Abstract

The Internet of Things (IoT) is a general concept of networks that are connected to each other. In the field of shipping services, IoT has been widely used in applications or shipping systems, one of which is tracking the pose of the item being sent whether it is rolling, crashing or bumping using the accelerometer-based IMU sensor method and the gyroscope that will be placed on the item to be sent. The tool or application that will be created is used to record data in real time from an IMU sensor based on an accelerometer and a gyroscope that uses an Arduino nano microcontroller connected to a wifi module. The sensor will be installed on the side or inside the item to be sent. Data obtained from the IMU sensor is then processed on a PC using a microcontroller and complementary filter, which aims to reduce noise on the sensor. Because the accelerometer sensor gives an acceleration of the position of an object itself to time. Complementary filters estimate low-pass filters at low frequencies obtained from accelerometer data and high-pass filters obtained from the gyroscope data. And the gyroscope sensor functions to measure the angular velocity experienced by objects when a position changes and returns to its original position.

Keywords: IoT, tracking, IMU sensor, microcontroller, complementary filter