Turtlebot2 Multi-Agent System

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EXECUTIVE SUMMARY

Overview

The project work aims to implement a multi-agent system that is responsible of providing assistance to warehouse personnel.

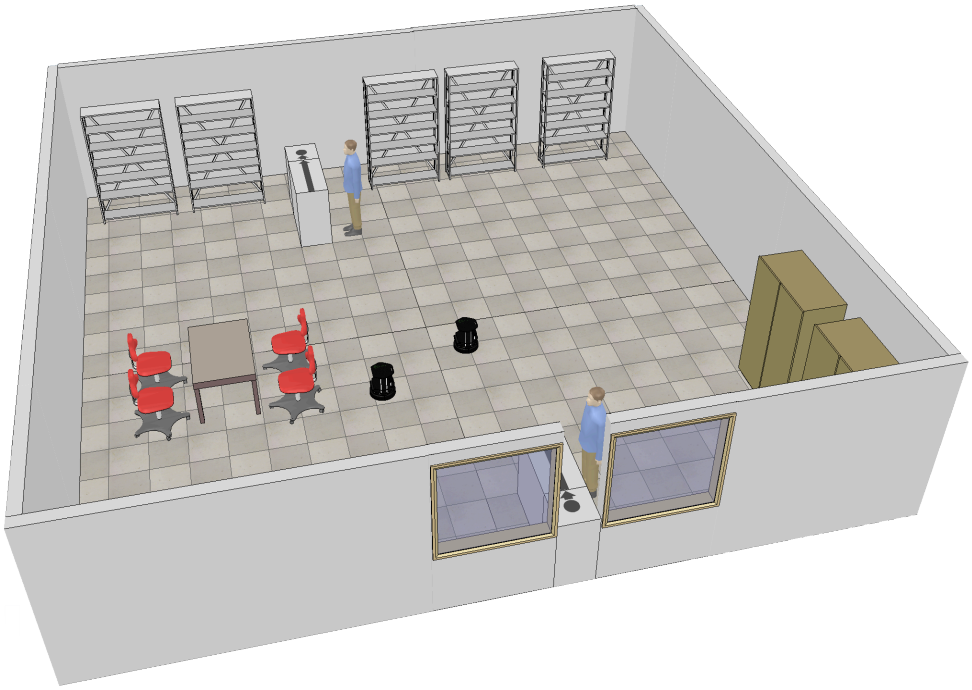
The fleet is composed by Kobuki Turtlebot2 units, the scene represents a warehouse in which a conveyor belt carries packages into the room.

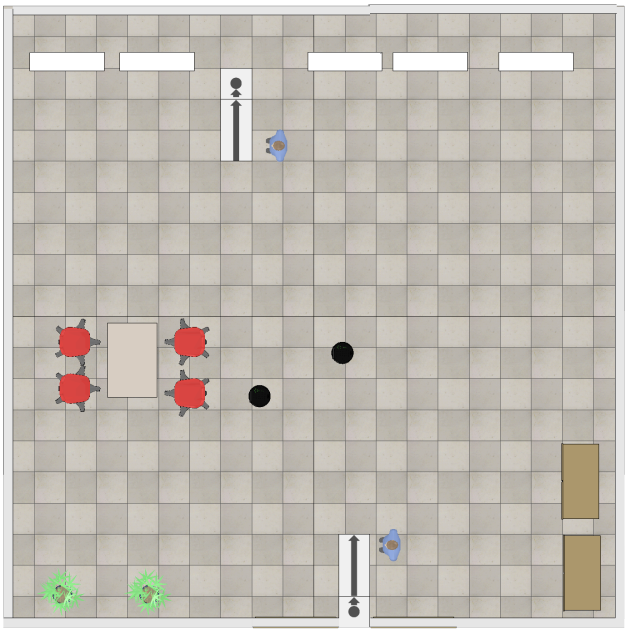
Since the Turtlebot2 units are not provided with arms, one or more operators are needed to help with the fetching/placing of the packages in the respective shelves.

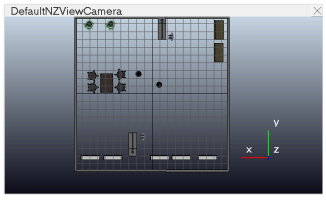
Objectives

- The units must not collide with the objects/people/units in the environment.
- The units must communicate with each other in order to resolve conflicts/establish precedences/avoid collisions.
- The unit has to understand its status, for instance: it has to understand if it is carrying a package or not, where it is, where it has to go, etc.).
- The units have to be able to interact with the human personnel (they have to wait for the human to pick/put the package from/on the unit, etc.).

SCENE







*the scene is provisional

Scene Description

The scene is composed by a producer who spawn objects on a conveyor belt (which simulates the goods arrival), at the end of it a human operator is responsible of putting the packages on the Turtlebot2 units.

On the other side of the room (separated by some ornaments/obstacles), another operator waits for the packages.

When a package is received the operator places it on another conveyor belt which brings it to a sink (that simulates the placing on the shelf).