

## **Exercises for independent work and study of ROS**

To complete the exercises below, review the ROS tutorials.

### Exercise 1. Tele-control of Turtlebot2

- Run the Turtlebot2 simulation program in Gazebo
- Start the tele-control package of the robot via keyboard

Using the keys on the keyboard, go around the objects with the robot.

Use different speeds starting from the lowest and reaching the maximum.

### Exercise 2. Mapping and autonomous navigation with Turtlebot3

- Run the Turtlebot3 simulation program in Gazebo using one of the following options: turtlebot3\_house or turtlebot3\_world
- Start the tele-control package of the robot via keyboard
- Launch the mapping package and make a map of the selected world
- Save the map according to the instructions for working with Turtlebot3
- Launched the navigation package with the saved map
- Set the correct initial position of the robot so that it is ready for autonomous work
- Set five random desired positions for the robot to move. Wait until you reach each of the positions and follow and the robot successfully reaches the tasks.

### Exercise 3. Navigation with the Husky robot

- Run the Husky simulation program in Gazebo using the following simulation: husky\_playpen
- Start the tele-control package of the robot via keyboard
- Run the programs for the robot in Frontier Exploration mode
- Set five different desired positions for the robot to reach, observe the robot's behavior and mark successful attempts