

ABSTRACT

Every human being has a unique and different style of walking. Human gait is different due to many factors. Starting from the physical condition, disease, habits, the level of body symmetry, the shape of muscles in the body and much more. Of the factors that affect gait can be grouped and the difference is sought.

A system was designed to reconstruct the gait using the Inertial Measurement Unit (IMU) sensor with MPU9250 type. The data will be processed into a 3-dimensional (3D) reconstruction and the results of the reconstruction will be compared based on the BMI category of the subject. The design is focused so that the sensor can be used (wearable sensor) and easy to use.

In this final project the results of gait reconstruction for the three male subjects with different BMIs are relatively similar. Calculation of the average distance of 1 cycle for underweight subjects is 1.86 m, normal subjects are 1.01 m, and overweight subjects are 2.10 m. While the average total time needed to take 1 walking cycle for underweight subjects is 3.05 s, normal subjects are 2.79 s, and overweight subjects are 3.27 s.

Kata Kunci : *Gait, Body Mass Index, Accelerometer, Inertial Measurement Unit, wearable sensor*