

Robotics project

Lukas Rustler, Martin Sramek, Cemre Eren

January 2020

1 Hardware

- Lego mindstorms robot
- Robot should have:
 - motors (constant number, depends on final design)
 - color sensor
 - 1-2 touch sensors
 - ultrasonic sensor
- GUI on computer

2 Problem

- square or rectangle field bounded by black line
 - Robot is allowed to go across the line, e.g. to follow the line, but must not cross it with its whole volume
- obstacles in form of bottles, bricks etc.
 - detectable by ultrasonic sensor
- robot should find red point somewhere in field
- robot should create a map of the field

Example of world can be seen in Figure 1.

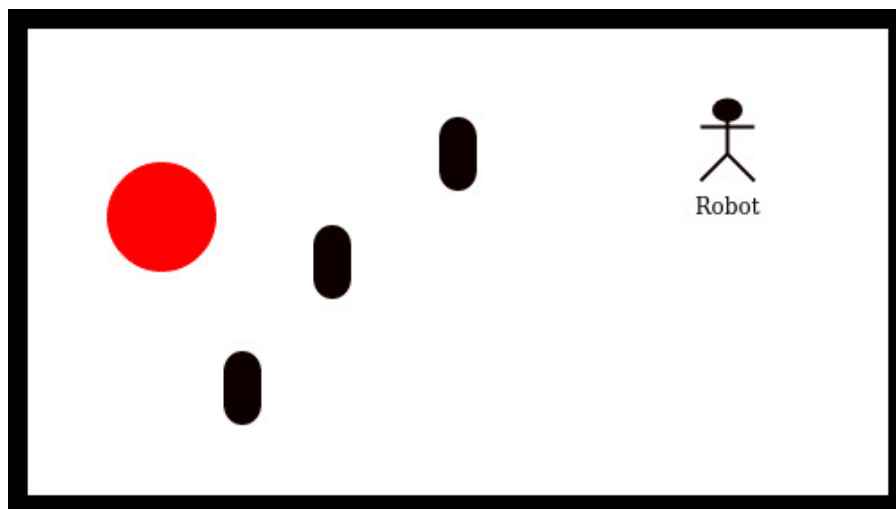


Figure 1: Example of world

3 Expected approach

- create main interface (Python)
- create at least prototype of robot with placement of sensors
- create reasoning layers for robot (Python)
- test in simulation (V-rep, py-game)
 - in case of need edit robot design, reasoning layer etc.
- create communication with robot (directly with Python/Bluetooth)
- test on real robot
- create an user interface, which will allow:
 - see map "real-time" map of the field
 - switch to manual control
 - maybe more