

Abstract

ECG signal recognition system has been developed. Several approach which used are waveform detection (Pan Tompskin algorithm and threshold method), template matching, neural network approach, and probability model approach.

Hidden Markov Model which used probability model approach has been proved can generate a good performance in speech recognition. So, This final project will tested HMM method in Electrocardiogram biomedic.

The priciple of heart disease detection system is by assuming ECG as a speech recognition, mainly on isolated word case. In the heart disease detection system, there are 2 process which are modeling and recognition process. In the modeling process, ECG signal labelling will be made by measuring HMM parameters, which are initial state probability, inter-state transition probability, and on-a-state observation probability. After the optimum outcome of the parameters are achieved, then a HMM model for each heart disease is formed. Meanwhile, the heart disease recognition is done in every ECG data by measuring the likelihood of tested data which will be recognized by all previously-trained ECGdata. By accurate labelling and optimum observation probability value, HMM can be used for heart disease recognition.

The analysis of the outcome shows that the observation probability which is obtained from random uniform distribution will have a dynamic value of accuracy along the alteration of random value. In the other hand, The accuracy, if the observation value is equally divided with the number of state and observation, is 33,33%

Keywords : Hidden Markov Model, electrocardiogram, intial state probability, state transition probability, observation probability distribution