Chair of Cyber-Physical Systems in Production Engineering
Department of Mechanical Engineering
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Random driver - "Y.O.L.O."

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Objectives

The present lab has for objective to get you more familiar and comfortable with the creation of a custom node before we start to implement "smart" controllers. In fact, the lab simply consists in a node deciding pseudo-randomly what action to perform.

Reminder

From the previous lab, you have a functional simulation environment composed of walls and a car. In addition, you are able to control the latter thanks to the provided `keyboard` node. Finally, you have identified the topic to use in order to control the car.

7.1

As mentioned in the objectives, you are being asked to create a new node called `Random` that aims at controlling the car. The control policy in the present case is simple as every action is decided by a pseudo-random generator at each iteration of the main loop.

The action to be decided randomly are the following: go forward (`W`), go backward (`S`), steer left (`A`) and steer right (`D`). The probability distribution should be uniform, meaning that each of them must have a 25% chance of happening. You can assume a fixed speed for this lab.

In order to ease the implementation, students are invited to create a new file named `random.cpp` in `\node`, to simply copy-paste the content of `keyboard.cpp`, to trim/remove the useless or irrelevant content and to adapt it so that it matches the assignment statement. **Make sure to add a ros::Rate object (and to use it) in your random driver node!**

Finally, in order to avoid any collision in the `\drive` topic with the `keyboard` node, you are invited to comment in `simulator.launch` the lines concerning the latter and to add the `random` node to the ROS project.