

## Input selection - “Online driving mode switching”

denis.hoornaert@tum.de

August 19, 2021

---

### Objective

You have implemented different independent nodes aiming (with various success) at driving the car. Even with advanced autonomous driving strategies, the human eyes and intuition cannot be replaced in many situations. Therefore, many autonomous cars enable the driver to take back the control of the car while in autonomous mode. For this reason, we ask you to design a ROS project architecture enabling the user to select and change on the fly the driving mode.

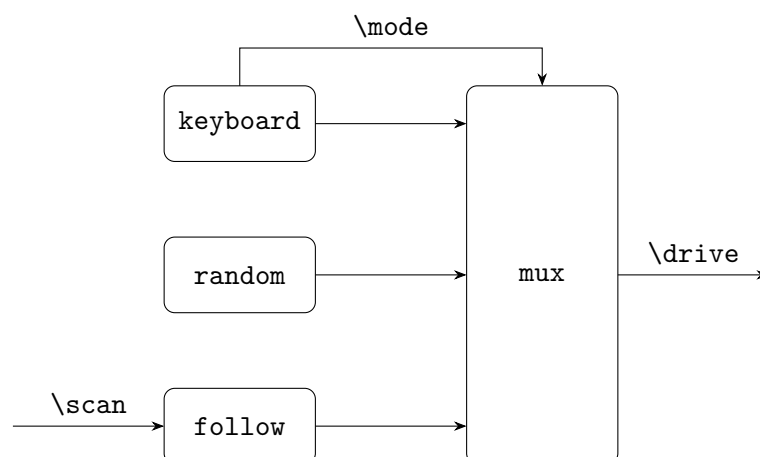
---

#### 9.1

More accurately, we ask you to extend the **keyboard** node such that pressing the **k** key enable the control with the keyboard, **r** enable the random driving strategy and **f** enable the follow-the-gap driving strategy. Unlike the previous keys, **k**, **r** and **f** have to be posted on another and dedicated channel called **mode**.

Modify your code such that when in either follow-the-gap or random driving are selected, pressing any key on your keyboard (except for **r** and **f**) makes the **mux** node switch to **keyboard** input. In other words, as soon as any key but for **r** and **f** is pressed, send **k** to **mux** through the topic **mode**.

As shown in the figure below, the suggested ROS project architecture is composed of all the previously implemented nodes and of a new **mux** node. The latter is in charge of selecting the message stream of one of the driving nodes and to repeat them to the **\drive** topic.



Are you able to switch between the different driving strategies? Do you see any interference or any differences with the previous versions ? Discuss.