Drone DJI Matrice100 Control

Documentation https://developer.dji.com/onboard-sdk/documentation/quickstart/safety.html

# Safety

* When testing remove blades
* Use DJI assistant 2 desktop app to simulate flight and test the microcontroller
* Use the most recent firmware of drone and hardware platform
* In the DJI desktop app you can set an Failsafe action this action kicks in when the drone loses connection with the remote controller or the onboard computer

# Permissions

The DJI flight controller has the highest level of authority and can overrule every other control method. In the DJI Assistant 2 desktop app you need to enable OSDK API control when connected to the drone’s flight computer.

# OSDK API (Onboard SDK API)

## Preparing Onboard Computer

1. install GCC 5.4 or above
2. install CMake 2.8 or above
3. give user UART permissions
   1. ‘ sudo usermod -a -G dialout $ USER’
4. Install ROS (<http://wiki.ros.org/melodic/Installation/Ubuntu>)
5. Download and Install DJI onboard SDK from (<https://github.com/dji-sdk/Onboard-SDK/tree/master>)
   1. ‘git clone -b <branch> <https://github.com/dji-sdk/Onboard-SDK.git> <Onboard-SDK name>’
   2. ‘cd <Onboard-SDK name>’
   3. ‘mkdir build && cd build’
   4. ‘cmake ..’
   5. ‘sudo make -j7 install’
6. install nema-comms
   1. ‘sudo apt install ros-<release>-nmea-comms
7. Install libUSB
   1. ‘sudo apt-get install libusb-1.0-0-dev’
8. Set the baud rate of ROS higher than 921600

## Preparing other stuff

Make sure you have an valid developer account with DJI and make an onboard API app (save the app key and app license)

# Start making App

* Create catkin workspace
  + “mkdir <catkin work directory name> && cd <catkin work directory name>”
  + “mkdir <source directory name> && cd <source directory name>”
  + “catkin\_init\_workspace”
* Clone Onboard-SDK-ROS git repo into source directory
  + “git clone -b <branch> <https://github.com/dji-sdk/Onboard-SDK-ROS.git> <Onboard-SDK name>”
* Ga back to catkin main directory
  + “cd <catkin work directory name>”
* Install dependencies
  + “rosdep install -y --rosdistro melodic --from-paths src --ignore-src”
    - this looks what dependencies is needed by the package and installs them
* Compile project
  + “catkin\_make\_isolated”
* Source the project
  + “source devel/setup.bash”