

Exercise Sheet 5

(6 Points)

Lab exercises for the period from Wednesday, 22nd November 2017

The lab exercises take place at room OH16/U08. The exercise sheets will be solved during the exercise sessions.
The tutorial can be found on the course website as well as in the shared network folder.

For this exercise sheet, we use the virtual machine **CPSF**.

Please note:

- Please use Labview 2014 and **not** Labview 8.5, since the latter does not support the EV3 robots.

5.1 Tutorial (2 Points)

Work through the tutorial, implement the example on the last slide and test it.

5.2 Collision Detection (4 Points)

Develop a program that allows your robot to detect collisions with objects (e.g., walls, chairs etc.) while driving forward. As soon as it collides with an obstacle, it should change its driving direction.

1. Attach a bumper to your robot and check the sensor's proper functioning by means of the EV3 unit's LC-display.
2. Create a virtual instrument that allows your robot to bypass obstacles that it collides with. Transmit your program to the EV3 block and verify the robot's behavior.

General information: An overview about the exercise sessions as well as further information can be found on <https://ls12-www.cs.tu-dortmund.de/daes/de/lehre/lehrveranstaltungen/wintersemester-20172018/es-1718.html>. The exercise sheets will usually be published on the course website on Mondays and will be solved during the respective exercise sessions. The exercises are divided into two parts, in each of which at least 50% of the points must be achieved in order to receive the exam admission.