Práctica de programación de robots

Objetivo

Realizar una serie de desafíos utilizando lenguaje RobotC para desarrollar habilidades de programación de robots, mejorar la capacidad para diseñar algoritmos eficientes, aprovechar sensores y lograr un control preciso del robot. Además, ayudar a fortalecer las habilidades de resolución de problemas en el contexto de la robótica, lo que es esencial para avanzar en esta emocionante disciplina tecnológica.

Introducción

Desarrollarla con base en la respuesta de las siguientes preguntas
1. ¿Qué es un robot?
2. ¿Qué es la robótica?
3. Describir cuáles son las partes de un robot
4. ¿Cuál es la función del sistema de control?
5. ¿Cuál es la clasificación de los robots?

Utilizar citas en APA7

Recursos

RobotC Virtual Worlds

Retos o desafíos incluidos al final:
- Basketball Drills
- Labyrinth Challenge
- Incorporate Functions II
- Robo Slalom III
- Robo Dunk 2

Resultados y conclusiones

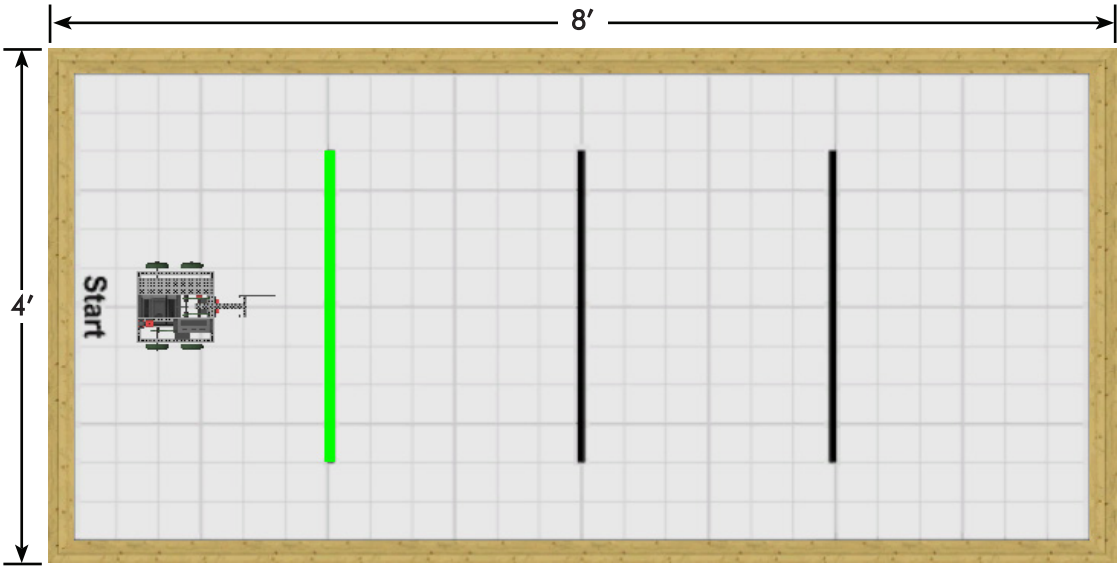
Referencias (APA7)

Basketball Drills

Challenge Description

To complete this challenge, program the robot to perform a basketball-like drill. Your robot should move to the first line, return to the start, move to the second line, return to the start, and so on. The next line that your robot needs to pass is always green.

Board Specifications

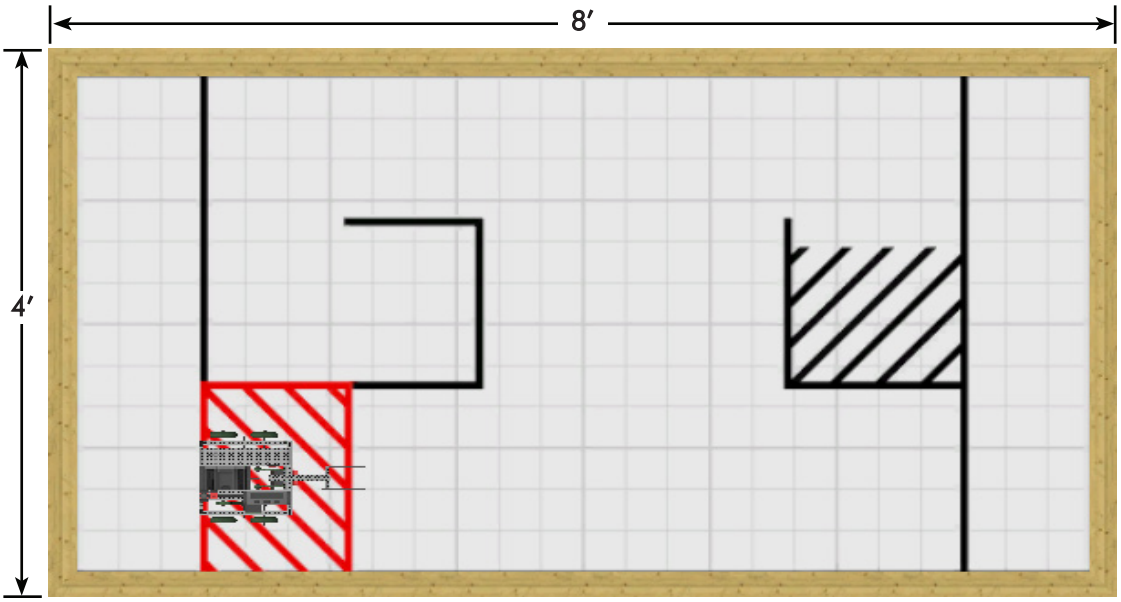


Labyrinth Challenge

Challenge Description

To complete this challenge, program the robot to move to the end (the black striped area) of the Labyrinth. The robot must NOT cross any of the black lines.

Board Specifications

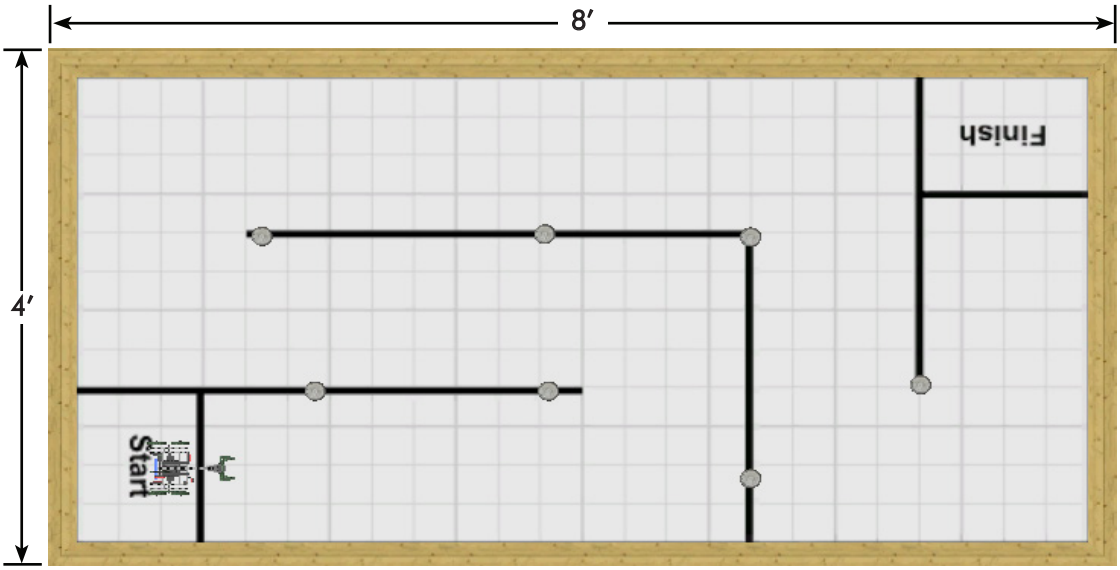


Incorporating Functions II

Challenge Description

To complete this challenge, program the robot to make its way through the course, without bumping one of the objects or crossing one of the "walls". Implement separate functions (move straight forward, turn left, turn right) to account for the behaviors the robot will have to perform.

Board Specifications



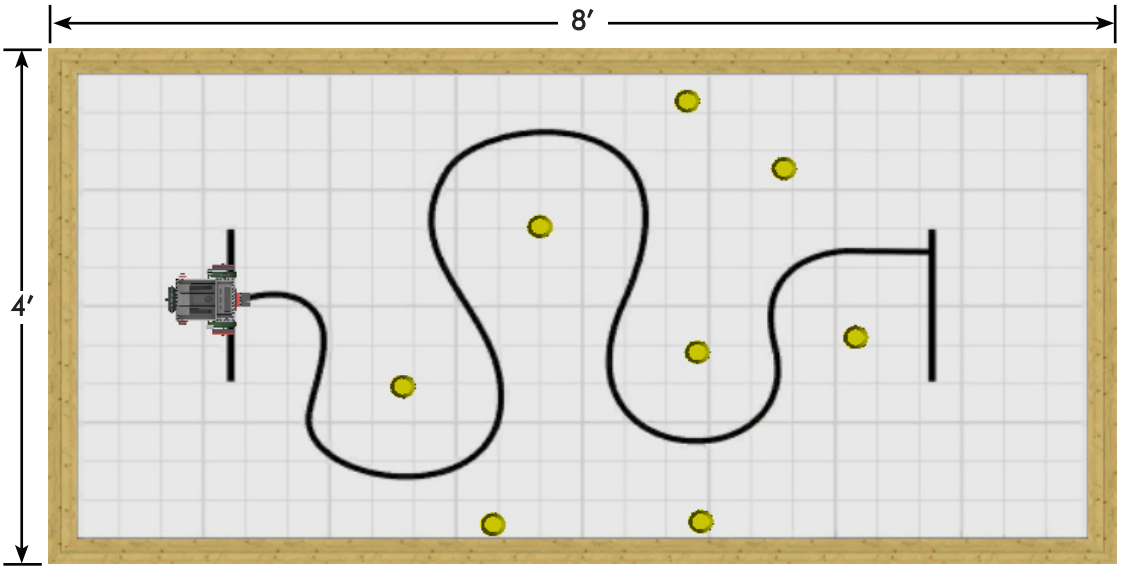
Robo-Slalom III

Challenge Description

To complete this challenge, program the robot to track the black line using the light sensor. The robot must not bump any of the obstacles (yellow cups) along the course.

Use feedback from your encoders to control how long the robot follows the line. Consider using several different line following behaviors according to the curve of the different sections of the line.

Board Specifications



Robo-Dunk II

Challenge Description

To complete this challenge, program the robot to pick up the basketball at half court and drop it into the net at the other end of the court. Remote control must not be used.

Board Specifications