Ubuntuのインストール

1. https://www.ubuntulinux.jp/News/ubuntu1604-ja-remix
2. sudo apt update
3. sudo apt upgrade

ROSのインストール

1. sudo apt update
2. sudo apt install git
3. sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" > /etc/apt/sources.list.d/ros-latest.list'
4. sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:80' --recv-key C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654
5. sudo apt update
6. sudo apt install ros-kinetic-desktop-full
7. sudo rosdep init
8. rosdep update
9. echo "source /opt/ros/kinetic/setup.bash" >> ~/.bashrc
10. source ~/.bashrc
11. roscore
12. sudo apt install python-catkin-tools
13. mkdir -p ~/bebop_ws/src && cd ~/bebop_ws
14. catkin build
15. source devel/setup.bash
16. echo "source ~/bebop_ws/devel/setup.bash" >> ~/.bashrc
17. source ~/.bashrc

Bebop2専用パッケージのインストール

1. git clone https://github.com/AutonomyLab/bebop_autonomy.git src/bebop_autonomy
2. git clone https://github.com/ros-teleop/teleop_tools.git src/bebop_autonomy
3. rosdep update
4. rosdep install --from-paths src -i
5. catkin build

演習1.ROSコマンドを体験する

1. roscore
2. sudo apt install ros-kinetic-usb-cam
3. rosrun usb_cam usb_cam_node
4. rosrun image_view image_view image:=/usb_cam/image_raw

5. roslaunch bebop_driver bebop_node.launch
6. rosrun image_view image_view image:=/bebop/image_raw
7. rosgraph
8. sudo apt-get install ros-kinetic-rqt
9. sudo apt-get install ros-kinetic-rqt-common-plugins
10. rqt_graph
11. rostopic list
12. rostopic type /bebop/image_raw
13. rostopic echo /bebop/image_raw

演習2.既存パッケージを試す

1. roslaunch bebop_driver bebop_node.launch
2. sudo apt install ros-kinetic-teleop-twist-keyboard
3. rosrun teleop_twist_keyboard teleop_twist_keyboard.py cmd_vel:=/bebop/cmd_vel
4. rostopic pub --once /bebop/takeoff std_msgs/Empty
5. rostopic pub --once /bebop/land std_msgs/Empty
6. rostopic pub --once /bebop/reset std_msgs/Empty

演習3.飛行プログラムを作る

1. cd ~/bebop_ws/src
2. catkin_create_pkg seminar roscpp rospy std_msgs
3. cd ~/bebop_ws/
4. catkin build
5. source devel/setup.bash
6. rospack find seminar
7. cd ~/bebop_ws/src
8. git clone https://github.com/ros-teleop/teleop_twist_keyboard.git seminar/src
9. mkdir -p ~/bebop_ws/src/seminar/scripts
10. cp ~/bebop_ws/src/seminar/src/teleop_twist_keyboard.py seminar/scripts/ros_example_1_3.py
11. gedit ~/bebop_ws/src/seminar/scripts/ros_example_1_3.py
12. cd ~/bebop_ws/src
13. mkdir -p ~/bebop_ws/src/seminar/launch
14. cp bebop_autonomy/bebop_driver/launch/bebop_node.launch seminar/launch/ros_example_1_3.launch
15. gedit ~/bebop_ws/src/seminar/launch/ros_example_1_3.launch
16. roslaunch seminar ros_example_1_3.launch