UAS Research

DJI Onboard Navigation Setup

Required Tools:

- DJI Remote Control
- Mobile Phone
- 2x Micro USB Cord
- Onboard Computer (Intel NUC)
- Laptop Computer

Required Software:

- Ubuntu 14.04
- ROS Indigo
- DJI Assistant 2
- DJI GO Mobile App

1. Download DJI Onboard SDK

   Download the DJI ROS Onboard SDK and save it in your catkin repository. The SDK can be found here.

2. Register Application

   You must next register as a DJI developer. After registration you must create an onboard SDK application. You will receive an application ID and Key. Registration and application creation can be completed here.

3. Update Launch Data

   Follow the file path Onboard-SDK-ROS/dji_sdk/launch and open the file sdk_manifold.launch.

   Update the file with your application ID and key, when finished your paramteres should look like this:

   drone_version: M100

   serial_name: /dev/ttyUSB0

   baud_rate; 230400

   app_id: Put the ID you just received here

   enc_key: Put the Key you just received here

4. Establish UAS connection

   Ensure that your version of the DJI GO mobile app is up to date and log in to the DJI developer account associated with your app ID and Key. Connect your mobile device to the Remote Controller via Micro USB. Move the switch on the controller to the F mode.

Connect your laptop computer to the M100 via Micro USB and start DJI Assistant 2. Once the assistant is running, go to the SDK tab and check the box “Enable API Control”.

5. UAS Activation

   With all the required connections made, open a new terminal on the Onboard Computer. Move to your catkin repository with the command:

   “cd catkin_ws”.

   Give the SDK permission over the USB port with the following command:

   “sudo chmod a+rw /dev/ttyUSB0”

   Initiate Activation with the command:

   “roslaunch dji_sdk sdk_manifold.launch”

   Upon successful activation the terminal should read:

   “STATUS activateCallback, line 241: Activation Successfully”

6. Open a separate terminal and move to your catkin repository with the command:

   “cd catkin_ws”

   Then you must source the project with the command:

   “ source devel/setup.bash”

   Finally you run the flight control code with the line”

   “rosrun dji_sdk_demo dji_sdk_client”

   This should display a console interface with numerical options responding to actions for the UAS to perform. Option 39 contains flight controls utilizing the hokuyo_node.

   If at any point you want to kill the program press [Ctrl + Z] in the client terminal and then press [Ctrl + C] in the launch terminal.