

Abstract

Gait disorder is a disorder of gait that can be caused by a response from a muscle that is slow to take orders from the brain or signals from a weak brain so that the command to the muscles is not conveyed properly. To overcome this problem, this final project is built a system to integrate the gait activity and beta signal data in the brain so that it can determine the causes of gait disorder experienced by recording data from the gait activity using the IMU sensor (Inertia Measurement Unit) that is attached to both knees and beta signal on the brain based on electroencephalograph (EEG). By integrating these two data it can be seen that gait disorder is caused by beta signals in the brain or because of gait muscle. For recording gait activity, an accelerometer sensor and a gyroscope with a wifi-based microcontroller are used using the MQTT protocol for the process of sending filtered data using the complementary filter method. Whereas for beta signals in the brain the process of recording data is done using Neurosky Mindware. In testing both sensors are used together and the testers carry out walking movements. Data from the gait activity and recorded beta signals are then integrated in one time unit for analysis by Janu Nirwana as the final project partner.

Keywords : Gait activity, IMU, EEG