

Digital & Embedded Systems

ELEC4403

Lab Assignment 9 – Robot Task

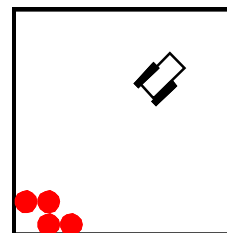
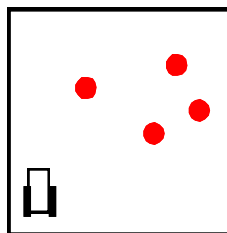
Points: 10

EQUIPMENT: Mobile Robot with Embedded Controller
incl .sensors and motors

Collecting Cans – This Lab brings together all the experience from the previous lab sessions

EXPERIMENT 1 (10 points)

Implement a robot program that starts in one corner of the driving area, then surveys the area for red cans in the environment and brings them back to the home area.



Tasks

- Let the robot rotate on the spot to explore the whole area
- Search for red cans using the camera
- When a red can has been located, drive around it and push it back towards the robot's starting position ("home area")
- During driving, avoid bumping into walls or obstacles
 - use PSDs to check left, right and front
 - display obstacles graphically on the LCD
- Continue driving and looking for more cans.