Exercise Session 1

Theory

- ROS architecture
- ROS master, nodes, and topics
- Console commands
- Catkin workspace and build system
- Launch-files

Exercise

Get to know ROS by inspecting the simulation of a Husky robot.

- Setup the Husky simulation: http://wiki.ros.org/husky_gazebo/Tutorials/Simulating%20Husky_gazebo/Tutorials/Simulatin
- 2. Launch the simulation and inspect the created nodes and their topics using:

```
rosnode list
rostopic list
rostopic echo [TOPIC]
rostopic hz [TOPIC]
rqt_graph
```

For more information take a look at the slides or:

http://wiki.ros.org/rostopic http://wiki.ros.org/rosnode

- 3. Command a desired velocity to the robot from the terminal (rostopic pub [TOPIC])
- 4. Use **teleop_twist_keyboard** to control your robot using the keyboard. Find it online and compile it from source! Use git clone.

For a short git overview see:

http://rogerdudler.github.io/git-guide/files/git_cheat_sheet.pdf

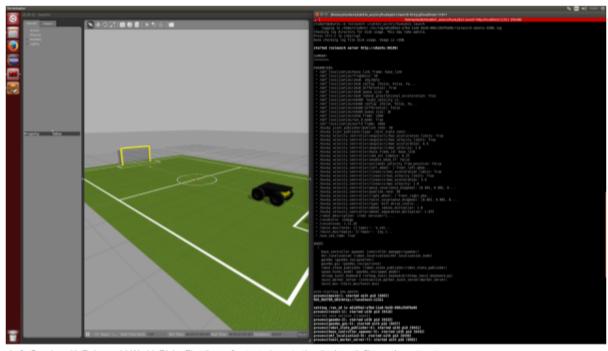
- 5. Write a launch file with the following content:
 - husky simulation with a different world:

Include husky_empty_world.launch file and change the world_name Argument, e.g. worlds/robocup14_spl_fiel d.world a world from the directory /usr/share/gazebo-2.2/worlds.

Note: the world_name is with respect to /usr/share/gazebo-2.2/

teleop_twist_keyboard node





Left: Gazebo with Robocup14 World, Right: First lines of output when starting the launch file you have to set up

Evaluation

- □ Check if teleop_twist_keyboard is compiled from source (rosed teleop_twist_keyboard should show the git folder) [40%]
- ☐ Start the launch file. This should bring everything up that's needed to drive Husky with the keyboard as shown in the above image. [60%]

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