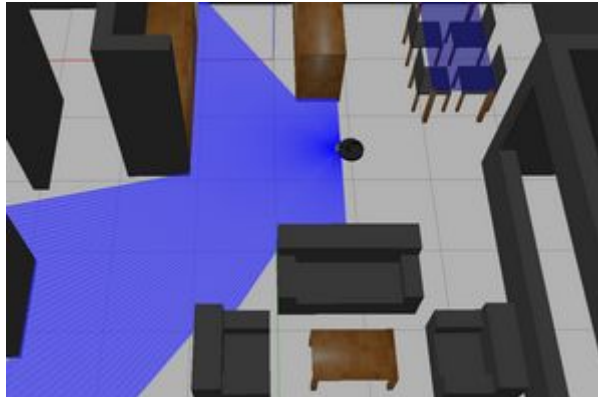# VACUUM CLEANER

Introduction

This project will determine the movement behaviour of a vacuum cleaner.

For this job we will divide it in two parts, random movement and pseudorandom movement.

Random movement (**p1a.py**)

In this case, our vacuum cleaner will only have three states in loop:

GOING_FORWARD
As the name itself indicates, it makes the robot move in a straight line forward until a bumper registers a collision.

When that happens, we transition to "going back" state.

GOING BACK
Similar to the previous, it moves back during 1 second, then transitions to "turning" state.
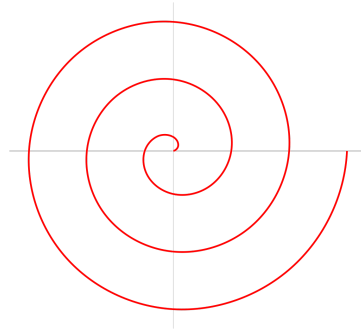
TURNING
The robot turns for 1 second, then goes back to "going forward" state.

VIDEO → p1a.ogv (GITHUB)

<u>Pseudorandom movement (p1b.py)</u>

Here, our robot will add some complexity to its behaviour. As pseudorandom movements, the spiral and the seeking wall are added.

SPIRAL

Simulates Archimedes spiral to cover more ground.

This happens until a bumper detects collision, that transit to random movement, or stays during 12'5 seconds, which transit's to seeking wall movement.

SEEK WALL

At this point, the vacuum will search using the laser the nearest point detected.

Then it will turn until it's centered and it will come close enough to the wall.

Finally it will relocate by turning about 90 degrees and it will go forward until a bumper event happens.

VIDEO (II) → p1b.ogv (GITHUB)