ABSTRACT

Walking is an activity that almost all healthy and normal people do. Everyone's gait is different because it is influenced by factors of body posture, height, gender, weight, and age. Human gait can be classified and can give an idea of a person's age. Therefore, the authors designed a system aimed at predicting a person's age from walking movements using the classification method, namely K-Nearest Neighbors (KNN).

The method used by the author in the study is age prediction by doing 2 walking cycles. In 1 cycle there are 2 steps. This study looks at the acceleration of foot speed when walking. The MPU9250 sensor is used to record footsteps and the sensor is placed on a person's feet. The ESP 32, which is a system connected to the arduino application, helps to record speed and acceleration on the feet. The classification method used is K-Nearest Neighbors (KNN) to classify the type of age group 0 from 17 years to 20 years, age group 1 from 21 years to 40 years, and age group 2 from 41 years to 60 years. Feature extraction used means feature extraction because it has the best accuracy rate of 85% in the training process.

The test of this system was carried out by collecting data from 25 participants from various ages, ranging from 17 years to 60 years, by recording acceleration on the right leg and left waist. Accuracy was obtained from the age prediction test with an average of 82.5% in age group 0; 73% for age group 01; and 87% for age group 2. The overall accuracy is 80.8%.

Keywords   :Walking Age, K-Nearest Neighbors (KNN), Walking Pattern, MPU9250, Classification.