

ABSTRACT

Biometric technology at the moment is widely used as identification and authentication of an application. The example is a smartphone in which there is an application that contains important data, then an application requires a high level of security which is where the user can open that application. Recently created a biometric technology based on ECG signal that is being developed. This ECG signal takes the form of a human heart signal that will be designed into a new idea for biometric technology.

In this final project, a system that can identify a person's identity through electrocardiogram signals is made using One Dimensional Convolutional Neural Network method (1D-CNN) with ReLU and softmax activation function. The data is processed through three scenarios. The dataset used was obtained from *www.physionet.org*, this dataset contains 48 classes that have different heart rate characteristics. The total number of data entered was 8.597 consisting of 6.017 (75%) training data and 2.580 (25%) test data.

Testing on the number of hidden layer, the use of the optimizer, and the current leaning rate have an effect on the resulting system performance. The resulting system performance is in the form of accuracy, precision, recall, fl-score, and loss. Where in this research, the best results were obtained from the use of 5 hidden layers, adam optimizer, and a learning rate value of 0,001. The results obtained from the system performance of accuracy, precision, recall, fl-score, and loss are 94,07%, 94%, 94%, 93%, 0,1876 respectively.

Keyword: ECG, Biometric, Convolutional Neural Network