V1:Fr

<?xml&nbspversion="1.0" ?>

<robot name="my\_mm\_robot" xmlns:xacro="https://www.ros.org/wiki/xacro" >

  <material name="black">

    <color rgba="0.0&nbsp0.0&nbsp0.0&nbsp1.0"/>

  </material>

  <material name="blue">

    <color rgba="0.203125&nbsp0.23828125&nbsp0.28515625&nbsp1.0"/>

  </material>

  <material name="green">

    <color rgba="0.0&nbsp0.8&nbsp0.0&nbsp1.0"/>

  </material>

  <material name="grey">

    <color rgba="0.2&nbsp0.2&nbsp0.2&nbsp1.0"/>

  </material>

  <material name="orange">

    <color rgba="1.0&nbsp0.423529411765&nbsp0.0392156862745&nbsp1.0"/>

  </material>

  <material name="brown">

    <color rgba="0.870588235294&nbsp0.811764705882&nbsp0.764705882353&nbsp1.0"/>

  </material>

  <material name="red">

    <color rgba="0.80078125&nbsp0.12890625&nbsp0.1328125&nbsp1.0"/>

  </material>

  <material name="white">

    <color rgba="1.0&nbsp1.0&nbsp1.0&nbsp1.0"/>

  </material>

  <gazebo reference="link\_chassis">

    <material>Gazebo/Orange</material>

  </gazebo>

  <gazebo reference="link\_left\_wheel">

    <material>Gazebo/Black</material>

  </gazebo>

  <gazebo reference="link\_right\_wheel">

    <material>Gazebo/Black</material>

  </gazebo>

  <link name="link\_chassis">

    <!--&nbsppose&nbspand&nbspinertial -->

    <pose>0&nbsp0&nbsp0.1&nbsp0&nbsp0&nbsp0</pose>

    <inertial>

      <mass value="0.5"/>

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0&nbsp0.01&nbsp0"/>

      <inertia ixx="0.00022083" ixy="0" ixz="0" iyy="0.00022083" iyz="0" izz="0.00040833"/>

    </inertial>

    <collision name="link\_chassis\_collision">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0    &nbsp0    -0.005"/>

      <geometry>

        <box size="0.07&nbsp0.07&nbsp0.02"/>

      </geometry>

    </collision>

    <visual name="link\_chassis\_visual">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0    &nbsp0    -0.005"/>

      <geometry>

        <box size="0.07&nbsp0.07&nbsp0.02"/>

      </geometry>

    </visual>

    <!--&nbspcaster&nbspfront -->

    <collision name="caster\_front\_collision">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0     -0.03  -0.015"/>

      <geometry>

        <sphere radius="0.005"/>

      </geometry>

      <surface>

        <friction>

          <ode>

            <mu>90</mu>

            <mu2>90</mu2>

            <slip1>1000.0</slip1>

            <slip2>1000.0</slip2>

          </ode>

        </friction>

      </surface>

    </collision>

    <visual name="castor\_front\_visual">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0   -0.03  -0.015"/>

      <geometry>

        <sphere radius="0.005"/>

      </geometry>

    </visual>

</link>

  <!--&nbspCreate&nbspwheel&nbspright -->

  <link name="link\_right\_wheel">

    <inertial>

      <mass value="0.2"/>

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <inertia ixx="2.3e-06" ixy="0" ixz="0" iyy="2.3e-06" iyz="0" izz="4.5e-06"/>

    </inertial>

    <collision name="link\_right\_wheel\_collision">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </collision>

    <visual name="link\_right\_wheel\_visual">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </visual>

  </link>

  <!--  &nbspJoint&nbspfor&nbspright&nbspwheel  -->

  <joint name="joint\_right\_wheel" type="continuous">

    <origin rpy="0&nbsp0&nbsp0" xyz="-0.04 &nbsp0.02   &nbsp0"/>

    <child link="link\_right\_wheel" />

    <parent link="link\_chassis"/>

    <axis rpy="0&nbsp0&nbsp0" xyz="1&nbsp0&nbsp0"/>

    <limit effort="5" velocity="6"/>

    <joint\_properties damping="10000.0" friction="10000.0" />

  </joint>

  <transmission name="right\_wheel\_trans">

     <type>transmission\_interface/SimpleTransmission</type>

     <actuator name="right\_wheel\_motor">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

       <mechanicalReduction>7</mechanicalReduction>

     </actuator>

     <joint name="joint\_right\_wheel">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

     </joint>

  </transmission>

  <!--&nbspLeft&nbspWheel&nbsplink -->

  <link name="link\_left\_wheel">

    <inertial>

      <mass value="0.2"/>

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <inertia ixx="2.3e-06" ixy="0" ixz="0" iyy="2.3e-06" iyz="0" izz="4.5e-06"/>

    </inertial>

    <collision name="link\_left\_wheel\_collision">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </collision>

    <visual name="link\_left\_wheel\_visual">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </visual>

  </link>

  <!--  &nbspJoint&nbspfor&nbspright&nbspwheel  -->

  <joint name="joint\_left\_wheel" type="continuous">

    <origin rpy="0&nbsp0&nbsp0" xyz="0.04&nbsp0.02&nbsp0"/>

    <child link="link\_left\_wheel" />

    <parent link="link\_chassis"/>

    <axis rpy="0&nbsp0&nbsp0" xyz="1&nbsp0&nbsp0"/>

    <limit effort="5" velocity="6"/>

    <joint\_properties damping="10000.0" friction="10000.0" />

  </joint>

  <transmission name="left\_wheel\_trans">

     <type>transmission\_interface/SimpleTransmission</type>

     <actuator name="left\_wheel\_motor">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

       <mechanicalReduction>7</mechanicalReduction>

     </actuator>

     <joint name="joint\_left\_wheel">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

     </joint>

  </transmission>

  <gazebo>

    <plugin filename="libgazebo\_ros\_diff\_drive.so" name="differential\_drive\_controller">

      <alwaysOn>true</alwaysOn>

      <updateRate>20</updateRate>

      <leftJoint>joint\_left\_wheel</leftJoint>

      <rightJoint>joint\_right\_wheel</rightJoint>

      <wheelSeparation>0.4</wheelSeparation>

      <wheelDiameter>0.2</wheelDiameter>

      <torque>0.1</torque>

      <commandTopic>cmd\_vel</commandTopic>

      <odometryTopic>odom</odometryTopic>

      <odometryFrame>odom</odometryFrame>

      <robotBaseFrame>link\_chassis</robotBaseFrame>

    </plugin>

  </gazebo>

    <!--

   &nbspAdding&nbspa&nbsplaser&nbspscan&nbspsensor&nbspto&nbspthe&nbsprobot

  -->

  <link name="sensor\_laser">

    <inertial>

      <origin xyz="0&nbsp0&nbsp0" rpy="0&nbsp0&nbsp0" />

      <mass value="0.01" />

      <inertia ixx="0.02" ixy="0" ixz="0" iyy="0.02" iyz="0" izz="0.02"/>

    </inertial>

    <visual>

      <origin xyz="0.02&nbsp0&nbsp0" rpy="0&nbsp0&nbsp0" />

      <geometry>

        <cylinder radius="0.005" length="0.02"/>

      </geometry>

      <material name="white" />

    </visual>

    <collision>

      <origin xyz="0&nbsp0&nbsp0" rpy="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder radius="0.005" length="0.001"/>

      </geometry>

    </collision>

  </link>

  <joint name="joint\_sensor\_laser" type="fixed">

    <origin rpy="0 &nbsp0  -1.57" xyz="0   &nbsp0   &nbsp0.01"/>

    <parent link="link\_chassis"/>

    <child link="sensor\_laser"/>

  </joint>

  <gazebo reference="sensor\_laser">

    <sensor type="ray" name="head\_hokuyo\_sensor">

      <pose>0&nbsp0&nbsp0&nbsp0&nbsp0&nbsp0</pose>

      <visualize>true</visualize>

      <update\_rate>20</update\_rate>

      <ray>

        <scan>

          <horizontal>

            <samples>360</samples>

            <resolution>1</resolution>

            <min\_angle>-1.570796</min\_angle>

            <max\_angle>1.570796</max\_angle>

          </horizontal>

        </scan>

        <range>

          <min>0.04</min>

          <max>10.0</max>

          <resolution>0.01</resolution>

        </range>

      </ray>

      <plugin name="gazebo\_ros\_head\_hokuyo\_controller" filename="libgazebo\_ros\_laser.so">

        <topicName>/my\_mm\_robot/laser/scan</topicName>

        <frameName>sensor\_laser</frameName>

      </plugin>

    </sensor>

  </gazebo>

  <!-- <gazebo>

    <plugin&nbspname="gazebo\_ros\_control"&nbspfilename="libgazebo\_ros\_control.so">

      <robotNamespace>/simple\_model</robotNamespace>

      <legacyModeNS>true</legacyModeNS>

      <robotSimType>gazebo\_ros\_control/DefaultRobotHWSim</robotSimType>

    </plugin>

  </gazebo>-->

</robot>

V2: BS

<?xml&nbspversion="1.0" ?>

<robot name="my\_mm\_robot" xmlns:xacro="https://www.ros.org/wiki/xacro" >

  <material name="black">

    <color rgba="0.0&nbsp0.0&nbsp0.0&nbsp1.0"/>

  </material>

  <material name="blue">

    <color rgba="0.203125&nbsp0.23828125&nbsp0.28515625&nbsp1.0"/>

  </material>

  <material name="green">

    <color rgba="0.0&nbsp0.8&nbsp0.0&nbsp1.0"/>

  </material>

  <material name="grey">

    <color rgba="0.2&nbsp0.2&nbsp0.2&nbsp1.0"/>

  </material>

  <material name="orange">

    <color rgba="1.0&nbsp0.423529411765&nbsp0.0392156862745&nbsp1.0"/>

  </material>

  <material name="brown">

    <color rgba="0.870588235294&nbsp0.811764705882&nbsp0.764705882353&nbsp1.0"/>

  </material>

  <material name="red">

    <color rgba="0.80078125&nbsp0.12890625&nbsp0.1328125&nbsp1.0"/>

  </material>

  <material name="white">

    <color rgba="1.0&nbsp1.0&nbsp1.0&nbsp1.0"/>

  </material>

  <gazebo reference="link\_chassis">

    <material>Gazebo/Orange</material>

  </gazebo>

  <gazebo reference="link\_left\_wheel">

    <material>Gazebo/Black</material>

  </gazebo>

  <gazebo reference="link\_right\_wheel">

    <material>Gazebo/Black</material>

  </gazebo>

  <link name="link\_chassis">

    <!--&nbsppose&nbspand&nbspinertial -->

    <pose>0&nbsp0&nbsp0.1&nbsp0&nbsp0&nbsp0</pose>

    <inertial>

      <mass value="0.5"/>

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0&nbsp0.01&nbsp0"/>

      <inertia ixx="0.00022083" ixy="0" ixz="0" iyy="0.00022083" iyz="0" izz="0.00040833"/>

    </inertial>

    <collision name="link\_chassis\_collision">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0    &nbsp0    -0.005"/>

      <geometry>

        <box size="0.08&nbsp0.07&nbsp0.02"/>

      </geometry>

    </collision>

    <visual name="link\_chassis\_visual">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0    &nbsp0    -0.005"/>

      <geometry>

        <box size="0.08&nbsp0.07&nbsp0.02"/>

      </geometry>

    </visual>

    <!--&nbspcaster&nbspfront -->

    <collision name="caster\_front\_collision">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0     -0.03  -0.015"/>

      <geometry>

        <sphere radius="0.005"/>

      </geometry>

      <surface>

        <friction>

          <ode>

            <mu>90</mu>

            <mu2>90</mu2>

            <slip1>1000.0</slip1>

            <slip2>1000.0</slip2>

          </ode>

        </friction>

      </surface>

    </collision>

    <visual name="castor\_front\_visual">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0   -0.03  -0.015"/>

      <geometry>

        <sphere radius="0.005"/>

      </geometry>

    </visual>

</link>

  <!--&nbspCreate&nbspwheel&nbspright -->

  <link name="link\_right\_wheel">

    <inertial>

      <mass value="0.2"/>

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <inertia ixx="2.3e-06" ixy="0" ixz="0" iyy="2.3e-06" iyz="0" izz="4.5e-06"/>

    </inertial>

    <collision name="link\_right\_wheel\_collision">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </collision>

    <visual name="link\_right\_wheel\_visual">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </visual>

  </link>

  <!--  &nbspJoint&nbspfor&nbspright&nbspwheel  -->

  <joint name="joint\_right\_wheel" type="continuous">

    <origin rpy="0&nbsp0&nbsp0" xyz="-0.04 &nbsp0.02   &nbsp0"/>

    <child link="link\_right\_wheel" />

    <parent link="link\_chassis"/>

    <axis rpy="0&nbsp0&nbsp0" xyz="1&nbsp0&nbsp0"/>

    <limit effort="5" velocity="6"/>

    <joint\_properties damping="10000.0" friction="10000.0" />

  </joint>

  <transmission name="right\_wheel\_trans">

     <type>transmission\_interface/SimpleTransmission</type>

     <actuator name="right\_wheel\_motor">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

       <mechanicalReduction>7</mechanicalReduction>

     </actuator>

     <joint name="joint\_right\_wheel">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

     </joint>

  </transmission>

  <!--&nbspLeft&nbspWheel&nbsplink -->

  <link name="link\_left\_wheel">

    <inertial>

      <mass value="0.2"/>

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <inertia ixx="2.3e-06" ixy="0" ixz="0" iyy="2.3e-06" iyz="0" izz="4.5e-06"/>

    </inertial>

    <collision name="link\_left\_wheel\_collision">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </collision>

    <visual name="link\_left\_wheel\_visual">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </visual>

  </link>

  <!--  &nbspJoint&nbspfor&nbspright&nbspwheel  -->

  <joint name="joint\_left\_wheel" type="continuous">

    <origin rpy="0&nbsp0&nbsp0" xyz="0.04&nbsp0.02&nbsp0"/>

    <child link="link\_left\_wheel" />

    <parent link="link\_chassis"/>

    <axis rpy="0&nbsp0&nbsp0" xyz="1&nbsp0&nbsp0"/>

    <limit effort="5" velocity="6"/>

    <joint\_properties damping="10000.0" friction="10000.0" />

  </joint>

  <transmission name="left\_wheel\_trans">

     <type>transmission\_interface/SimpleTransmission</type>

     <actuator name="left\_wheel\_motor">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

       <mechanicalReduction>7</mechanicalReduction>

     </actuator>

     <joint name="joint\_left\_wheel">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

     </joint>

  </transmission>

  <gazebo>

    <plugin filename="libgazebo\_ros\_diff\_drive.so" name="differential\_drive\_controller">

      <alwaysOn>true</alwaysOn>

      <updateRate>20</updateRate>

      <leftJoint>joint\_left\_wheel</leftJoint>

      <rightJoint>joint\_right\_wheel</rightJoint>

      <wheelSeparation>0.4</wheelSeparation>

      <wheelDiameter>0.2</wheelDiameter>

      <torque>0.1</torque>

      <commandTopic>cmd\_vel</commandTopic>

      <odometryTopic>odom</odometryTopic>

      <odometryFrame>odom</odometryFrame>

      <robotBaseFrame>link\_chassis</robotBaseFrame>

    </plugin>

  </gazebo>

    <!--

   &nbspAdding&nbspa&nbsplaser&nbspscan&nbspsensor&nbspto&nbspthe&nbsprobot

  -->

  <link name="sensor\_laser">

    <inertial>

      <origin xyz="0&nbsp0&nbsp0" rpy="0&nbsp0&nbsp0" />

      <mass value="0.01" />

      <inertia ixx="0.02" ixy="0" ixz="0" iyy="0.02" iyz="0" izz="0.02"/>

    </inertial>

    <visual>

      <origin xyz="0.02&nbsp0&nbsp0" rpy="0&nbsp0&nbsp0" />

      <geometry>

        <cylinder radius="0.005" length="0.02"/>

      </geometry>

      <material name="white" />

    </visual>

    <collision>

      <origin xyz="0&nbsp0&nbsp0" rpy="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder radius="0.005" length="0.001"/>

      </geometry>

    </collision>

  </link>

  <joint name="joint\_sensor\_laser" type="fixed">

    <origin rpy="0 &nbsp0  -1.57" xyz="0   &nbsp0   &nbsp0.01"/>

    <parent link="link\_chassis"/>

    <child link="sensor\_laser"/>

  </joint>

  <gazebo reference="sensor\_laser">

    <sensor type="ray" name="head\_hokuyo\_sensor">

      <pose>0&nbsp0&nbsp0&nbsp0&nbsp0&nbsp0</pose>

      <visualize>true</visualize>

      <update\_rate>20</update\_rate>

      <ray>

        <scan>

          <horizontal>

            <samples>360</samples>

            <resolution>1</resolution>

            <min\_angle>-1.570796</min\_angle>

            <max\_angle>1.570796</max\_angle>

          </horizontal>

        </scan>

        <range>

          <min>0.04</min>

          <max>10.0</max>

          <resolution>0.01</resolution>

        </range>

      </ray>

      <plugin name="gazebo\_ros\_head\_hokuyo\_controller" filename="libgazebo\_ros\_laser.so">

        <topicName>/my\_mm\_robot/laser/scan</topicName>

        <frameName>sensor\_laser</frameName>

      </plugin>

    </sensor>

  </gazebo>

  <!-- <gazebo>

    <plugin&nbspname="gazebo\_ros\_control"&nbspfilename="libgazebo\_ros\_control.so">

      <robotNamespace>/simple\_model</robotNamespace>

      <legacyModeNS>true</legacyModeNS>

      <robotSimType>gazebo\_ros\_control/DefaultRobotHWSim</robotSimType>

    </plugin>

  </gazebo>-->

</robot>

V3: Dime

<?xml&nbspversion="1.0" ?>

<robot name="my\_mm\_robot" xmlns:xacro="https://www.ros.org/wiki/xacro" >

  <material name="black">

    <color rgba="0.0&nbsp0.0&nbsp0.0&nbsp1.0"/>

  </material>

  <material name="blue">

    <color rgba="0.203125&nbsp0.23828125&nbsp0.28515625&nbsp1.0"/>

  </material>

  <material name="green">

    <color rgba="0.0&nbsp0.8&nbsp0.0&nbsp1.0"/>

  </material>

  <material name="grey">

    <color rgba="0.2&nbsp0.2&nbsp0.2&nbsp1.0"/>

  </material>

  <material name="orange">

    <color rgba="1.0&nbsp0.423529411765&nbsp0.0392156862745&nbsp1.0"/>

  </material>

  <material name="brown">

    <color rgba="0.870588235294&nbsp0.811764705882&nbsp0.764705882353&nbsp1.0"/>

  </material>

  <material name="red">

    <color rgba="0.80078125&nbsp0.12890625&nbsp0.1328125&nbsp1.0"/>

  </material>

  <material name="white">

    <color rgba="1.0&nbsp1.0&nbsp1.0&nbsp1.0"/>

  </material>

  <gazebo reference="link\_chassis">

    <material>Gazebo/Orange</material>

  </gazebo>

  <gazebo reference="link\_left\_wheel">

    <material>Gazebo/Black</material>

  </gazebo>

  <gazebo reference="link\_right\_wheel">

    <material>Gazebo/Black</material>

  </gazebo>

  <link name="link\_chassis">

    <!--&nbsppose&nbspand&nbspinertial -->

    <pose>0&nbsp0&nbsp0.1&nbsp0&nbsp0&nbsp0</pose>

    <inertial>

      <mass value="0.5"/>

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0&nbsp0.01&nbsp0"/>

      <inertia ixx="0.00022083" ixy="0" ixz="0" iyy="0.00022083" iyz="0" izz="0.00040833"/>

    </inertial>

    <collision name="link\_chassis\_collision">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0    &nbsp0    -0.005"/>

      <geometry>

        <box size="0.065&nbsp0.07&nbsp0.02"/>

      </geometry>

    </collision>

    <visual name="link\_chassis\_visual">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0    &nbsp0    -0.005"/>

      <geometry>

        <box size="0.065&nbsp0.07&nbsp0.02"/>

      </geometry>

    </visual>

    <!--&nbspcaster&nbspfront -->

    <collision name="caster\_front\_collision">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0     -0.03  -0.015"/>

      <geometry>

        <sphere radius="0.005"/>

      </geometry>

      <surface>

        <friction>

          <ode>

            <mu>80</mu>

            <mu2>80</mu2>

            <slip1>1000.0</slip1>

            <slip2>1000.0</slip2>

          </ode>

        </friction>

      </surface>

    </collision>

    <visual name="castor\_front\_visual">

      <origin rpy="0 &nbsp0 &nbsp0" xyz="0   -0.03  -0.015"/>

      <geometry>

        <sphere radius="0.005"/>

      </geometry>

    </visual>

</link>

  <!--&nbspCreate&nbspwheel&nbspright -->

  <link name="link\_right\_wheel">

    <inertial>

      <mass value="0.2"/>

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <inertia ixx="2.3e-06" ixy="0" ixz="0" iyy="2.3e-06" iyz="0" izz="4.5e-06"/>

    </inertial>

    <collision name="link\_right\_wheel\_collision">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </collision>

    <visual name="link\_right\_wheel\_visual">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </visual>

  </link>

  <!--  &nbspJoint&nbspfor&nbspright&nbspwheel  -->

  <joint name="joint\_right\_wheel" type="continuous">

    <origin rpy="0&nbsp0&nbsp0" xyz="-0.04 &nbsp0.02   &nbsp0"/>

    <child link="link\_right\_wheel" />

    <parent link="link\_chassis"/>

    <axis rpy="0&nbsp0&nbsp0" xyz="1&nbsp0&nbsp0"/>

    <limit effort="5" velocity="6"/>

    <joint\_properties damping="10000.0" friction="10000.0" />

  </joint>

  <transmission name="right\_wheel\_trans">

     <type>transmission\_interface/SimpleTransmission</type>

     <actuator name="right\_wheel\_motor">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

       <mechanicalReduction>7</mechanicalReduction>

     </actuator>

     <joint name="joint\_right\_wheel">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

     </joint>

  </transmission>

  <!--&nbspLeft&nbspWheel&nbsplink -->

  <link name="link\_left\_wheel">

    <inertial>

      <mass value="0.2"/>

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <inertia ixx="2.3e-06" ixy="0" ixz="0" iyy="2.3e-06" iyz="0" izz="4.5e-06"/>

    </inertial>

    <collision name="link\_left\_wheel\_collision">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </collision>

    <visual name="link\_left\_wheel\_visual">

      <origin rpy="0&nbsp1.5707&nbsp0" xyz="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder length="0.01" radius="0.02"/>

      </geometry>

    </visual>

  </link>

  <!--  &nbspJoint&nbspfor&nbspright&nbspwheel  -->

  <joint name="joint\_left\_wheel" type="continuous">

    <origin rpy="0&nbsp0&nbsp0" xyz="0.04&nbsp0.02&nbsp0"/>

    <child link="link\_left\_wheel" />

    <parent link="link\_chassis"/>

    <axis rpy="0&nbsp0&nbsp0" xyz="1&nbsp0&nbsp0"/>

    <limit effort="5" velocity="6"/>

    <joint\_properties damping="10000.0" friction="10000.0" />

  </joint>

  <transmission name="left\_wheel\_trans">

     <type>transmission\_interface/SimpleTransmission</type>

     <actuator name="left\_wheel\_motor">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

       <mechanicalReduction>7</mechanicalReduction>

     </actuator>

     <joint name="joint\_left\_wheel">

       <hardwareInterface>VelocityJointInterface</hardwareInterface>

     </joint>

  </transmission>

  <gazebo>

    <plugin filename="libgazebo\_ros\_diff\_drive.so" name="differential\_drive\_controller">

      <alwaysOn>true</alwaysOn>

      <updateRate>20</updateRate>

      <leftJoint>joint\_left\_wheel</leftJoint>

      <rightJoint>joint\_right\_wheel</rightJoint>

      <wheelSeparation>0.4</wheelSeparation>

      <wheelDiameter>0.2</wheelDiameter>

      <torque>0.1</torque>

      <commandTopic>cmd\_vel</commandTopic>

      <odometryTopic>odom</odometryTopic>

      <odometryFrame>odom</odometryFrame>

      <robotBaseFrame>link\_chassis</robotBaseFrame>

    </plugin>

  </gazebo>

    <!--

   &nbspAdding&nbspa&nbsplaser&nbspscan&nbspsensor&nbspto&nbspthe&nbsprobot

  -->

  <link name="sensor\_laser">

    <inertial>

      <origin xyz="0&nbsp0&nbsp0" rpy="0&nbsp0&nbsp0" />

      <mass value="0.01" />

      <inertia ixx="0.02" ixy="0" ixz="0" iyy="0.02" iyz="0" izz="0.02"/>

    </inertial>

    <visual>

      <origin xyz="0.02&nbsp0&nbsp0" rpy="0&nbsp0&nbsp0" />

      <geometry>

        <cylinder radius="0.005" length="0.02"/>

      </geometry>

      <material name="white" />

    </visual>

    <collision>

      <origin xyz="0&nbsp0&nbsp0" rpy="0&nbsp0&nbsp0"/>

      <geometry>

        <cylinder radius="0.005" length="0.001"/>

      </geometry>

    </collision>

  </link>

  <joint name="joint\_sensor\_laser" type="fixed">

    <origin rpy="0 &nbsp0  -1.57" xyz="0   &nbsp0   &nbsp0.01"/>

    <parent link="link\_chassis"/>

    <child link="sensor\_laser"/>

  </joint>

  <gazebo reference="sensor\_laser">

    <sensor type="ray" name="head\_hokuyo\_sensor">

      <pose>0&nbsp0&nbsp0&nbsp0&nbsp0&nbsp0</pose>

      <visualize>true</visualize>

      <update\_rate>20</update\_rate>

      <ray>

        <scan>

          <horizontal>

            <samples>360</samples>

            <resolution>1</resolution>

            <min\_angle>-1.570796</min\_angle>

            <max\_angle>1.570796</max\_angle>

          </horizontal>

        </scan>

        <range>

          <min>0.04</min>

          <max>10.0</max>

          <resolution>0.01</resolution>

        </range>

      </ray>

      <plugin name="gazebo\_ros\_head\_hokuyo\_controller" filename="libgazebo\_ros\_laser.so">

        <topicName>/my\_mm\_robot/laser/scan</topicName>

        <frameName>sensor\_laser</frameName>

      </plugin>

    </sensor>

  </gazebo>

  <!-- <gazebo>

    <plugin&nbspname="gazebo\_ros\_control"&nbspfilename="libgazebo\_ros\_control.so">

      <robotNamespace>/simple\_model</robotNamespace>

      <legacyModeNS>true</legacyModeNS>

      <robotSimType>gazebo\_ros\_control/DefaultRobotHWSim</robotSimType>

    </plugin>

  </gazebo>-->

</robot>