Data Collection and Test
Walking Incline and Speed Estimation (WISE)
May 03 2017

Project:

In this project, it is the goal of the team to develop an accurate and reliable means to estimate the walking velocity and slope of incline wholly from a single IMU mounted on the subjects' leg. At the time of this test, only the velocity estimator has been implemented. However, the slope estimator is arguably a small step away from a reliable velocity estimator (as it is essentially another integrator).

Test Objectives:

There are two objectives is this test:

1. To demonstrate the ability of the IMU code to estimate a reasonable walking velocity.
2. To collect 6 axis data (3 axis accel, 3 axis gyro) values for later use.

On Objective 1:

Although objective No. 1 is the final goal of this project, it is unrealistic that the current code would gather accurate velocity estimates. The primary cause is simply a lack of proper testing and modeling. The current code is purely analytic. However, the velocity estimator outputs will be collected and analyzed in the hope that something works to some small degree.

On Objective 2:

Objective No. 2 is the main goal of this test. To this point, all analysis has been purely theoretical. The desire is to have a database of cases which we could use to test various versions of the algorithm. This would be a cost effective as well as a time efficient means to develop a working algorithm within a shorter time frame.

Collection Name	Subject Name	Speed	Incline?	Time of Collection