Robotics project

Lukas Rustler, Martin Sramek, Cemre Eren

January 2020

1 Hardware

- Lego mindstorms robots
  - probably two robots
- Each robot should have:
  - motors (constant number, depends on final design)
  - color sensor
  - 1-2 touch sensors
  - ultrasonic sensor
- Control from central computer

2 Problem

- square or rectangle field bounded by black line
- obstacles in form of bottles, bricks etc.
  - detectable by ultrasonic sensor
- robots should find red point somewhere in field
- robots should create a map of the field
- two robots can cooperate to create map and find the point or contest against each other

Example of world can be seen in Figure 1.

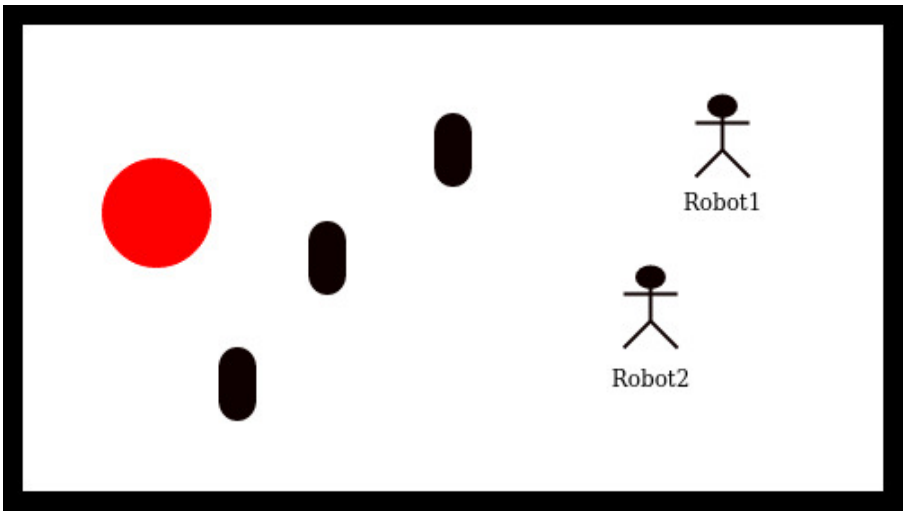

Figure 1: Example of world

3 Expected approach

- create main interface (Python)
- create at least prototype of robot with placement of sensors
- create reasoning layers for robots (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:
  - change mode (contest of two robots, cooperation ...)
  - switch to manual control
  - maybe more