Robotics- ROS Assignment 7

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Integrate the GPS and IMU Gazebo Plugins to the created Two Wheeled Robot

We get all plugins from
http://gazebosim.org/tutorials?tut=ros_gzplugins

One such plugin for GPS and IMU is (contains both plugins)
http://wiki.ros.org/hector_gazebo_plugins

Install plugin

```
$ sudo apt-get install
ros-melodic-hector-gazebo-plugins
```

GazeboRosGps simulates a GNSS (Global Navigation Satellite System) receiver which is attached to a robot. It publishes sensor_msgs/NavSatFix messages with the robot's position and altitude in WGS84 coordinates. The reference point that corresponds to the origin of the gazebo frame can be configured using the XML parameters. The conversion between gazebo coordinates and WGS84 is done using a simple equirectangular projection, which is accurate enough if you do not go far away from the configured reference point and if you do not want to use the plugin for polar regions.

GazeboRosImu is a replacement for the GazeboRosImu plugin in package gazebo_plugins. It simulates an Inertial Measurement Unit (IMU) affected by Gaussian noise and low-frequency random drift. The orientation returned mimics a simple Attitude and Heading Reference System (AHRS) using the (erroneous) rates and accelerations.