ABSTRACT

Electrocardiogram (ECG) is a medical graph records that show the activities of heart tissues. ECG's patterns are identifiable, therefore ECG could be used to diagnose whether a patient having heart disorder. Arrhythmia is a condition where the heart's beat rhythms are unstable which could cause dead. There are a few specific kind of Arrhythmia disorder which requires different medical treatment specification.

Heart disorder diagnosis requires long and continous ECG data, therefore diagnosis could be done only by doctor or heart specialist.

Adaptive Neuro-Fuzzy Inference System (ANFIS) is a combination system of Fuzzy Inference System and Artificial Neural Network. ANFIS works by fitting the membership function of Fuzzy Inference System through Artificial Neural Network system to provide better precision for the classification system.

This final project implements ANFIS architechture to classify Arrhythmia heart disorder by employing the energy feature which acquired by implementing wavelet decomposition for ECG data. The class of Arrhythmia used for the system are AF (Atrial Fibrillation), CHF (Congestive Heart Failure), and NSR (Normal Synus Rhythm).

Sistem testing result shows that at training process using training data, ANFIS capable to classify ECG data with 99% accuracy, and of course at testing proccess using testing data, ANFIS capable to classify ECG data with 97,67% accuracy.

Keywords: electrocardiogram, Arrhythmia, wavelet packet decomposition, ANFIS