31385 Autonomous Robot Systems
SMR – Hands On

(rev 1.0)

1 Objective

The objective of this exercise is to give an introduction to the SMR robots.

When you have finished this exercise you will be able to:

- run the robot with smr-cl scripts
- Calibrate the odometry

2 Running an SMR

This exercise takes place in room 017 and room 027 in building 326.
Find your SMR using the instruction of your tutor.
Login to the linux computer.
From a terminal window login to your SMR

ssh smr**N** (where **N** is the number of your SMR).

Make sure that your SMR is placed on a wooden block

shift to the 'live' directory

cd live

Start *rhdtest* and enter *connect write*, you can now see the variables.
Enter the command *set speedr 30*, the right motor should now run and the encoderticks *encr* should be counting.
Try the same with the left motor. Remember to send a 0 to both motors when finishing this point.

2.1 Running your test scripts

Now you can run the test scripts that you made in the introduction exercise.

Put your SMR on the floor and run the first script

mrc ../mrc/scriptname

check that the script works as expected.

Calibrate the linesensor

mrc -c

follow the instructions.

Run and check all your scripts from the introduction exercise

2.2 Odometry calibration.

Calibrate the odometry of your SMR using UMB-mark with a 3m square

When calibration is finished make two clockwise and two counter clockwise runs and measure the final errors of each run.

2.3 Test of square program.

Test your square program with clockwise and counter clockwise squares.