Engineering Lab

Sentry Simulation Level One

Challenge Description

Your company is commissioned to design a robot to patrol around the outside of a building. You are the lead engineer and tasked to develop a "proof of concept" prototype that can autonomously travel around an object.

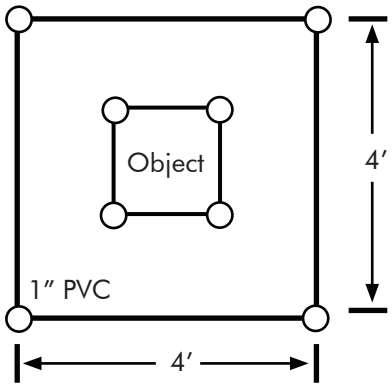
Guidelines:

1. You are required to demonstrate a solution that uses swing turns.
2. You are required to demonstrate a solution that uses point turns.
3. The testbed will have 1" diameter PVC posts at the corners of the object and the 4'x4' testbed; if you bump a piece of PVC or leave the testbed your robot is disqualified. (see the diagram below)

Materials Needed

- Eight pieces of 1" diameter PVC
- One object

Testbed Specifications



Note: Diagrams are not drawn to scale

Were the robot's turns more reliable when using point turns or swing turns? Why?

What would happen to your program if you changed the wheel diameter of your robot?

What happens as the robots battery power changes?