



ROBOTICS CHALLENGE

Challenge Description

“Parking Lot”

Design a robot that finds the empty parking space in a lot, pulls in to the space, and stops.

Specifications

- Challenge starts at the entrance to the parking garage (to the right of the handicapped parking zone in the center). Robot must be designed to fit into any parking space. The parking lot is a square lot with no lines to follow, but parking spaces are marked with yellow lines, the whole playing board has a black border, and the handicapped parking area is blue. There is never a car parked in handicapped zone.
- The position of the 6 parked “cars” **may be changed** by the judge prior to the trial and is therefore unpredictable.
- Robots must be made with LEGO Mindstorms Robotics Invention System and be programmed with Robolab programming environments.
- Robots can consist of a maximum 1 RCX, 8 Wires, and 3 motors.
- Nothing can be added or removed from the robot during a round.
- No non-lego parts are allowed
- Challenge is maximum 3 minutes long



Adaptations

- The robot could announce its successful parking by playing some sound (50 points extra).
- The robot could count the number of parked cars in the lot (150 points extra).

Scoring

250 points if your robot finds the empty spot **and does not significantly move any parked cars (judge's decision) and does not park in the handicapped parking zone.**

Adaptation point values as noted above.

Robots which sustain damage, which move parked cars askew, or which leave the lot without parking are disqualified.

Up to 5 points will be deducted from the total score for the total amount of damage sustained by the robot, as determined by the judge.

Hints and Tips

Use a touch sensor to see if there is a car present. Perhaps use a scissors-like extending arm with two touch sensors on the end to reach into a space and see how wide it is. Be sure to have the light sensor arranged on the front so the robot knows when to stop once it has pulled in and when to recognize the handicapped [parking zone. Smart robots are orderly and sequential in their approach.