

# Library Book Checker

Programming for robotics  
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# Create a robot that could identify if a book is where it was supposed to be



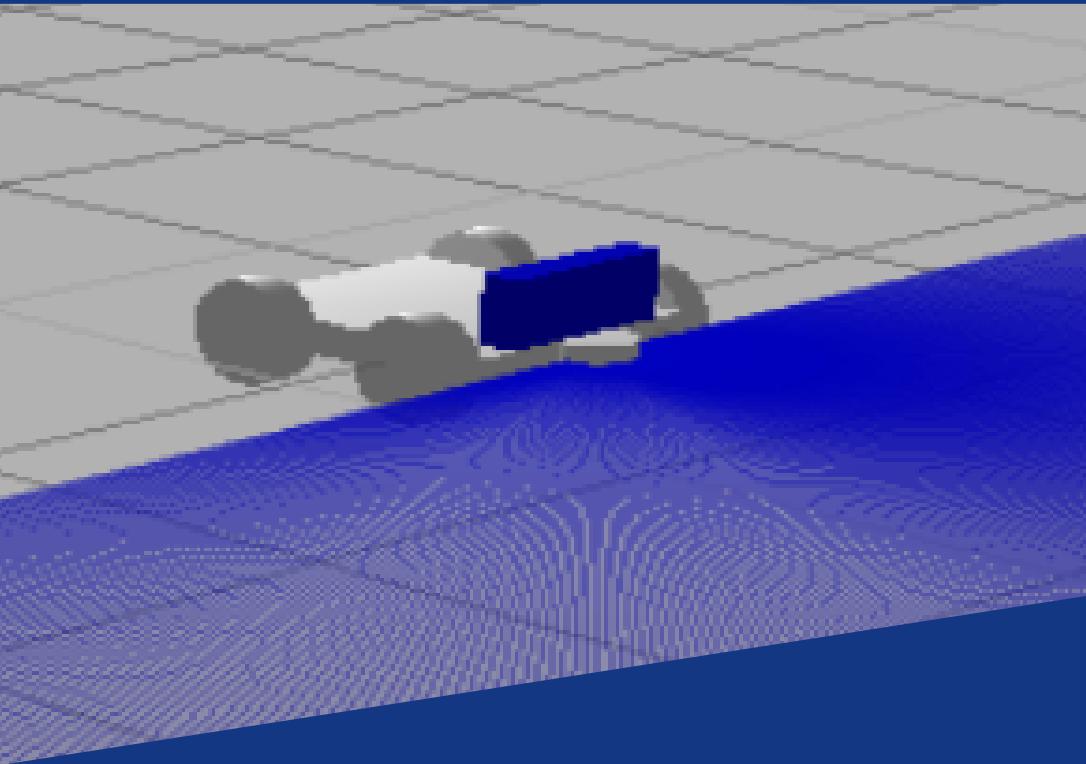
**Get the shelfe  
and place**

Search in the system if the  
book is available or not

**No need to go there  
just to check**

Use the robot to see if the book  
is where it was supposed to be

# Our Robot and QR Code system



## Camera and LIDAR

The robot would have a LIDAR to move without hitting the walls and a camera to check books in the shelf



## QR Code Reader

The camera would identify the book's QR Code, if the book isn't there, that means the book is somewhere else in the library

# Change of Plans

## Problems with ROS and Gazebo

### Problem 1:

Gazebo in my ROS Kinetic (Ubuntu 16.04) didn't have ground or sun

### Problem 2:

Manage to make the robot in ROS2 Foxy, but couldn't make it work in ROS Noetic, both Ubuntu 20.04

### Problem 3:

Ubuntu and Gazebo crashed when the QR Code recognition system was lauched

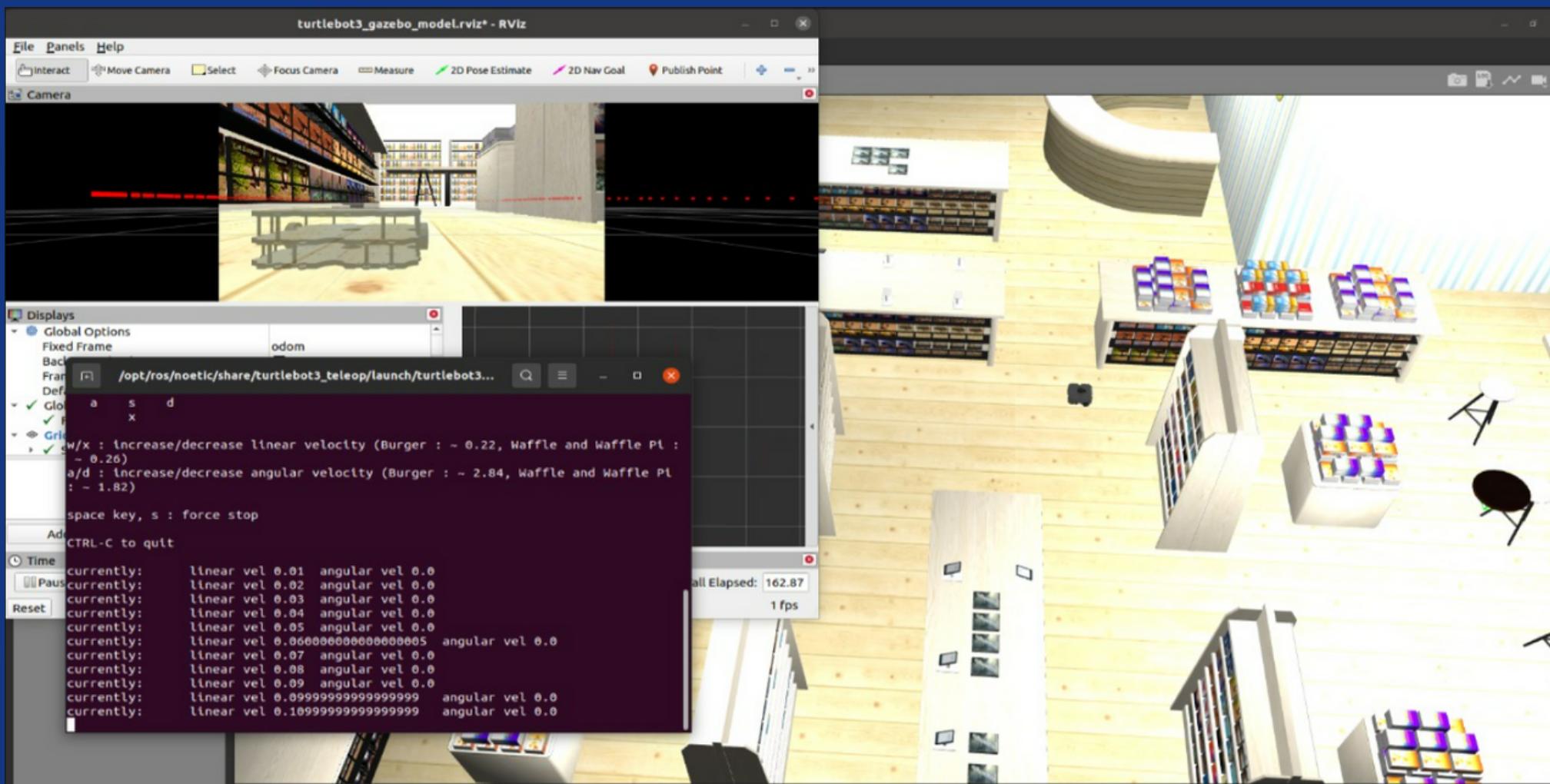
### Problem 4:

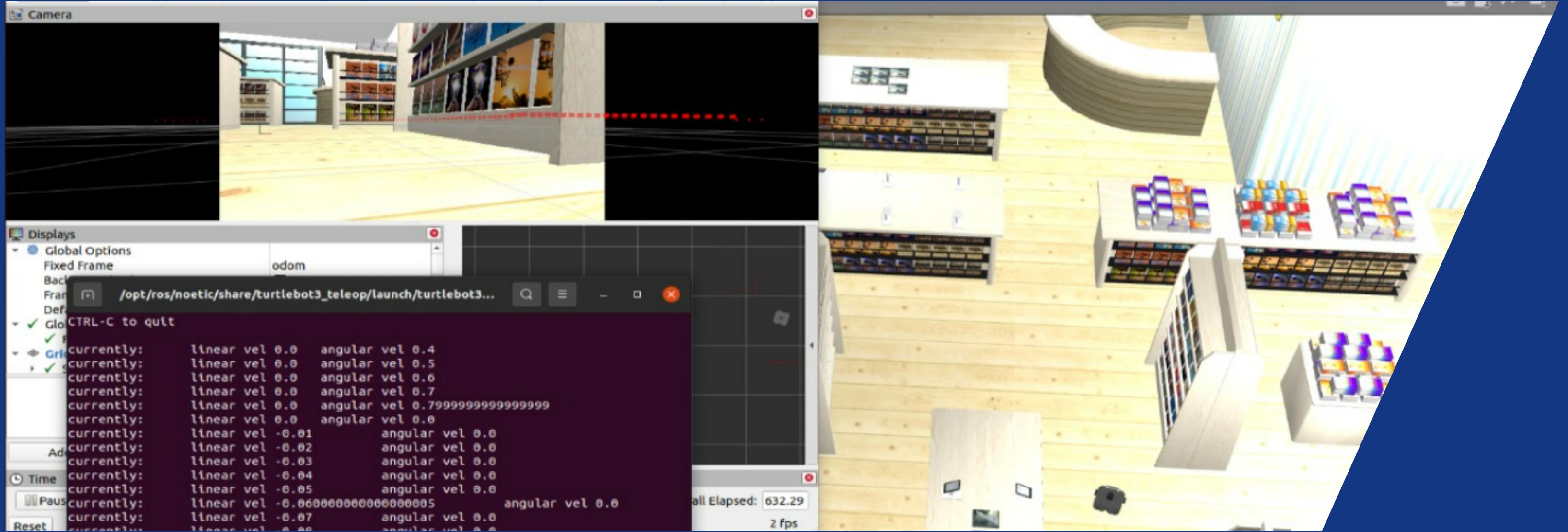
Couldn't make the rover spawn in Gazebo (ROS Noetic)



# So what did we do?

Used a Turtle Bot robot (Waffle) and launched it inside a library environment:





Here we can control it and see the camera.

We can also run it with a previous set route and avoiding obstacles, this way we could define a route for each shelve making the process operational

This way we can  
manually control  
the robot and  
see if the books  
is there or not, or  
make it go to a  
defined shelve.



Thak you very much

Questions?