ABSTRACT

Biometric is an analysis of individual characteristics. Examples of biometric methods are fingerprint, voice, iris, and face. Nowadays, those method is often being used, even so, it still has the disadvantage that it is easy to manipulate. Identification using Electrocardiogram (ECG) signal is one of biometric method which developed to prevent individual manipulation. ECG signals are unique since each individual has different physiological, geometric, and characteristics.

In this final project, a system is designed that can identify individuals using ECG signals. The methods used are Discrete Wavelet Transform (DWT) and 1-Dimensional Convolutional Neural Network (CNN). The data used comes from the ECG-ID database, with 180 records from 90 subjects. The recordings are divided into training data and validation used in individual recognition based on ECG signals.

This final project is based on three training models with various ECG signals and batch size, optimizer, and learning rate parameters based on accuracy, recall, precision, and F-1 Score. The results of this test are obtained that the optimal test results when using the 3rd model with a PQRST wave and the parameters used are batch size 32 and Adam optimizer with a learning rate size of 0.001. The best performance results have an accuracy of 92%.

Keywords: *Biometric*, *ECG Signal*, *Discrete Wavelet Transform*, *Convolutional Neural Network*