Robotics project

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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.

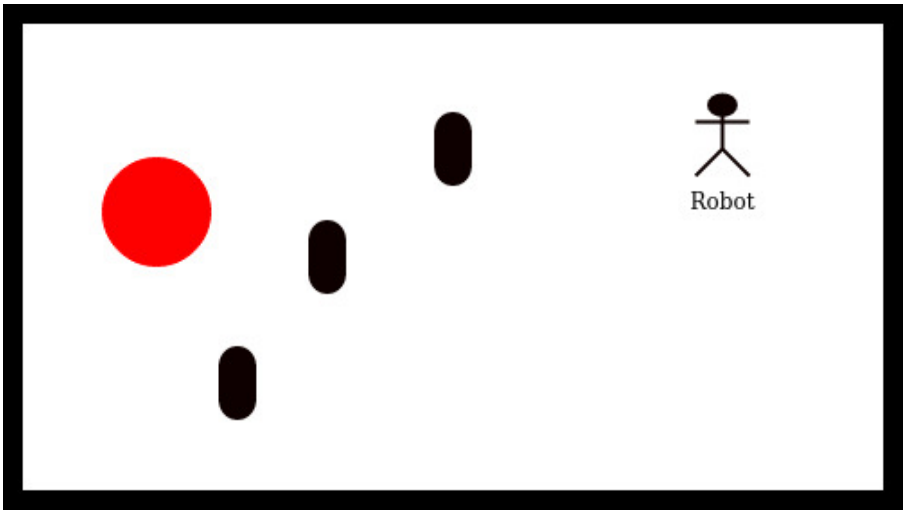

Figure 1: Example of world

3 Expected approach

- create main interface (Python)
- create at least prototype of robot with placement of sensors
- create reasoning layers for robot (Python + bridge to Prolog)
- 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 to see a map "real-time" map of the field