The University of Western Australia
Dept. of Electrical & Electronic Engineering
Associate Lecturer Kieran Quirke-Brown

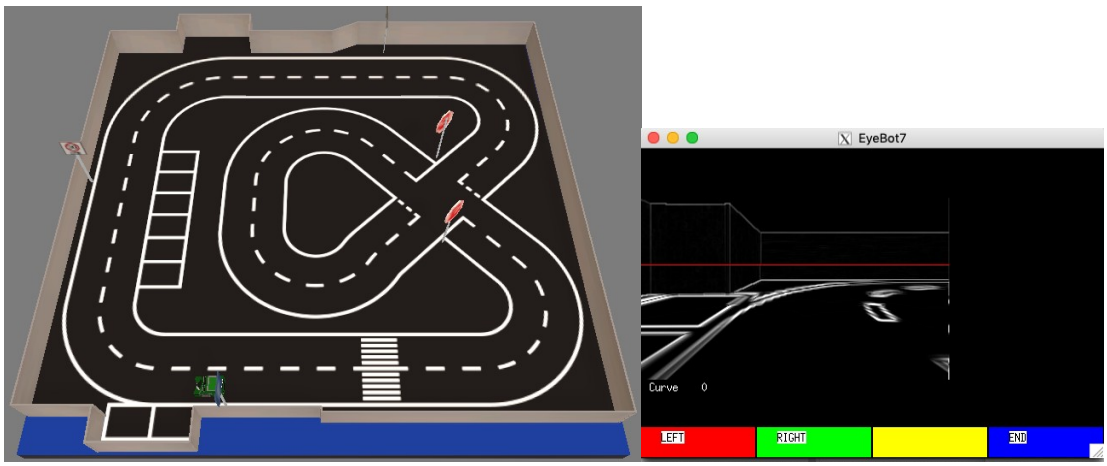
Mobile Robots
AUTO4508

Lab Assignment 8 – *Individual* – Neural Networks Points: 10+bonus

EXPERIMENT 1 (3 points)

Adapt the given Carolo-Cup program *model_drive* and while driving perfectly in the lane, collect at least 1,000 pairs of:

- camera view *and*
- correct steering angle



EXPERIMENT 2 (5 points)

As you have learnt, there are two major python libraries used in AI learning, Tensorflow and pytorch. In recent years, pytorch has become the more popular choice due to it's simpler format and wide libraries. You have been given a Tensorflow model as a guide, develop your own *model_train* script that uses pytorch to build the following NN. You will need to use tensorboard to visualise your accuracy and loss functions and show to the lab facilitator.

EXPERIMENT 3 (2 points)

Verify the pytorch model you created result by extending the *model_drive* program, so it will take the model output to drive the robot. It should now be able to navigate error-free along the given track. You can further check the robustness of your solution by testing the program on a track different to the one used for training.

BONUS MARKS (2 points) for perfectly driving a multiple full loops in both directions