```
<?xml version="1.0"?>
<robot>
<gazebo>
<!--imu plugin-->
<gazebo>
<plugin name="imu_plugin" filename="libgazebo_ros_imu.so">
<alwaysOn>true</alwaysOn>
<bodyName>base_footprint</bodyName>
<topicName>imu</topicName>
<serviceName>imu_service</serviceName>
<gaussianNoise>0.0</gaussianNoise>
<updateRate>20.0</updateRate>
</plugin>
</gazebo>
<!--gps plugin-->
<gazebo>
<plugin name="gps" filename="libhector_gazebo_ros_gps.so">
<updateRate>10.0</updateRate>
<topicName>sensor_msgs/NavSatFix</topicName>
<gaussianNoise>0.0 0.0 0.0</gaussianNoise>
<offset>0 0 0</offset>
<velocityGaussianNoise>0 0 0</velocityGaussianNoise>
<frameId>base_link</frameId>
</plugin>
</gazebo>
<plugin name="differential_drive_controller" filename="libgazebo_ros_diff_drive.so">
<legacyMode>false</legacyMode>
<alwaysOn>true</alwaysOn>
<updateRate>10</updateRate>
<leftJoint>left_wheel_hinge</leftJoint>
<rightJoint>right_wheel_hinge</rightJoint>
```

<wheelSeparation>0.4</wheelSeparation>

<wheelDiameter>0.2</wheelDiameter>

<torque>10</torque>

<commandTopic>cmd_vel</commandTopic>

<odometryTopic>odom</odometryTopic>

<odometryFrame>odom</odometryFrame>

<robotBaseFrame>chassis</robotBaseFrame>

</plugin>

</gazebo>

<gazebo reference="chassis">

<material>Gazebo/Orange</material>

</gazebo>

<gazebo reference="left_wheel">

<material>Gazebo/Blue</material>

</gazebo>

<gazebo reference="right_wheel">

<material>Gazebo/Blue</material>

</gazebo>

<gazebo reference="camera">

<material>Gazebo/Green</material>

<sensor type="camera" name="camera1">

<update_rate>30.0</update_rate>

<camera name="head">

<horizontal_fov>1.3962634</horizontal_fov>

<image>

<width>400</width>

<height>800</height>

<format>R8G8B8</format>

</image>

<clip>

<near>0.02</near>

<far>300</far>

</clip>

</camera>

<plugin name="camera_controller" filename="libgazebo_ros_camera.so">

<alwaysOn>true</alwaysOn>

<updateRate>0.0</updateRate>

<cameraName>mybot/camera1</cameraName>

<imageTopicName>image_raw</imageTopicName>

<cameraInfoTopicName>camera_info</cameraInfoTopicName>

<frameName>camera</frameName>

<hackBaseline>0.07</hackBaseline>

<distortionK1>0.0</distortionK1>

<distortionK2>0.0</distortionK2>

<distortionK3>0.0</distortionK3>

<distortionT1>0.0</distortionT1>

<distortionT2>0.0</distortionT2>

</plugin>

</sensor>

</gazebo>

<!-- hokuyo -->

<gazebo reference="hokuyo">

<sensor type="gpu_ray" name="head_hokuyo_sensor">

<pose>0 0 0 0 0 0</pose>

<visualize>false</visualize>

<update_rate>40</update_rate>

<ray>

<scan>

<horizontal>

<samples>720</samples>

<resolution>1</resolution>

<min_angle>-1.570796</min_angle>

<max_angle>1.6</max_angle>

</horizontal>

</scan>

<range>

<min>0.10</min>

<max>30.0</max>

<resolution>0.01</resolution>

</range>

<noise>

<type>gaussian</type>

<!-- Noise parameters based on published spec for Hokuyo laser

achieving "+-30mm" accuracy at range < 10m. A mean of 0.0m and

stddev of 0.01m will put 99.7% of samples within 0.03m of the true

reading. -->

<mean>0.0</mean>

<stddev>0.01</stddev>

</noise>

</ray>

<plugin name="gazebo_ros_head_hokuyo_controller" filename="libgazebo_ros_gpu_laser.so">

<topicName>/mybot/laser/scan</topicName>

<frameName>hokuyo</frameName>

</plugin>

</sensor>

</gazebo>

</robot>