 1. Study of literature on PVC detection 2. Classification Algorithm Study 3. Development of classification algorithm 4. Study of distance measurement method 5. Performance testing and analysis. Performance test results show that the proposed classification algorithm reaches a value of *F-Score* with an average of 98.96 % for the distance measurement method *Cosine distance*, and the best k value is 1 for PCA.

Keywords: PVC, Classification Algorithm, Arrhythmia, ECGSignal, measurement distance method.