ABSTRACT

Walking is an activity that is always done all the time. Various activities can be achieved by walking, one of which is to perform individual identification or biometrics. The introduction of each individual can be done by analyzing each human's gait or gait analysis, because each human's gait has its own uniqueness.

This final project research aims to test the performance of a system to recognize every human being through the way they walks using accelerometer and gyroscope sensors embedded in android-based smartphones. The methods used in this study are the Signal Complexity method with the type of Shannon Entropy and K-Nearest Neighbors (KNN) method.

The results of the tests that have been done using accelerometer and gyroscope sensors embedded in Android-based smartphones, the results of the KNN method using conventional validation produce higher accuracy, namely from the accelerometer sensor of 11.11-22.22%, from the gyroscope sensor of 61.11-78.26% and from the combination of the two sensors of 61.11-78.26%. Meanwhile, by using the K-Fold Cross Validation, from the accelerometer sensor it is 8.88-19.99% and from the gyroscope sensor it is 57.77-66.66% and from the combination of the two sensors it is 57.77-66.66%. The results obtained by the KNN method in this study are influenced by the distance value of each sample that will be used as a dataset for classification, where the distance values of each sample tend to be close together.

Keywords: *Gait, Accelerometer, Gyroscope, Shannon Entropy, K-Nearest Neighbors (KNN)*