ABSTRACT

Every persons have their own unique way of walking. The unique way of walking is called gait. Because of that reason a person can be identified by their gait. In this way gait implemented as unique biometric feature of human. Gyroscope is a sensor used to detect vibration and measure acceleration base on direction or orientation. Gyroscope has been used widely in daily life, mostly on smartphone. There is possibility to measure human motion of walk using gyroscope sensor on smartphone.

In this final project, will be tried to do recognition of individual based on gait using gyroscope sensor that is embeded in smartphone. The gait data is processed and analyzed by implementing Linear Predictive Coding method and k-Nearest Neighbour. Linear Predictive Coding Method is used to extract feature from gait data. Linear Predictive Coding produce feature vector based on combination of p previous signal. This method take only important value of feature data. K-Nearest Neighbour Model method is used for classification based on value calculation such as Euclidean distance, Cityblock distance, Cosine distance and Correlation distance. Gait signal contain x,y,z axis and magnitude of the signal. In this final project x,y,z axis and magnitude of the signal also combined to improve accuracy of system.

On this research, the system reach the highest accuracy of 99,58% produced by signal combination x-y-z-m. Overall system produced accuracy between 50% to 99,58%.

Keywords : *Gait, Gyroscope, Linear Predictive Coding, K-Nearest Neighbour*