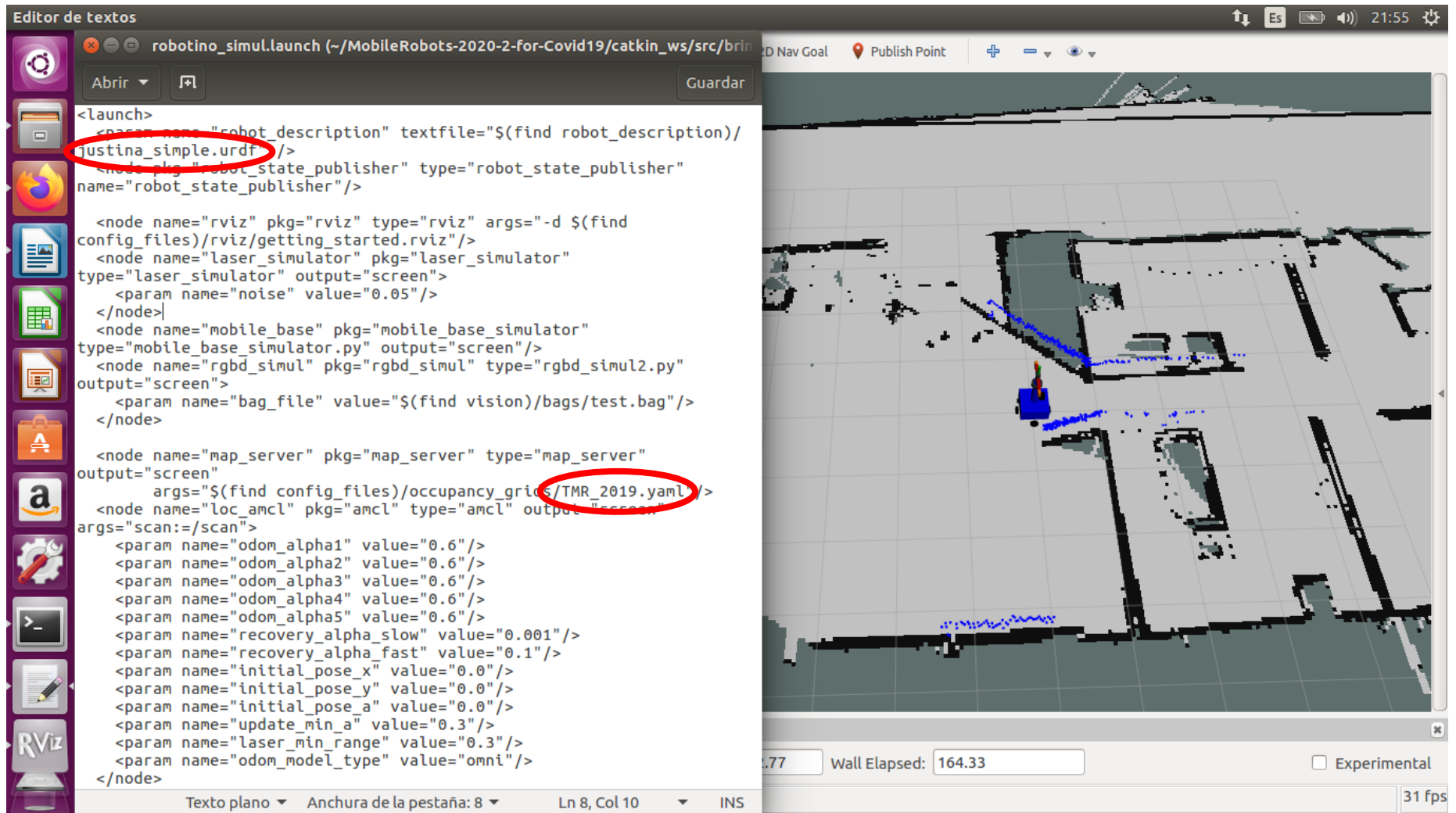


Cambio del urdf y del mapa en el archivo robotino_simul.launch:



Lo que sucedió:

Cuando se cambió la descripción del robot, de robotino.urdf a Justina_simple.urdf, en RViz se cambió el modelo renderizado del robot. Donde antes estaba el robot "robotino", ahora estaja "Justina".

Cuando se cambió el mapa de Universum.yaml a TMR_2019.yaml, lo que cambió en RViz fue el croquis del mapa, mostrando un layout distinto.

Cambio de valores en la etiqueta <origin> de la línea 121 del archivo robotino.urdf

The image displays two side-by-side screenshots of the ROS2 environment, specifically the RViz2 interface, showing the effect of modifying the origin values in the robotino.urdf file.

Left Screenshot: The robot is in its initial position. The RViz2 interface shows the robot's pose and the environment. The status bar at the bottom indicates the time is 1586375947.53 and the wall elapsed time is 25.34. The XML editor shows the robotino.urdf file with the origin values for the camera depth optical frame set to 0 0 0.25.

Right Screenshot: The robot is in a new position, indicating a movement. The RViz2 interface shows the robot's new pose and the environment. The status bar at the bottom indicates the time is 1586375568.89 and the wall elapsed time is 55.74. The XML editor shows the robotino.urdf file with the origin values for the camera depth optical frame set to 0 0 0.25.

The XML editor shows the following code for the robotino.urdf file:

```
<!-- ===== Platform - Joint ===== -->
<joint name="platform_joint" type="fixed">
  <parent link="base_link"/>
  <child link="platform_link"/>
  <origin xyz="0 0 0" rpy="0 0 0"/>
  <axis xyz="0 0 0" rpy="0 0 0"/>
</joint>
<!-- ===== END ===== -->
<link name="laser_link"/>
<joint name="laser_joint" type="fixed">
  <parent link="base_link"/>
  <child link="laser_link"/>
  <origin xyz="0 0 0.3" rpy="0 0 0"/>
  <axis xyz="0 0 0" rpy="0 0 0"/>
</joint>
<link name="camera_color_optical_frame"/>
<joint name="depth_camera_joint" type="fixed">
  <parent link="base_link"/>
  <child link="camera_color_optical_frame"/>
  <origin xyz="0 0 0.25" rpy="-1.8708 0 -1.5708"/>
</joint>
<link name="camera_depth_optical_frame"/>
<joint name="depth_camera_joint2" type="fixed">
  <parent link="base_link"/>
  <child link="camera_depth_optical_frame"/>
  <origin xyz="0 0 0.25" rpy="0 0 0"/>
</joint>
</robot>
```

Lo que sucedió:

Cuando se modificaron los valores de “xyx”, se modificó la posición de la imagen de la cámara, en el mapa. Por otro lado, cuando se modificaron los valores “rpy”, lo que se modificó fue la orientación de dicha imagen.

Eliminación de un campo `<joint>` del archivo `robotino.urdf`

The image shows a ROS environment with three main components:

- Terminal (Left):** Displays logs from the `robotino` package. It shows the initialization of a likelihood field model, a warning about a failed root link, and several "No laser scan received" warnings.
- Code Editor (Top Right):** Shows the `robotino.urdf` file in a `gedit` window. The file defines the robot's structure, including a base link, a wheel joint, and a platform link. A red box highlights the `Wheel 2 - Joint` definition, which is being targeted for removal.
- RViz (Bottom Right):** The `getting_started.rviz` window shows the robot's model in a 3D environment. The `RobotModel` display is highlighted in the left sidebar, and the `URDF` status is shown as "Error".

The terminal logs include the following messages:

```
[ INFO] [1586376588.924439638]: Initializing likelihood field model; this will take some time on large maps...
[ INFO] [1586376588.946513174]: Done initializing likelihood field model
libGL error: failed to create drawable
[robot_state_publisher-2] process has died [pid 24103, exit code 255, cmd: /usr/bin/roslaunch robotino/robotino.launch]
[ERROR] [1586376589.198318969]: Failed to find root link: Two root links found: [base_link] and [wheel2_link]
INITIALIZING MOBILE BASE ...
[ WARN] [1586376604.082812283]: No laser scan received (and thus no pose have been published) for 1586376604.082743 seconds. Verify that the /scan topic has been published on the /scan topic.
[ WARN] [1586376604.082921814]: MessageFilter [target=oc messages so far. Please turn the [ros.amcl.message_notifier] to DEBUG for more information.
[ WARN] [1586376619.081865250]: No laser scan received (and thus no pose have been published) for 1586376619.081797 seconds. Verify that the /scan topic has been published on the /scan topic.
[ WARN] [1586376634.082250818]: No laser scan received (and thus no pose have been published) for 1586376634.082172 seconds. Verify that the /scan topic has been published on the /scan topic.
```

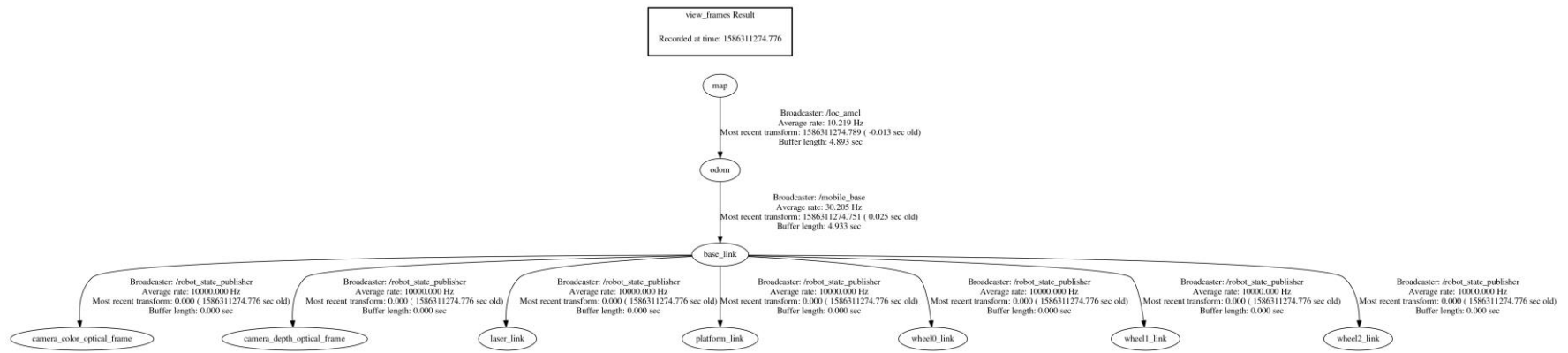
The URDF file content shows the following structure:

```
<?xml version="1.0"?>
<robot name="robotino">
  <link name="base_link">
    <origin xyz="0 0 0" rpy="0 0 0"/>
    <geometry>
      <mesh filename="package://robot_description/model/Robotino3_SplitWheel" type="stl"/>
    </geometry>
    <visual>
      <geometry>
        <mesh filename="package://robot_description/model/Robotino3_SplitWheel" type="stl"/>
      </geometry>
    </visual>
    <collision>
      <geometry>
        <mesh filename="package://robot_description/model/Robotino3_SplitWheel" type="stl"/>
      </geometry>
    </collision>
  </link>
  <!-- Wheel 2 - Joint -->
  <joint name="wheel2_joint" type="fixed">
    <parent link="base_link"/>
    <child link="wheel2_link"/>
    <origin xyz="0.156867 -0.090625 0.059154" rpy="0 0 -2.094395102393195"/>
    <axis xyz="0 1 0" rpy="0 0 0"/>
  </joint>
  <!-- Platform -->
  <!-- Un/Comment from here to END to add/remove the platform -->
  <link name="platform_link">
    <visual>
      <origin xyz="0 0 0" rpy="0 0 0"/>
      <geometry>
        <mesh filename="package://robot_description/model/Robotino3_Platform" type="stl"/>
      </geometry>
    </visual>
    <collision>
      <geometry>
        <mesh filename="package://robot_description/model/Robotino3_Platform" type="stl"/>
      </geometry>
    </collision>
  </link>
</robot>
```

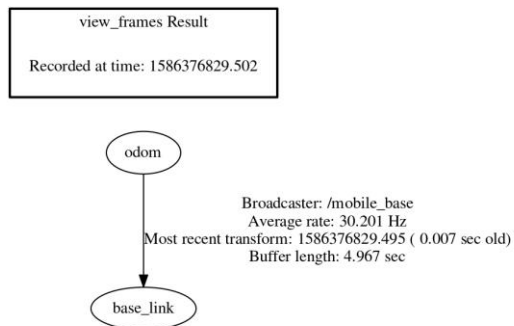
The RViz interface shows the following status:

- Displays:** Global Options, Fixed Frame, RobotModel, URDF.
- RobotModel:** Status: Error, URDF failed Model parse.
- URDF:** URDF failed Model parse.
- Time:** ROS Time: 1586376980.18, ROS Elapsed: 390.80, Wall Time: 1586376980.20, Wall Elapsed: 390.75.

Árbol de transformaciones antes de quitar un campo <joint>



Árbol de transformaciones antes de quitar un campo <joint>



Lo que sucedió:

Al ejecutar la simulación no logra crear el modelo 3d del robot, al no encontrar la llanta 2, la cual se eliminó del archivo robotino.urdf. Paralelamente, vemos que el árbol de transformaciones se quiebra casi por completo, por lo que el nodo de la base ya no se puede comunicar con los demás componentes del robot. Por lo mismo, ya no recibe información de los sensores que incluyan dichos componentes, por lo que no se puede saber la posición actual del robot, ya que no se están publicando esos datos provenientes de los demás componentes.