Hardware connection:

Important notes on Safety Switch :

PIXHAWK2.1 does not have standalone port for safety switch.

1. For users applying **PIXHAWK2.1** GPS(8 pins), the safety switch is on the GPS.
2. Using other GPS modules(6 pins) or no GPS, simply connect the safety switch cable with the GPS 1 port.

❶ Telemetry
1.Telemetry provides a second method of controlling the UAV. It allows you to work with powerful GCS softwares (on a tablet or laptop PC) in real time.

2.The telemetry modules transmit 915MHz(USA) or 433MHz(Europe).

❷ Tablet
A tablet or laptop PC connects to PIXHAWK2.1 via telemetry radio allowing the operator to use powerful GCS softwares to control the UAV.
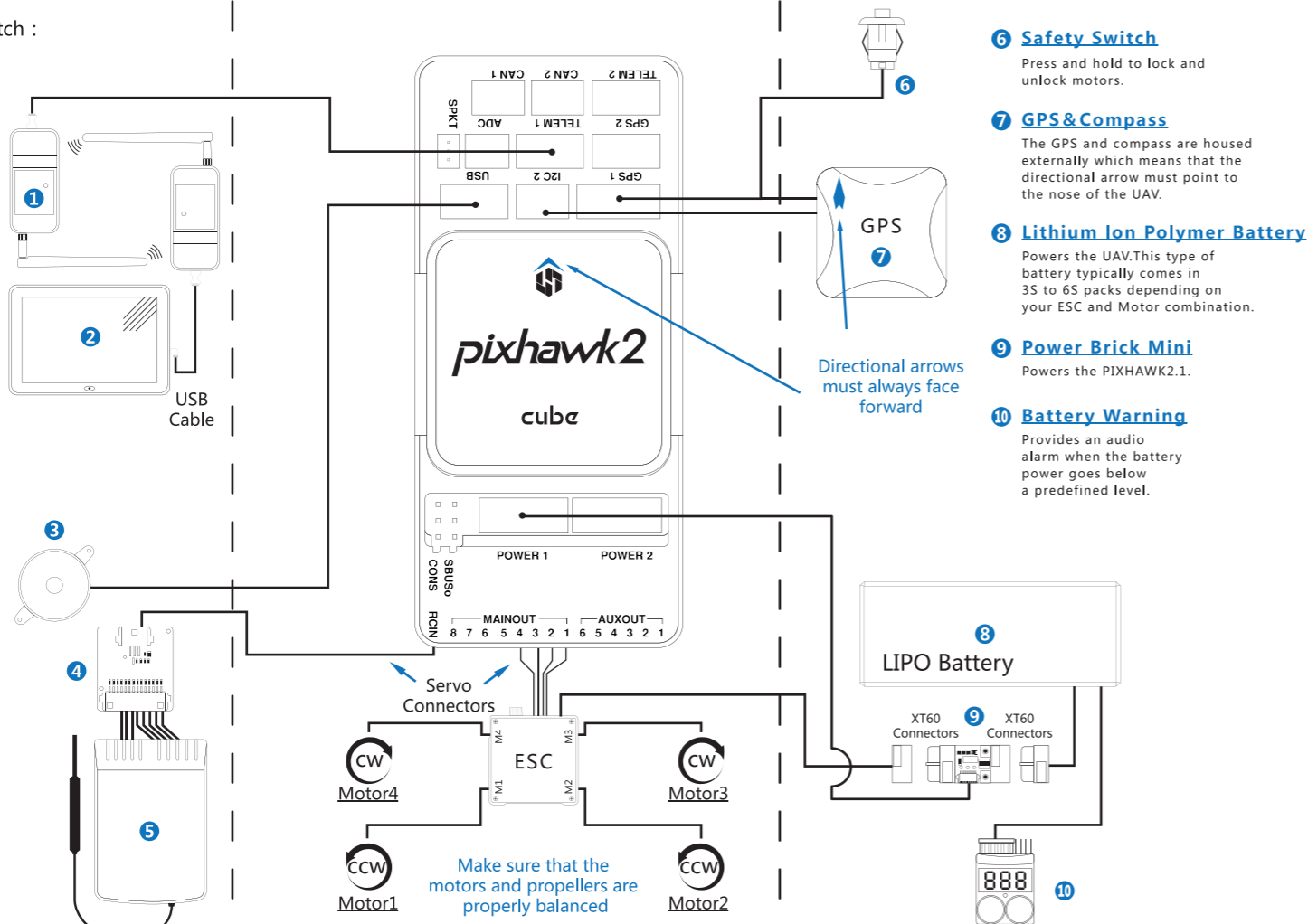
❸ Buzzer
Provides audio signals that indicate what the UAV is doing.

❹ PPM Sum Receiver
1.Translates PWM signals that PIXHAWK2.1 can not read into PPM signals.

2.An alternative is to use a PPM receiver, which outputs a PPM signal by default, or use other signals transmission system such as S.BUS and SPKT.

❺ Receiver
The receiver takes the 2.4GHz signals from the transmitter allowing the operator to low latency control over the UAV.

USB Cable

Servo Connectors

MAINOUT 8 7 6 5 4 3 2 1   AUXOUT 6 5 4 3 2 1

POWER 1   POWER 2

ESC
Motor4   Motor3
Motor1   Motor2
CW   CW
CCW   CCW

Make sure that the motors and propellers are properly balanced

pixhawk2 cube

GPS ❼

Directional arrows must always face forward

LIPO Battery

XT60 Connectors ❾ XT60 Connectors

888 ❿

❻ Safety Switch
Press and hold to lock and unlock motors.

❼ GPS & Compass
The GPS and compass are housed externally which means that the directional arrow must point to the nose of the UAV.

❽ Lithium Ion Polymer Battery
Powers the UAV.This type of battery typically comes in 3S to 6S packs depending on your ESC and Motor combination.

❾ Power Brick Mini
Powers the PIXHAWK2.1.

❿ Battery Warning
Provides an audio alarm when the battery power goes below a predefined level.

What you have in this package

PIXHAWK 2.1 Cube x 1
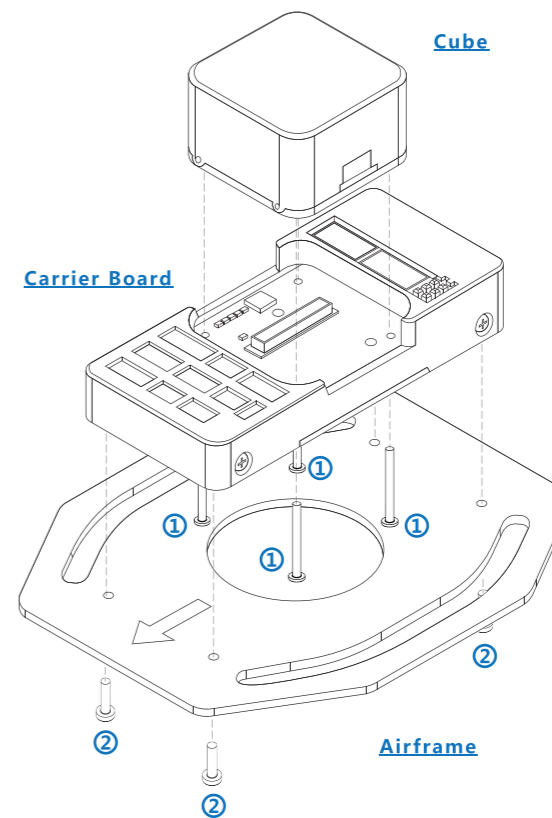PIXHAWK 2.1 Carrier x 1
POWER Brick Mini x 1

SD Card (inserted in Cube)   x 1
TELEM Cable x 2
POWER Cable x 1
I2C Cable x 1
BUZZER Cable x 1
MICRO USB Cable x 1
GPS1 Cable(with safety switch) x 1
GPS2 Cable x 1
POWER Brick Mini Cable x 1

I2C Splitter x 1
Mounting Screws(M2.5*8) x 4
3M Double Sided Foam Tapes

General installation guide:

This setup guide serves as a general guide to new users, using a quadcopter configuration as an example. For other types of vehicles or more detailed guides, please refer to ardupilot.org or px4.io.

Mounting PIXHAWK 2.1 on your airframe

WARNING:

Whenever you want to uninstall **Cube** from **Carrier Board**, make sure all the part ① have been REMOVED. Any attempt to unplug **Cube** without removing 4 screws of part ① in advance will lead to the unpredictable damage to **PIXHAWK2.1** and its accessories.

● To mount **PIXHAWK2.1** on your airframe, use 4*part ② to fix it throughout the frame board into the nuts on the bottom of **PIXHAWK2.1**.

● The screws of part ② provided in accessories are designed to fit the frame board of 1.8mm in thickness.

● All customized designs of screws in part ② are supposed to promise a limited length of screw below the bottom surface of **PIXHAWK2.1** in range 6mm~7.55mm. Otherwise, it may lead to a breakage to Carrier Board or the shedding of **PIXHAWK2.1** during flying.

Cube
Carrier Board
Airframe

Item	Type(in ISO standard)	Size(mm)
①	Pan head screws with cross recess	M1.6*20
②	Pan head screws with cross recess	M2.5*8

Software set up guide:

PIXHAWK2.1 is compatible with two powerful GSC softwares:

1.Mission Planner
(http://ardupilot.org/planner/index.html)
2.Qgroundcontrol
(http://qgroundcontrol.com)

Both are free of charge and open-source.
GCS softwares are used to upload the firmwares
(PX4, Ardupilot) into **PIXHAWK2.1** hardware.

If you are using Ardupilot software stack,
you can choose Mission Planner as the GCS softwares.
If you are using PX4 autopilot stack, Qgroundcontrol
is preferred. Both GCS softwares offer wide range
of features such as tunning parameters,
waypoints planning, live data streaming, etc.

To get detailed procedure of uploading firmwares into
your **PIXHAWK2.1**, or using the software to customize
parameters and other more advanced functions, please
go to the respective GCS websites.

For downloading detailed hardware and software
installation guide, Please visit:

👉 hex.aero > download > pixhawk2.1-assembly-instruction

Installation of Intel Edison board

PIXHAWK2.1 Carrier board has a port for **Intel® Edison**,
which gives **PIXHAWK2.1** extra processing power and more
capabilities. To use **Intel® Edison** with ardupilot flight
software, here is a brief setup guide:
http://ardupilot.org/dev/docs/edison-for-drones.html

CB BASE
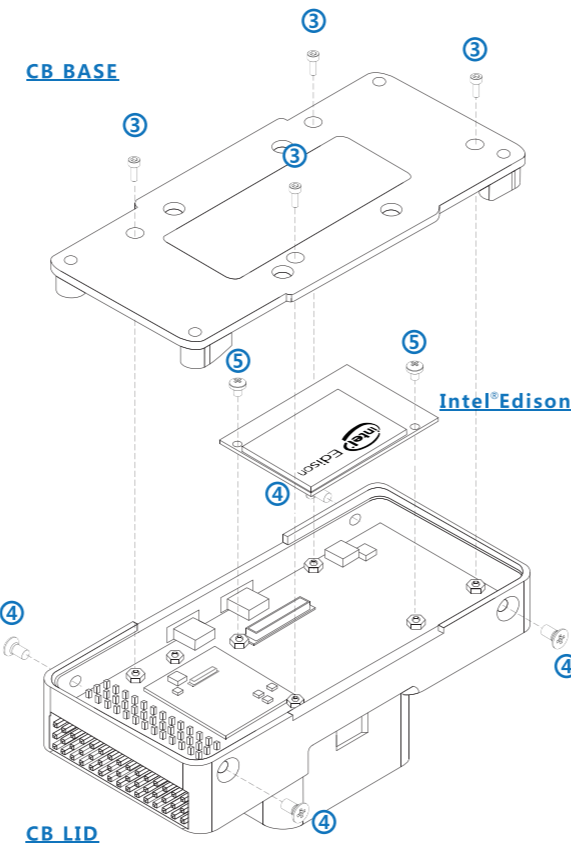
Intel®Edison

CB LID

To install **Intel® Edison** into **PIXHAWK2.1**,
you need to open the bottom cover of **Carrier Board**.
Detailed procedures are as follows:

1.Uninstall part ③ *4, part ④ *4,
   and remove **CB_Base** from **CB_Lid**.

2.Uninstall part ⑤ *2 from **Carrier Board**.

3.Install **Intel® Edison** to **Carrier Board**.
   Make sure the tiny pins on **Intel® Edison**
   and **Carrier Board** correctly fit each other.

4.Install ⑤ *2 to fix **Intel® Edison** to **Carrier Board**.

5.Put **CB_Base** back to coincide
       CB_Lid (Mind the direction).

6.Install part ③ *4 and part ④ *4 sequentially.

Item	Type	Size(mm)
③	Hexagon socket head cap screws	M1.6*5
④	Cross recessed countersunk flat head screws	M2*4
⑤	Pan head screws with cross recess	M1.6*2

For extended functions of **Intel® Edison**, use 2 USB ports
on the side of **PIXHAWK2.1**.

Edison Debug

USB OTG
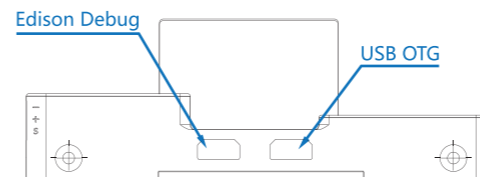
Becoming a developer

PIXHAWK2.1 is the result of the hardwork of thousands
of developers in the open source community.
Everyone can become a developer and contribute
to the software and hardware systems.
To learn how to become a developer,
you can refer to the websites listed below:

Ardupilot developer page:
http://ardupilot.org/dev/index.html

PX4 developer page:
http://dev.px4.io

DroneChina website:
http://www.dronechina.org

Forum:
http://forum.dronechina.org
http://discuss.ardupilot.org

License

PIXHAWK2.1 is an open hardware design, following
the OSHW 1.1 definition licensed under
the Creative Commons Attribution-ShareAlike 3.0
Unported (CC BY-SA 3.0) license.
https://github.com/proficnc/pixhawk2.1

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Designed by ProfiCNC in Australia with help from
Hex, enRoute, 3DR, Ardupilot, and the PX4 team.
Built by Hex Technology.
We support Open software development
through the Ardupilot Initiative

PIXHAWK2.1 USER MANUAL
Welcome to the world of open-source autopilot