```
<?xml version="1.0"?>
<robot>

  <gazebo>

    <plugin name="skid_steer_drive_controller"
filename="libgazebo_ros_skid_steer_drive.so">
      <updateRate>10.0</updateRate>
      <robotNamespace>/</robotNamespace>
      <leftFrontJoint>left_wheel_hinge_front</leftFrontJoint>
      <rightFrontJoint>right_wheel_hinge_front</rightFrontJoint>
      <leftRearJoint>left_wheel_hinge_back</leftRearJoint>
      <rightRearJoint>right_wheel_hinge_back</rightRearJoint>
      <wheelSeparation>0.4</wheelSeparation>
      <wheelDiameter>0.2</wheelDiameter>
      <robotBaseFrame>robot_footprint</robotBaseFrame>
      <torque>10</torque>

      <topicName>cmd_vel</topicName>
      <odometryTopic>odom</odometryTopic>
      <odometryFrame>odom</odometryFrame>

      <commandTopic>cmd_vel</commandTopic>
      <topic_name_twist>cmd_vel</topic_name_twist>
      <topic_name_odometry>odom</topic_name_odometry>
      <topic_name_joint>joint</topic_name_joint>

      <broadcastTF>true</broadcastTF>

      <covariance_x>0.0001</covariance_x>
      <covariance_y>0.0001</covariance_y>
      <covariance_yaw>0.01</covariance_yaw>

    </plugin>

  </gazebo>

  <!-- camera -->
  <gazebo reference="camera">
    <sensor type="camera" name="camera1">
      <update_rate>30.0</update_rate>
      <camera name="head">
        <horizontal_fov>1.3962634</horizontal_fov>
        <image>
          <width>800</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>camera</cameraName>
        <imageTopicName>rgb/image_raw</imageTopicName>
        <cameraInfoTopicName>rgb/camera_info</cameraInfoTopicName>
        <frameName>camera</frameName>
        <hackBaseline>0.07</hackBaseline>
```

```
61          <distortionK1>0.0</distortionK1>
62          <distortionK2>0.0</distortionK2>
63          <distortionK3>0.0</distortionK3>
64          <distortionT1>0.0</distortionT1>
65          <distortionT2>0.0</distortionT2>
66        </plugin>
67      </sensor>
68    </gazebo>
69
70    <!-- hokuyo -->
71    <gazebo reference="hokuyo">
72      <sensor type="ray" name="head_hokuyo_sensor">
73        <pose>0 0 0 0 0 0</pose>
74        <visualize>false</visualize>
75        <update_rate>40</update_rate>
76        <ray>
77          <scan>
78            <horizontal>
79              <samples>720</samples>
80              <resolution>1</resolution>
81              <min_angle>-1.570796</min_angle>
82              <max_angle>1.570796</max_angle>
83            </horizontal>
84          </scan>
85          <range>
86            <min>0.10</min>
87            <max>30.0</max>
88            <resolution>0.01</resolution>
89          </range>
90          <noise>
91            <type>gaussian</type>
92            <!-- Noise parameters based on published spec for Hokuyo laser
93                 achieving "+-30mm" accuracy at range < 10m.  A mean of 0.0m and
94                 stddev of 0.01m will put 99.7% of samples within 0.03m of the true
95                 reading. -->
96            <mean>0.0</mean>
97            <stddev>0.01</stddev>
98          </noise>
99        </ray>
100       <plugin name="gazebo_ros_head_hokuyo_controller"
filename="libgazebo_ros_laser.so">
101         <topicName>/scan</topicName>
102         <frameName>hokuyo</frameName>
103       </plugin>
104     </sensor>
105   </gazebo>
106
107
108 </robot>
```