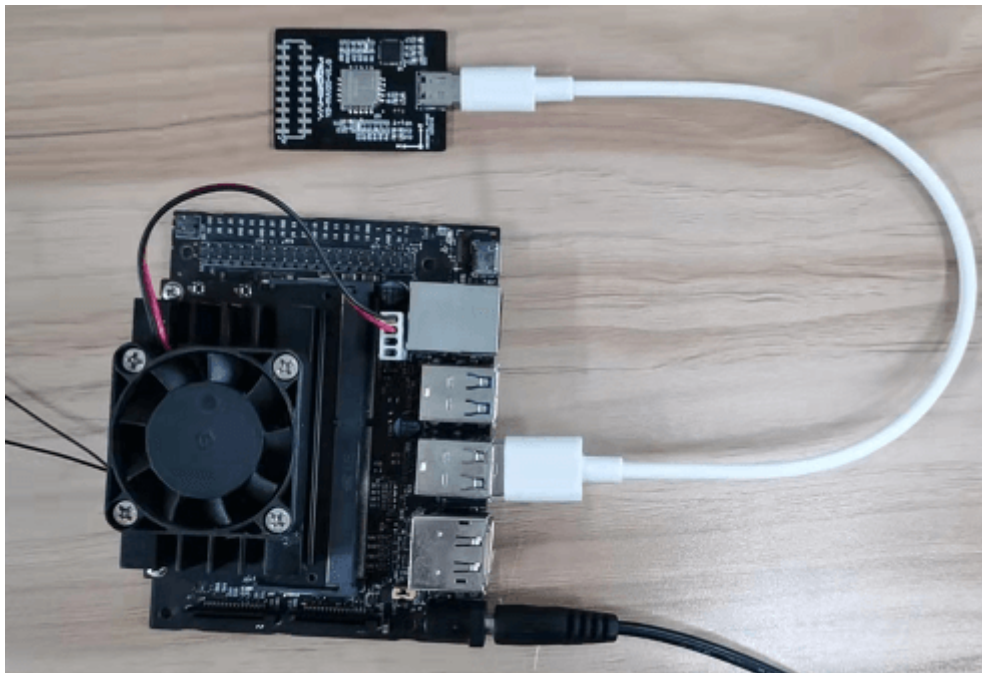# JetsonNano code

Products to be prepared: Win10 computer, inertial navigation module, Type-C data cable, Jetson Nano development kit.

1. Hardware connection

Use the Type-C data cable to connect the inertial navigation module and the USB port of the Jetson Nano.

2. software programming

For specific code, please see the source code in the information.

The baud rate of USB0 has been set to 115200 in the program, and the baud rate of USB0 can be modified according to the baud rate of the inertial navigation module.

```
uart = serial.Serial("/dev/ttyUSB0", 115200, timeout=0.001)
```

In order to make the printing effect clear, other parameters have been commented out. If you need to view other data, you can modify the following comments and save the program.

```
# print("RollSpeed:{0}, PitchSpeed:{1}, HeadingSpeed:{2}".format(RollSpeed, PitchSpeed, HeadingSpeed))
print("Roll:{0}, Pitch:{1}, Heading:{2}".format(Roll, Pitch, Heading))
# print("Quaternion:{0}, {1}, {2}, {3}".format(Q1, Q2, Q3, Q4))
# print("Timestamp:", Timestamp)
```

```
# print("Gyroscope:{0}, {1}, {2}".format(Gyroscope_X, Gyroscope_Y, Gyroscope_Z))
# print("Accelerometer:{0}, {1}, {2}".format(Accelerometer_X, Accelerometer_Y, Accelerometer_Z))
# print("Magnetometer:{0}, {1}, {2}".format(Magnetometer_X, Magnetometer_Y, Magnetometer_Z))
# print("Timestamp:", Timestamp)
```

3. Experimental effect

Import the test_imu.py file into the system, open the terminal, enter the corresponding folder, and then run the following command:

```
python3 test_imu.py
```

It can be seen that the terminal has been printing the data of roll angle, pitch angle and yaw angle. When the attitude of the inertial navigation module is changed, the data will change accordingly.

```
Roll:-0.007772287814740875, Pitch:-0.01719858143610733, Heading:2.66288240705518
8
Roll:-0.0077605540802245234, Pitch:-0.017179012483836707, Heading:2.662976582405
1597
Roll:-0.007759110995723128, Pitch:-0.01717608068002232, Heading:2.66287167821784
94
Roll:-0.007766798133170383, Pitch:-0.01719202678704581, Heading:2.66284879003152
7
Roll:-0.007775541856204493, Pitch:-0.01718270983489869, Heading:2.66299780166122
92
Roll:-0.007763465394939827, Pitch:-0.017196491548000757, Heading:2.6628669098456
99
Roll:-0.007755962193722986, Pitch:-0.017203727925268163, Heading:2.6628621414735
485
Roll:-0.00774454464325841, Pitch:-0.017194170691868148, Heading:2.66278250965863
57
Roll:-0.007753500707864846, Pitch:-0.017191067524679603, Heading:2.6628201797986
1244
```