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Assignment 6

ITEC 4270

Assume the robot and destination are initially placed anywhere in the navigational x,y space, so that there is no guarantee that rotating the robot will ’sense’ the destination at its initial position. All other assumptions match the sensor-assisted robot model.

1. Explain your best approach to find the destination
2. The best method to reaching the goal is the move and turn based on the feedback from the sensor. Before each movement whether it is turning or moving forward, the sensor should check distance. If it finds something in front of it whether it is a wall or an object, it should turn. From there, it will check distance again and re-evaluate. If and when the sensor finds nothing blocking the robot, it should move forward.
3. Given a starting position at the end of a hallway, explain an algorithm (set of steps) for how the robot software can analyze the stream of images from the camera sensor (no other assistance) to guide the robot to reach the goal down at the end of an arbitrary hall.
4. If the goal is uniquely colored, that can be used for our analysis. To simplify, you would evaluate similarly to distance but with color instead:

The loop would be something like this:

If the goal color is seen, turn until centered, then move

Else

If the whole screen’s color is a bad color (ex red)

Turn

Else

Move forward

I would use “whole color of screen as an indicator, since if the whole screen was that color, it would mean the robot and it’s camera were directly on top of the wall, leaving little room to move forward anyway.