The University of Western Australia
Dept. of Electrical & Electronic Engineering
Prof. Thomas Bräunl

Mobile Robots
AUTO4508

Lab Assignment 1 – *Individual* – Robot Driving   **Points: 10**

EXPERIME\NT 1 (3 points)

Install EyeSim and the free version of a Programming Environment on your laptop. Select either CLion or CodeLite and set the required paths for include files and libraries as outlined in the lecture notes.
Run the "random drive" program from the EyeSim example files and place a break-point after reading the camera iage. Then show to your demonstrator:
- Display contents of image variable
- Single step through program

EXPERIMENT 2 (3 points)

The robot is starting in a **random position and orientation** near the middle of a rectangular driving area.
Drive the robot straight and collision-free close to the wall in front, then turn to the right, so it is parallel to the wall (at the robot's left-hand side) in about 15cm distance. Then let the robot drive a "lawnmower pattern", covering the whole surface area Combine this with exp.1, so the robot will start from a random position and orientation. The robot should detect the end of the area and stop there. Plot the robot's path using the "trail" setting.
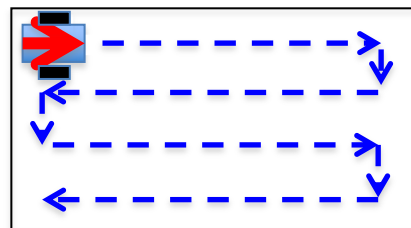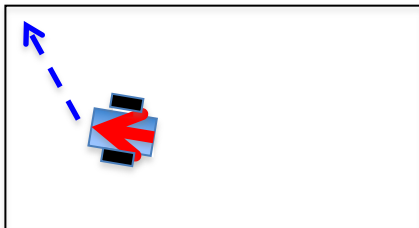
EXPERIMENT 3 (4 points)

A submarine is placed in a **random position and orientation** in a rectangular pool. Navigate it to a corner using a similar method as before,
Then, perform a wall following operation as shown below, keeping a constant distance of about 15cm to the walls. Do one full lap around the pool border.
Plot your submarine's path using the "trail" setting.