Abstract

Gyroscope scnsor and Accelerometer are devices that can be used to measure the orientation, position, speed, and acceleration of an object, as quoted from the research from Siti Yuliani (2016). This technology can be used to recognize activity daily life in the elderly. Until now, there are rarely studies that use Gyroscope and Accelerometer signals to predict falls using certain classification algorithms. Therefore, this Thesis will find the best classification algorithm from 3 algorithms, namely K-Nearest Neighbor, Naïve Bayes, Support Vector Machine from the dataset that has been taken by using a wearable device that has been built from the ESP32 microcontroller based on MPU-6050 sensor. The highest accuracy that has been obtained in this study using the K-Nearest Neighbor classification of 85.1%.

Keywords: *classification, Gyroscope, Accelerometer, K-Nearest Neighbour, Naïve Bayes, Support Vector Machine, wearable device.*