

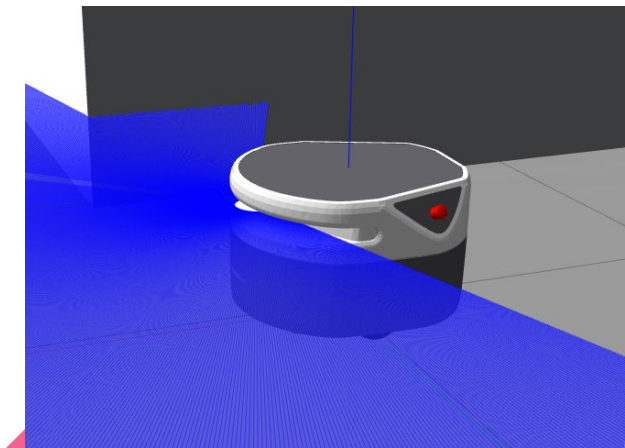


Snack Helper - Getting Your Food So You Don't Have To!

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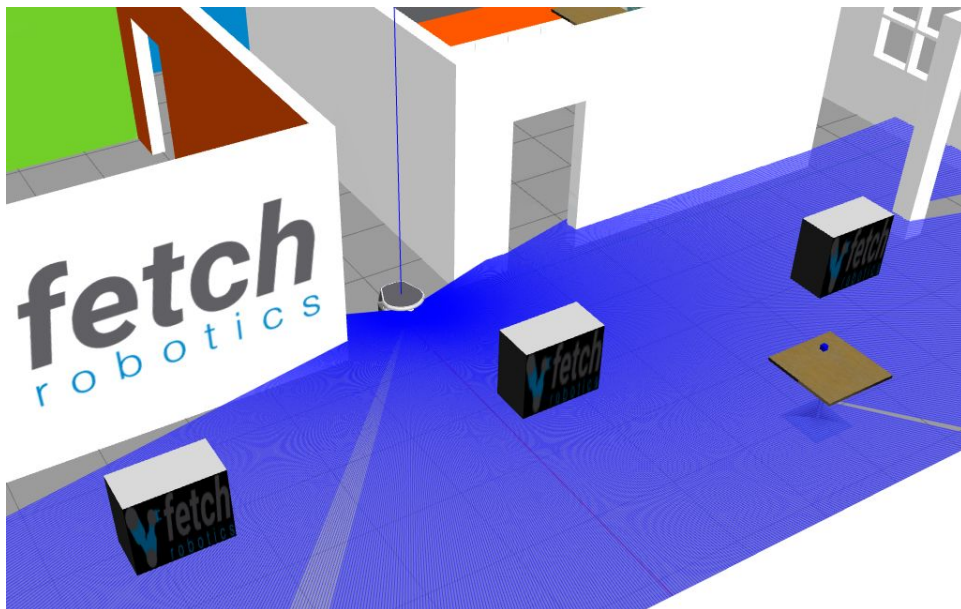
What and Why

- Snack Helper is a robot designed to help you stay focused (or lazy) by delivering snacks to you from anywhere in your home.
 - You tell it what kind of snack you want and where to deliver it to, and it fetches the snacks for you.
- We used the Freight robot, as we wanted something mobile that wouldn't be too obtrusive to have in your home.
- In the real world, it would have a bowl attached to carry snacks.
 - We simulate a bowl. The robot only has access to its internal state, and the amount of snacks in the bowl.



Our Environment

- Snack dispensers are scattered around a house, the Robot must move under them and request for snacks to be dropped into its snack bowl.
 - We made this realistic by accounting for the delay of the snacks falling.
 - Have to stop early or risk overfilling the bowl!
 - Robot must also be able to navigate around walls/obstacles.



How To Use

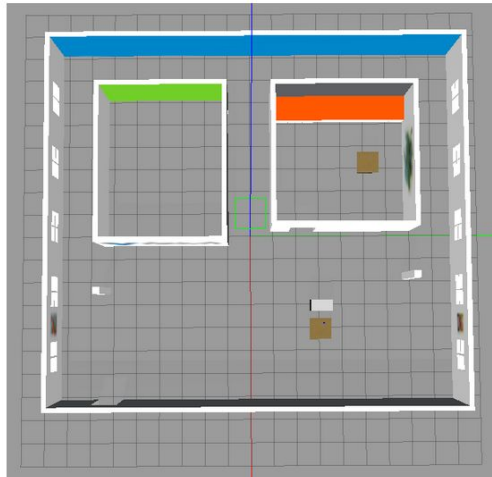
- We designed a webpage that allows the user to send instructions to the robot over the internet.

Here is your house!

The x axis is shown from down to up (red line)

The y axis is shown from left to right (green line)

Coordinate (0,0) is located where the green box is



coordinate frame

Snack Helper

Insert the coordinates you would like the robot to travel to

x coordinate

- +

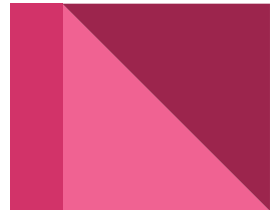
y coordinate

- +

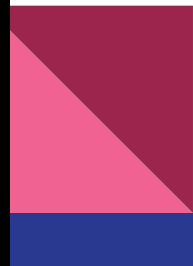
Which Snack would you like?

▼


Submit Coordinates



Demo



How It Works

- Robot is in waiting state.
 - User sends movement command to robot via web interface.
 - Robot looks up the snack dispenser's position from a map, and moves there using the ROS navigation stack.
 - Robot waits under the snack dispenser for just long enough to fill the bowl entirely.
 - We record how long the dispenser has been dropping snacks, and stop after a duration calculated based on the drop rate and time until the snack hits the bowl.
 - Robot moves to desired end position, enters waiting state.
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Questions?

Thank you for listening!

