Robotik WS 19_20
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<div align="center">**Übung 1**</div>

Aufgabe 1/

Verbinden mit dem Car (via WLAN):

```
Okt 17 10:20:37 lgLap systemd[1]. Started OpenBSD Secure Shell server.
dang@lgLap:~$ ssh ros@192.168.43.125
^C
dang@lgLap:~$ ssh ros@192.168.43.125
The authenticity of host '192.168.43.125 (192.168.43.125)' can't be established.
ECDSA key fingerprint is SHA256:/CvpXWrmCICWqZ07O/3eLUjxXV3WLVk1+avw7vGQHQs.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.43.125' (ECDSA) to the list of known hosts.
ros@192.168.43.125's password:
Permission denied, please try again.
ros@192.168.43.125's password:
Welcome to Ubuntu 18.04.2 LTS (GNU/Linux 4.14.133-165 armv7l)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

Last login: Mon Aug 26 09:46:56 2019 from 192.168.43.15
 ros@odroid ⊟ ~ ⊟
```

Kopieren Datei zu Computer:

```
dang@lgLap:/media/dang/Data1/Studium/FUStudium/WS1920/Robotik$ scp ros@192.168.43.125:~/hello_car_ColakDang.txt ~
ros@192.168.43.125's password:
hello_car_ColakDang.txt                                                          100%   54     9.0KB/s   00:00
dang@lgLap:/media/dang/Data1/Studium/FUStudium/WS1920/Robotik$ scp ros@192.168.43.125:~/hello_car_ColakDang.txt ~/Dokumente/
ros@192.168.43.125's password:
hello_car_ColakDang.txt                                                          100%   54    10.5KB/s   00:00
dang@lgLap:/media/dang/Data1/Studium/FUStudium/WS1920/Robotik$ 
```

Aufgabe 2/

https://github.com/barisccolak/Robotik-W19-20

Aufgabe 3/

install ROS-Melodic:

```
dang@lgLap:~$ sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" > /etc/apt/sources.list.d/ros-latest.list'
[sudo] Passwort für dang:
dang@lgLap:~$ sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:80' --recv-key C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654
Executing: /tmp/apt-key-gpghome.hayGW5nVTq/gpg.1.sh --keyserver hkp://keyserver.ubuntu.com:80 --recv-key C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654
gpg: Schlüssel F42ED6FBAB17C654: Öffentlicher Schlüssel "Open Robotics <info@osrfoundation.org>" importiert
gpg: Anzahl insgesamt bearbeiteter Schlüssel: 1
gpg:               importiert: 1
dang@lgLap:~$ sudo apt update
OK:1 http://de.archive.ubuntu.com/ubuntu bionic InRelease
Holen:2 http://de.archive.ubuntu.com/ubuntu bionic-updates InRelease [88,7 kB]
Holen:3 http://de.archive.ubuntu.com/ubuntu bionic-backports InRelease [74,6 kB]
Holen:4 http://security.ubuntu.com/ubuntu bionic-security InRelease [88,7 kB]
Holen:5 http://packages.ros.org/ros/ubuntu bionic InRelease [4.669 B]
Holen:6 http://de.archive.ubuntu.com/ubuntu bionic-updates/main i386 Packages [593 kB]
Holen:7 http://de.archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [753 kB]
Holen:8 http://de.archive.ubuntu.com/ubuntu bionic-updates/main amd64 DEP-11 Metadata [295 kB]
Holen:9 http://de.archive.ubuntu.com/ubuntu bionic-updates/main DEP-11 48x48 Icons [73,8 kB]
Holen:10 http://de.archive.ubuntu.com/ubuntu bionic-updates/main DEP-11 64x64 Icons [143 kB]
Holen:11 http://de.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 DEP-11 Metadata [254 kB]
Holen:12 http://de.archive.ubuntu.com/ubuntu bionic-updates/universe DEP-11 48x48 Icons [196 kB]
Holen:13 http://de.archive.ubuntu.com/ubuntu bionic-updates/universe DEP-11 64x64 Icons [449 kB]
Holen:14 http://de.archive.ubuntu.com/ubuntu bionic-updates/multiverse amd64 DEP-11 Metadata [2.464 B]
Holen:15 http://de.archive.ubuntu.com/ubuntu bionic-backports/universe amd64 DEP-11 Metadata [7.920 B]
Holen:16 http://security.ubuntu.com/ubuntu bionic-security/main amd64 DEP-11 Metadata [38,5 kB]
Holen:17 http://packages.ros.org/ros/ubuntu bionic/main i386 Packages [37,9 kB]
Holen:18 http://packages.ros.org/ros/ubuntu bionic/main amd64 Packages [569 kB]
Holen:19 http://security.ubuntu.com/ubuntu bionic-security/main DEP-11 48x48 Icons [17,6 kB]
Holen:20 http://security.ubuntu.com/ubuntu bionic-security/main DEP-11 64x64 Icons [41,5 kB]
Holen:21 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 DEP-11 Metadata [42,2 kB]
Holen:22 http://security.ubuntu.com/ubuntu bionic-security/universe DEP-11 48x48 Icons [16,4 kB]
Holen:23 http://security.ubuntu.com/ubuntu bionic-security/universe DEP-11 64x64 Icons [111 kB]
Holen:24 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 DEP-11 Metadata [2.460 B]
Es wurden 3.900 kB in 3 s geholt (1.115 kB/s).
Paketlisten werden gelesen... Fertig
Abhängigkeitsbaum wird aufgebaut.
Statusinformationen werden eingelesen.... Fertig
Aktualisierung für 29 Pakete verfügbar. Führen Sie »apt list --upgradable« aus, um sie anzuzeigen.
dang@lgLap:~$ sudo apt install ros-melodic-desktop-full
```

update Ros:

```
Trigger für ttbc-btn (2.27-3ubuntu1) werden verarbeitet ...
dang@lgLap:~$ sudo rosdep init
[sudo] Passwort für dang:
Wrote /etc/ros/rosdep/sources.list.d/20-default.list
Recommended: please run

        rosdep update

dang@lgLap:~$ rosdep update
reading in sources list data from /etc/ros/rosdep/sources.list.d
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/osx-homebrew.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/base.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/python.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/ruby.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/releases/fuerte.yaml
Query rosdistro index https://raw.githubusercontent.com/ros/rosdistro/master/index-v4.yaml
Skip end-of-life distro "ardent"
Skip end-of-life distro "bouncy"
Add distro "crystal"
Add distro "dashing"
Add distro "eloquent"
Skip end-of-life distro "groovy"
Skip end-of-life distro "hydro"
Skip end-of-life distro "indigo"
Skip end-of-life distro "jade"
Add distro "kinetic"
Skip end-of-life distro "lunar"
Add distro "melodic"
Add distro "noetic"
updated cache in /home/dang/.ros/rosdep/sources.cache
dang@lgLap:~$ echo "source /opt/ros/melodic/setup.bash" >> ~/.bashrc
dang@lgLap:~$ source ~/.bashrc
dang@lgLap:~$ sudo apt install python-rosinstall python-rosinstall-generator python-wstool build-essential
Paketlisten werden gelesen... Fertig
Abhängigkeitsbaum wird aufgebaut.
Statusinformationen werden eingelesen.... Fertig
build-essential ist schon die neueste Version (12.4ubuntu1).
build-essential wurde als manuell installiert festgelegt.
Die folgenden Pakete wurden automatisch installiert und werden nicht mehr benötigt:
  gyp libjs-async libjs-inherits libjs-node-uuid libllvm7 libuv1-dev node-abbrev node-ansi node-ansi-color-table node-archy node-async node-balanced-match
  node-block-stream node-brace-expansion node-builtin-modules node-combined-stream node-concat-map node-cookie-jar node-delayed-stream node-forever-agent
  node-form-data node-fs.realpath node-fstream node-fstream-ignore node-github-url-from-git node-glob node-graceful-fs node-hosted-git-info node-inflight
```

roscore run:

```
dang@lgLap:~$ roscore
... logging to /home/dang/.ros/log/c048ce20-f0c7-11e9-9c44-ccb0daf79125/roslaunch-lgLap-31260.log
Checking log directory for disk usage. This may take awhile.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://lgLap:39069/
ros_comm version 1.14.3


SUMMARY
========

PARAMETERS
 * /rosdistro: melodic
 * /rosversion: 1.14.3

NODES

auto-starting new master
process[master]: started with pid [31271]
ROS_MASTER_URI=http://lgLap:11311/

setting /run_id to c048ce20-f0c7-11e9-9c44-ccb0daf79125
process[rosout-1]: started with pid [31282]
started core service [/rosout]
```