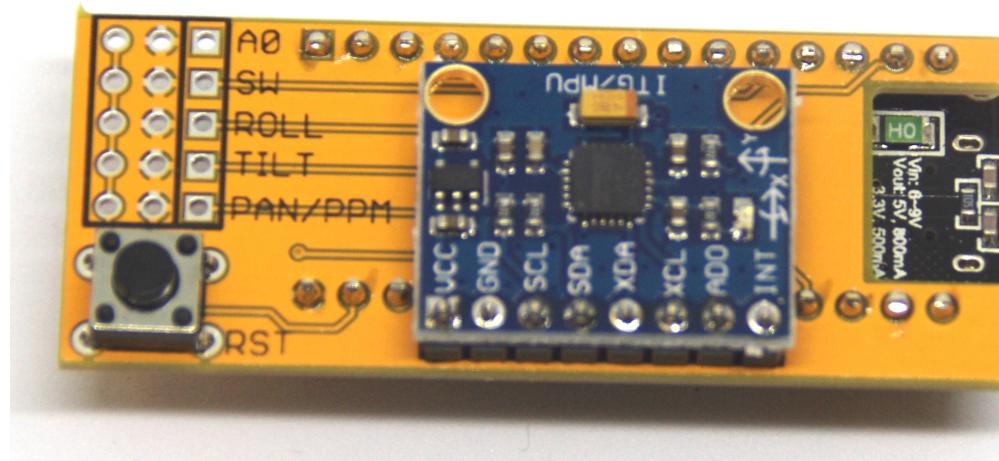
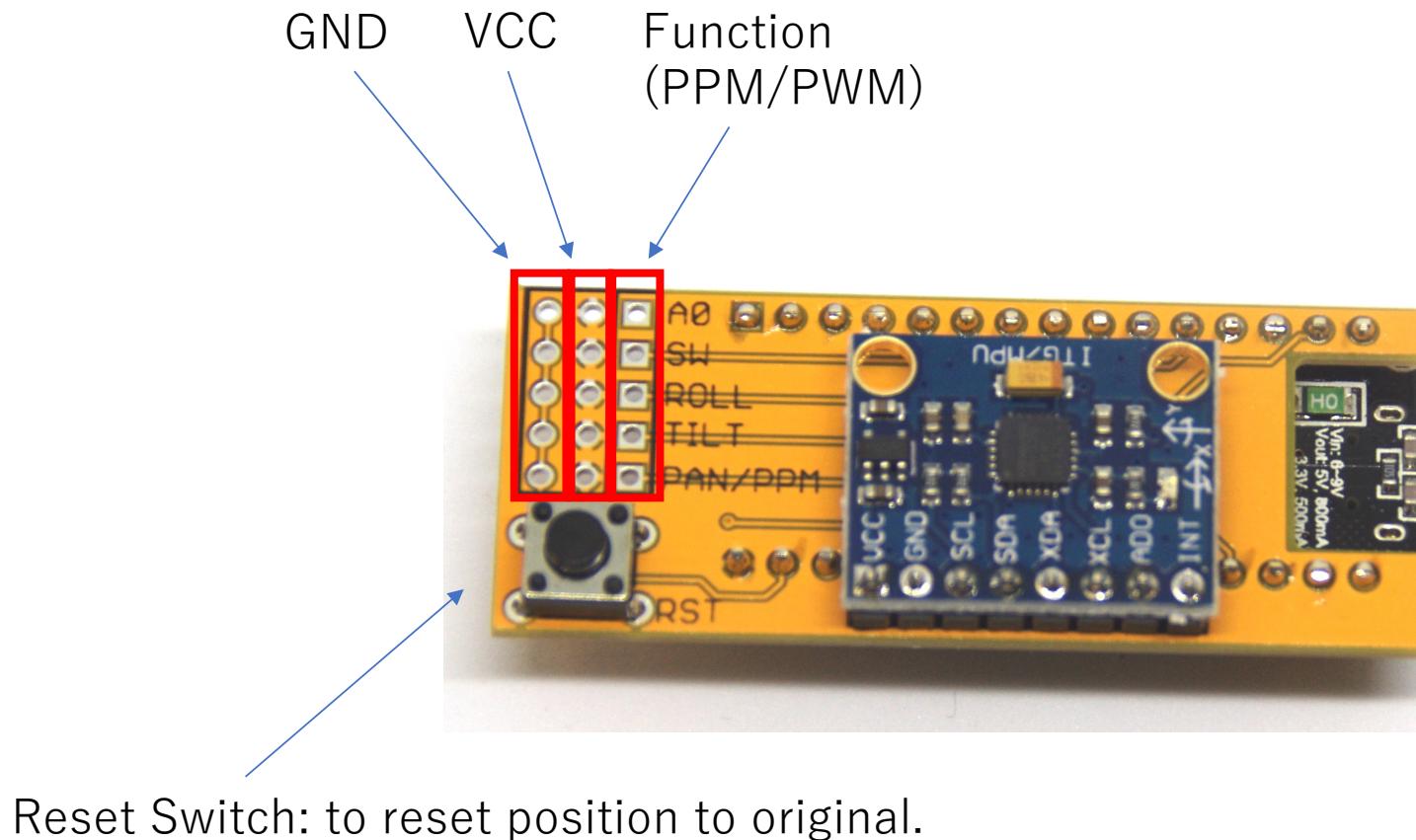


Head Tracker Manual

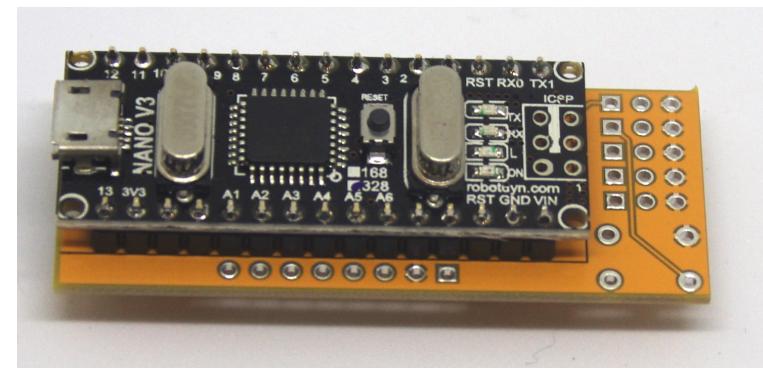
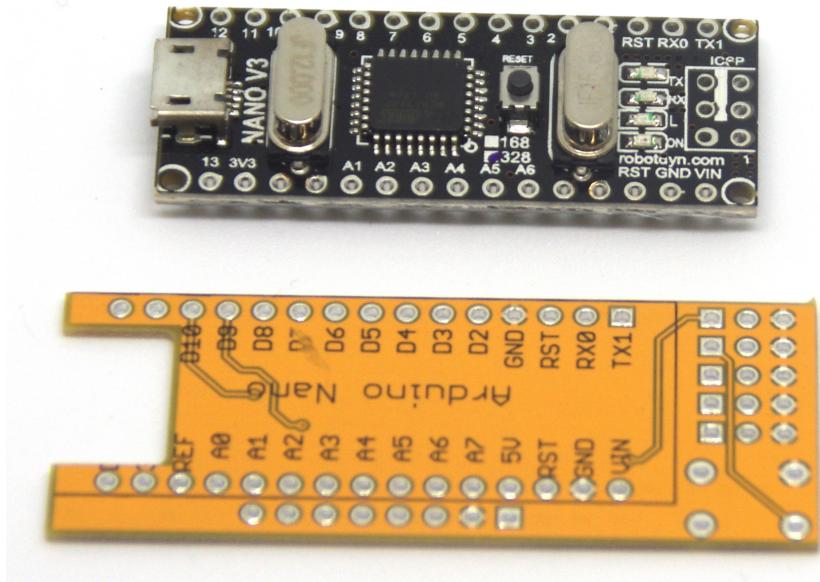


Pin Layout

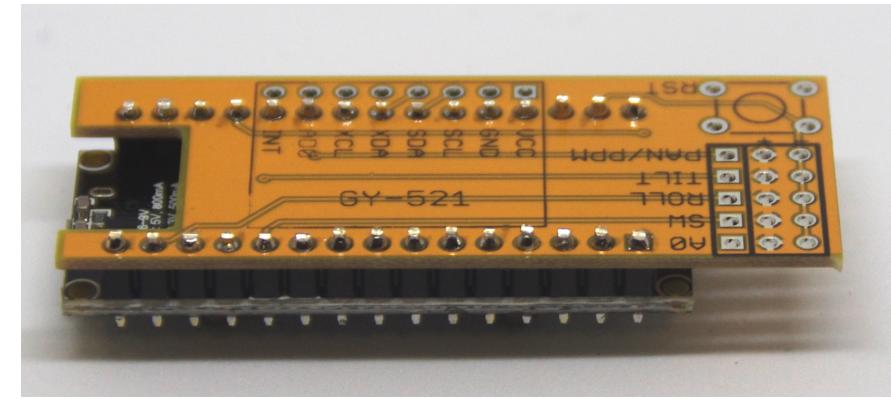
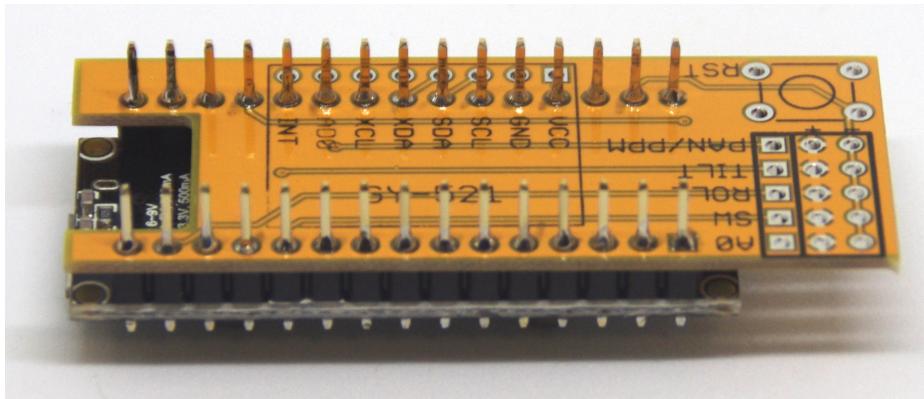


How to solder parts

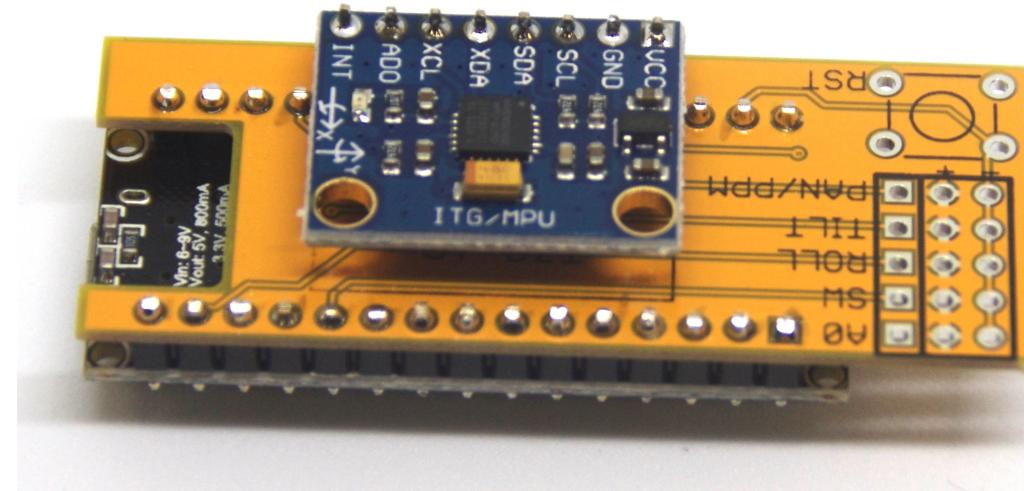
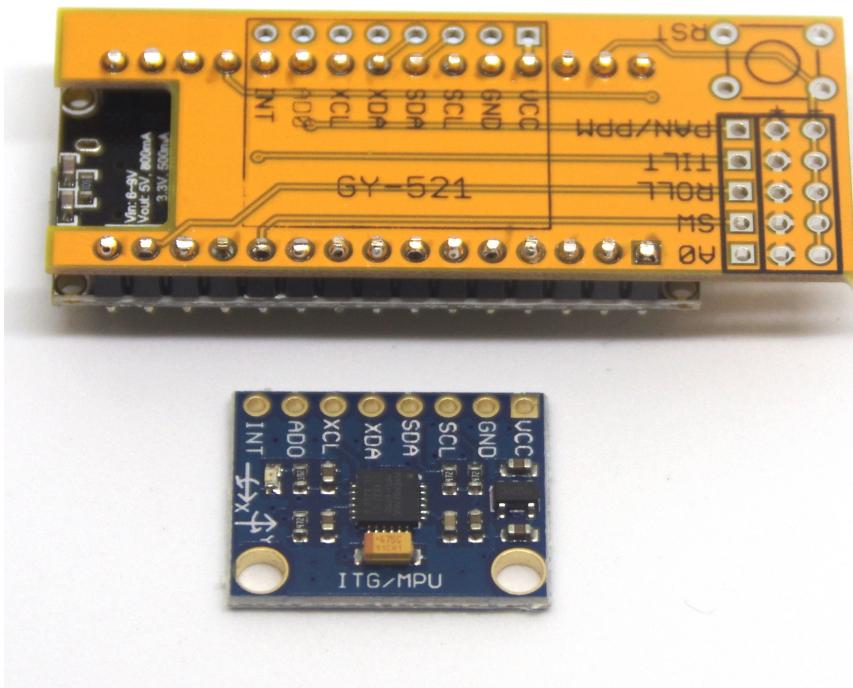
Soldering Arduino nano.



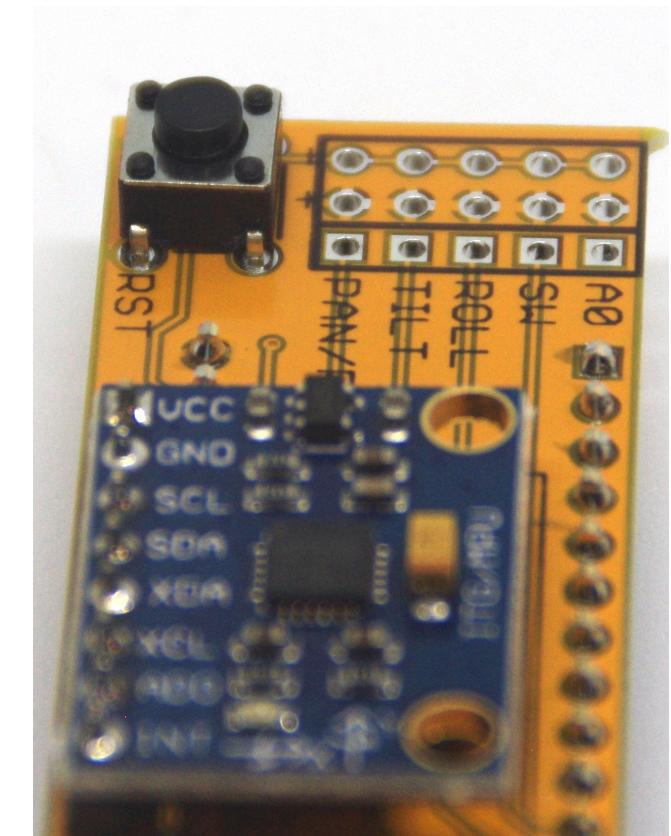
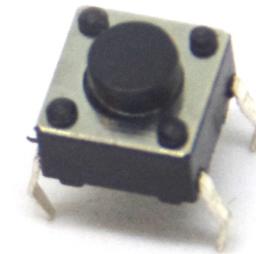
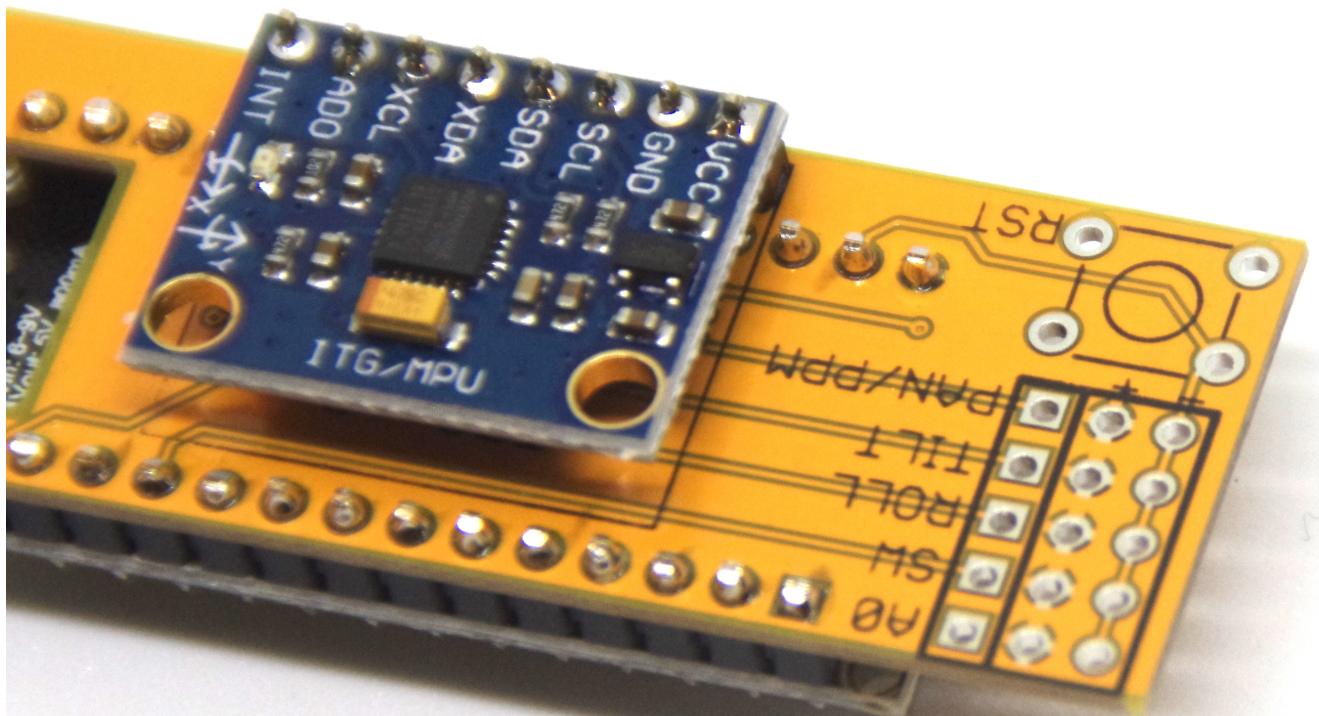
Cutting pins for making space to solder
MPU sensor.



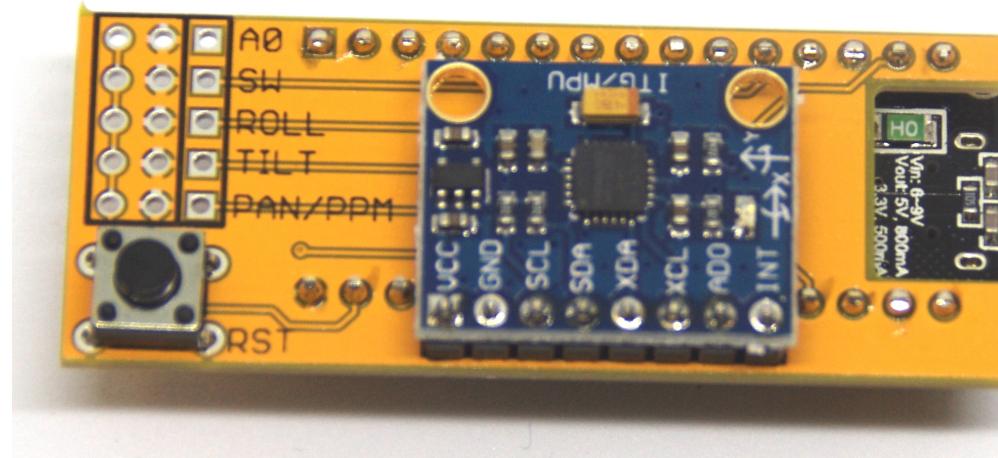
Soldering MPU sensor.



Soldering Reset switch.
(Direction is important. Please check a photo)

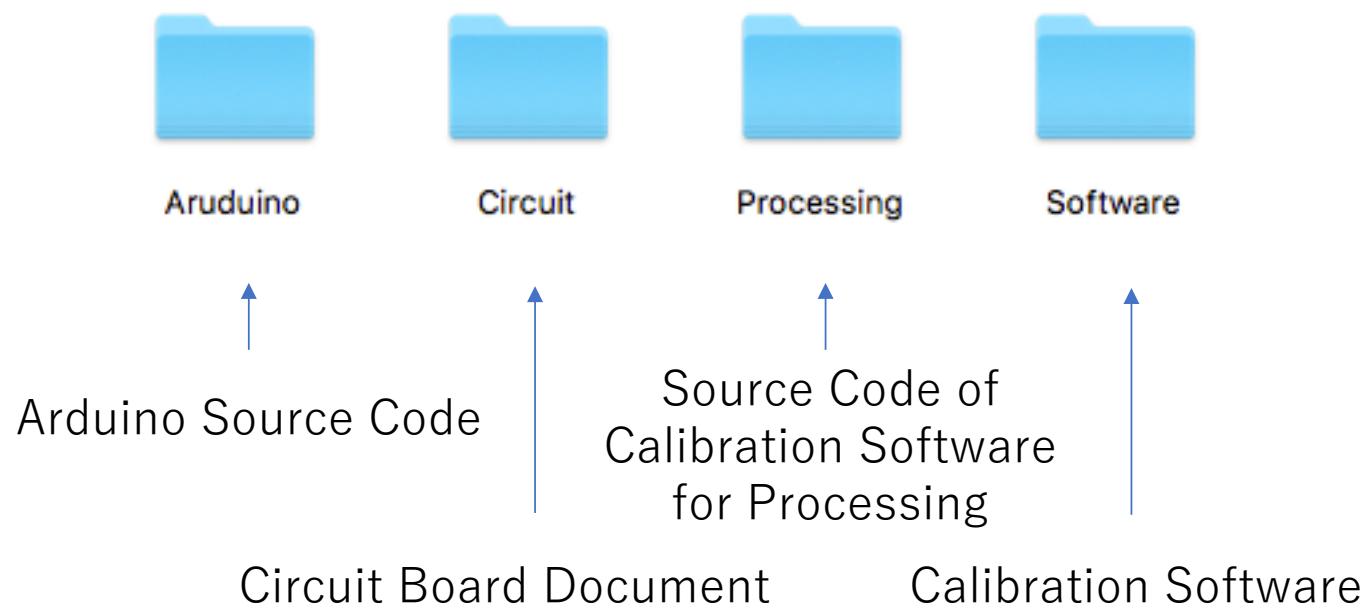


Completed to solder parts.



How to install program to
Arduino

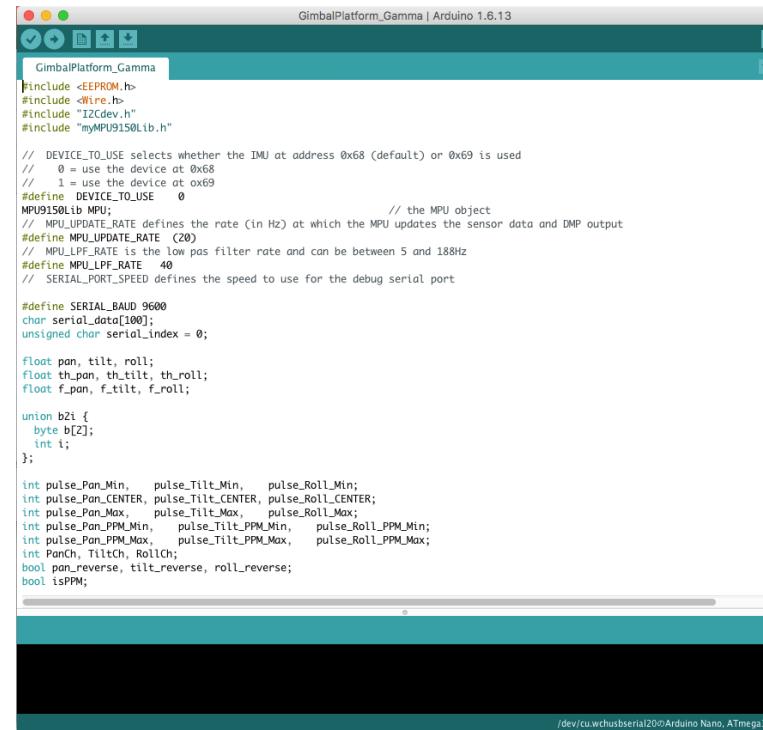
Downloaded Folder consists of following.



Copy to Arduino Project Folder



Open GimbalPlatform_Gamma.ino by ArduinolDE, and Burn into your Arduino



The screenshot shows the Arduino IDE interface with the title bar "GimbalPlatform_Gamma | Arduino 1.6.13". The code editor contains the following C++ code:

```
// DEVICE_TO_USE selects whether the IMU at address 0x68 (default) or 0x69 is used
//   0 = use the device at 0x68
//   1 = use the device at 0x69
#define DEVICE_TO_USE 0
MPU9150Lib MPU; // the MPU object
#define MPU_UPDATE_RATE (20)
// MPU_LPF_RATE is the low pass filter rate and can be between 5 and 188Hz
#define MPU_LPF_RATE 40
// SERIAL_PORT_SPEED defines the speed to use for the debug serial port
#define SERIAL_BAUD 9600
char serial_data[100];
unsigned char serial_index = 0;

float pan, tilt, roll;
float th_pan, th_tilt, th_roll;
float f_pan, f_tilt, f_roll;

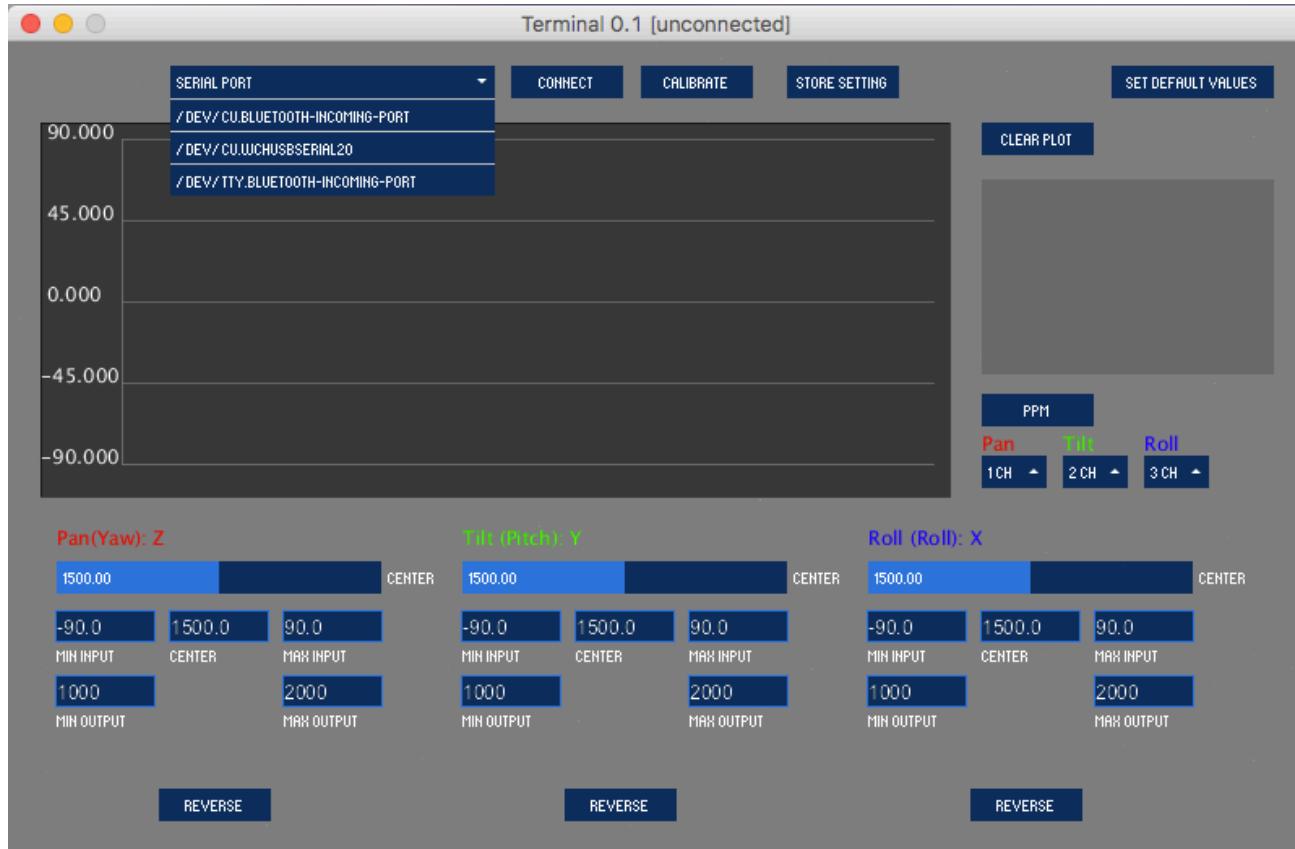
union b2i {
    byte b[2];
    int i;
};

int pulse_Pan_Min, pulse_Tilt_Min, pulse_Roll_Min;
int pulse_Pan_CENTER, pulse_Tilt_CENTER, pulse_Roll_CENTER;
int pulse_Pan_Max, pulse_Tilt_Max, pulse_Roll_Max;
int pulse_Pan_PPM_Min, pulse_Tilt_PPM_Min, pulse_Roll_PPM_Min;
int pulse_Pan_PPM_Max, pulse_Tilt_PPM_Max, pulse_Roll_PPM_Max;
int PanCh, TiltCh, RollCh;
bool pan_reverse, tilt_reverse, roll_reverse;
bool isPPM;
```

The status bar at the bottom of the IDE window displays the path "/dev/cu.wchusbserial120" and the text "Arduino Nano, ATmega328".

How to change parameters

Calibration Software



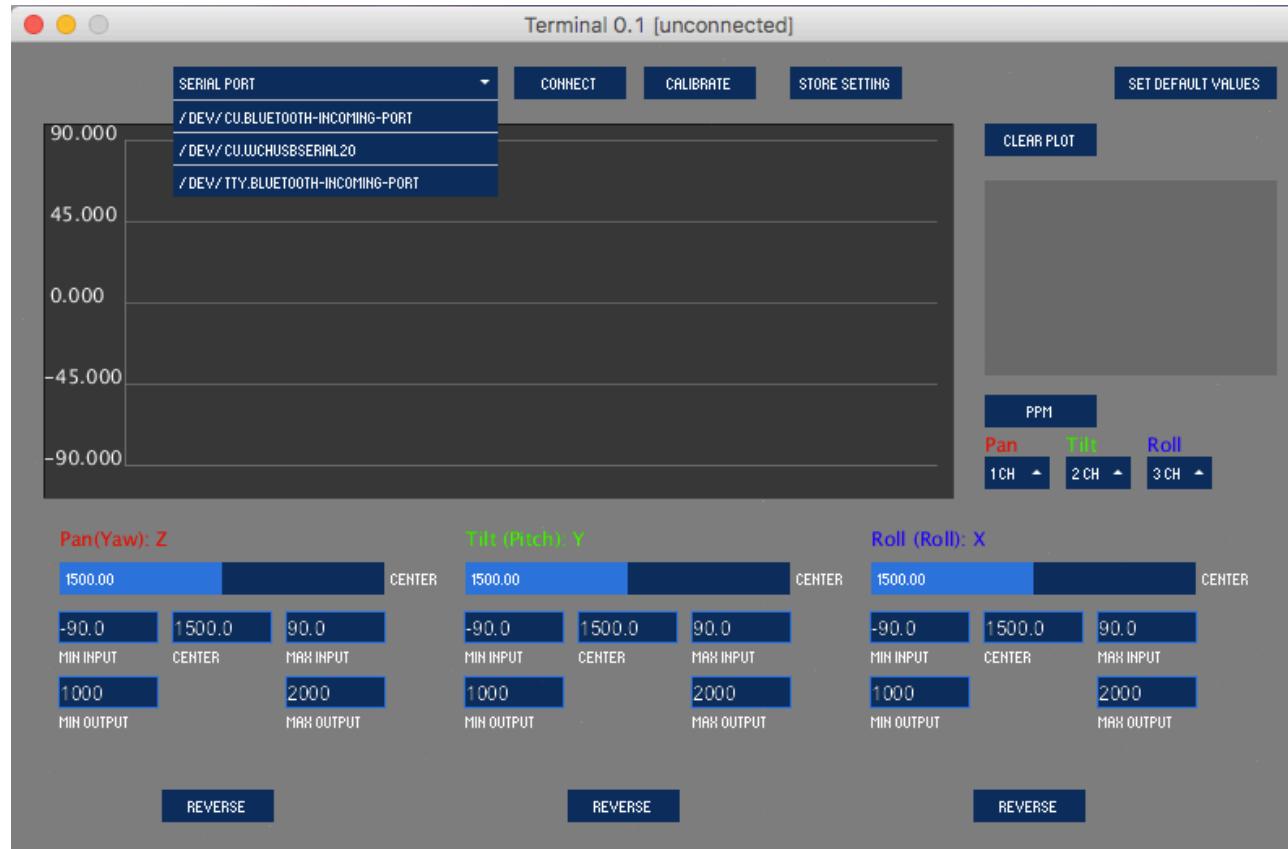
Summary

Connect to Device

Device List

Upload to Arduino

Viewer for
Sensor data



Parameter for Pan

Parameter for Roll

Parameter for Tilt

Set Default

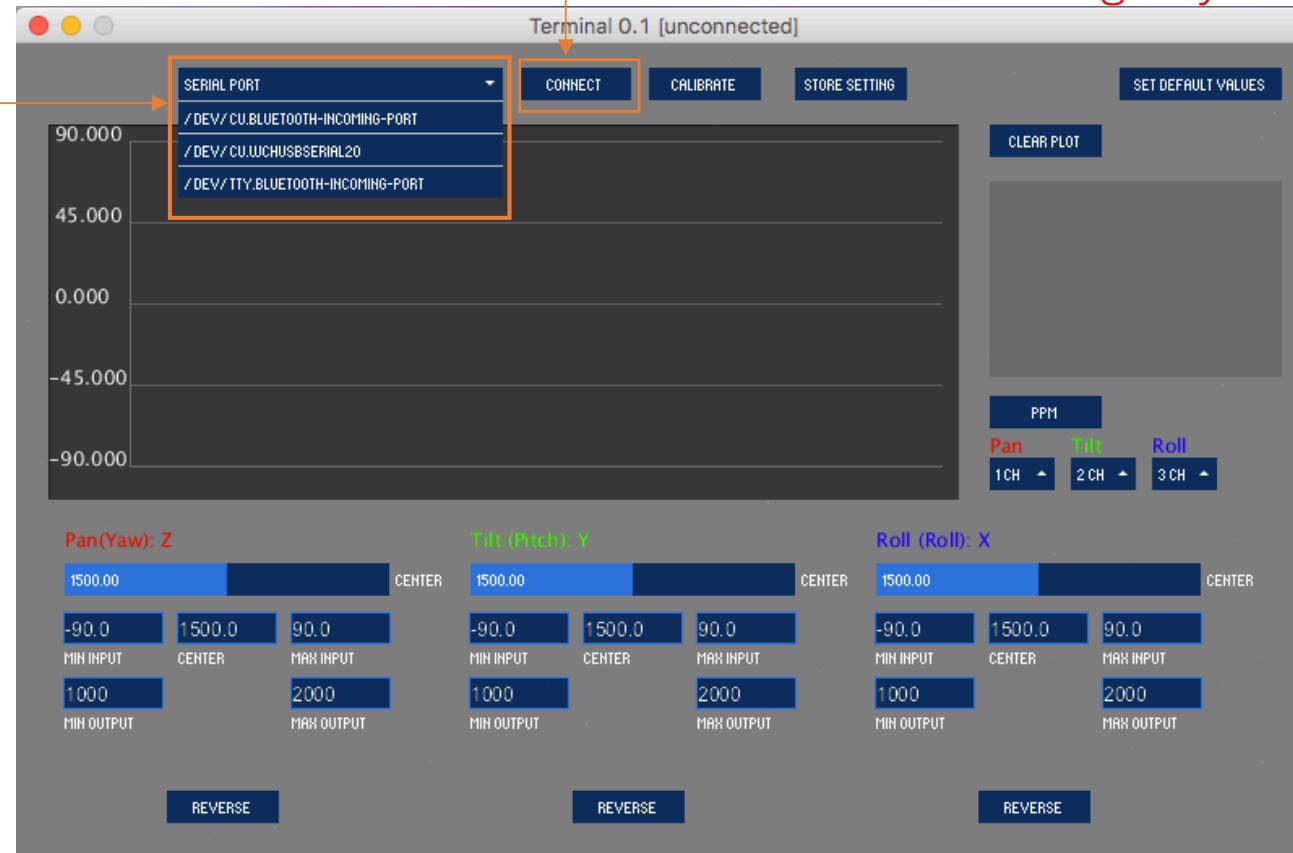
Console

Tuning of
Output type:
1) PPM or PWM
2) PPM channel

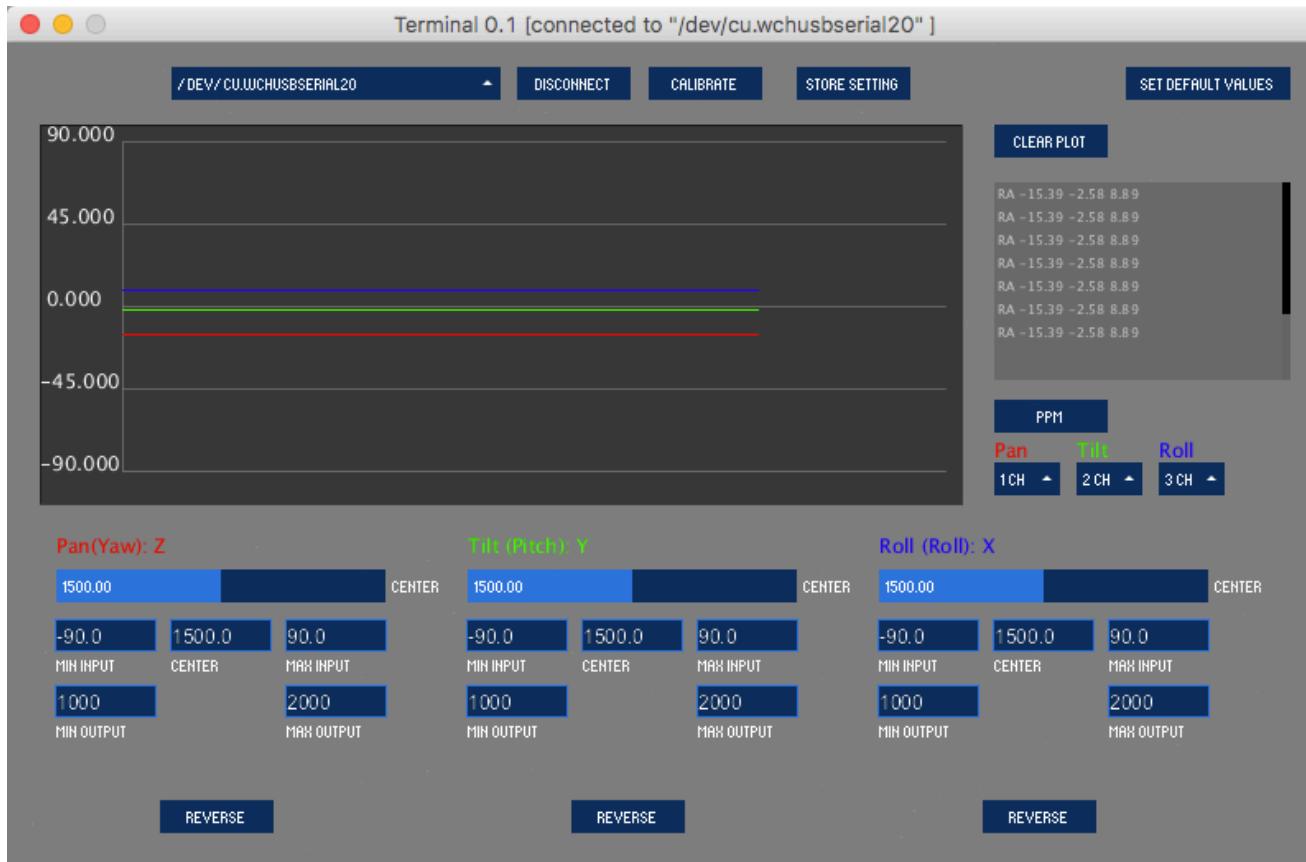
Connect to your Arduino

1) Select Serial Port
of your Arduino in
Device List

2) Click “Connect” button. Once click this button,
this button change to “Disconnect” button for
disconnecting to your Arduino



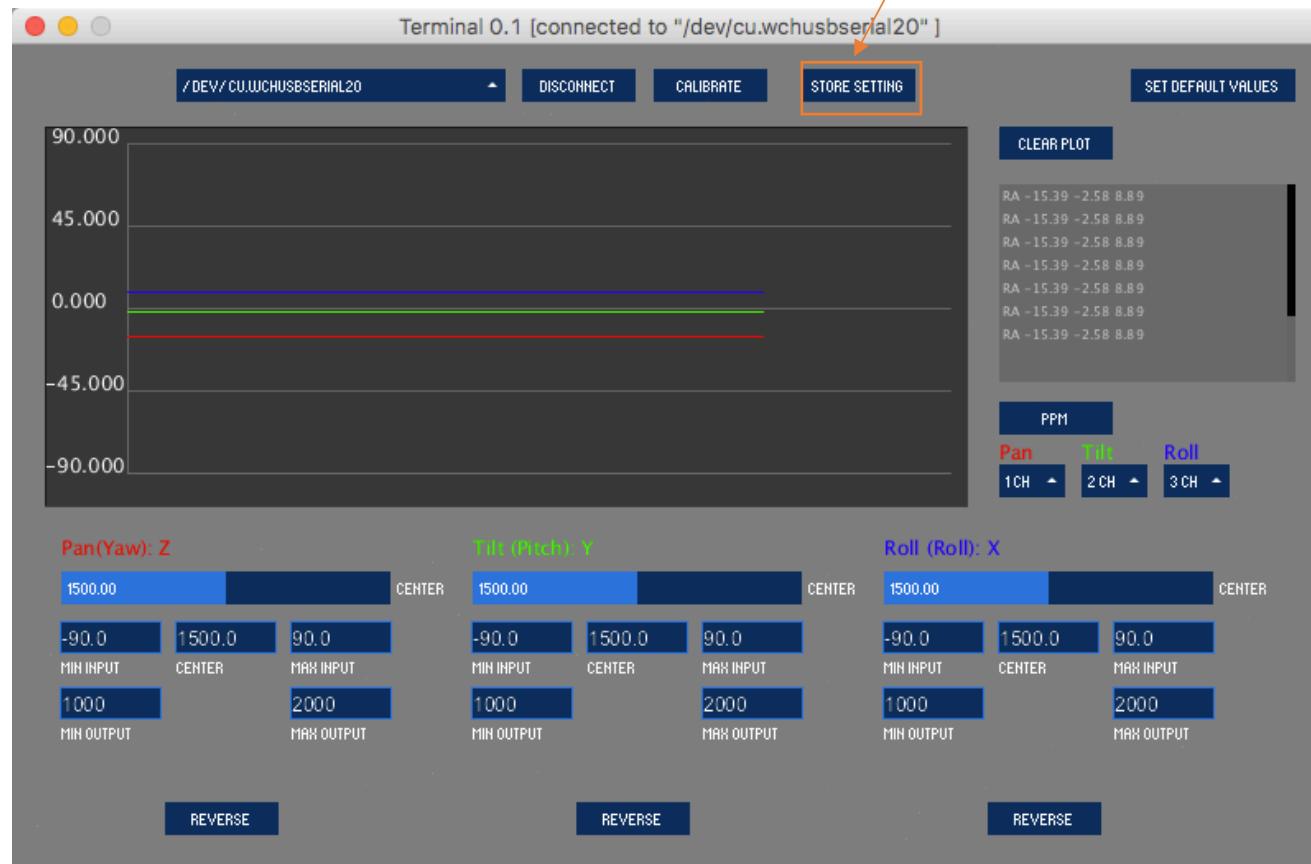
When success to connect to Arduino, Graph automatically starts to show sensor data



Update parameter to Arduino

Click "STORE SETTING" button.

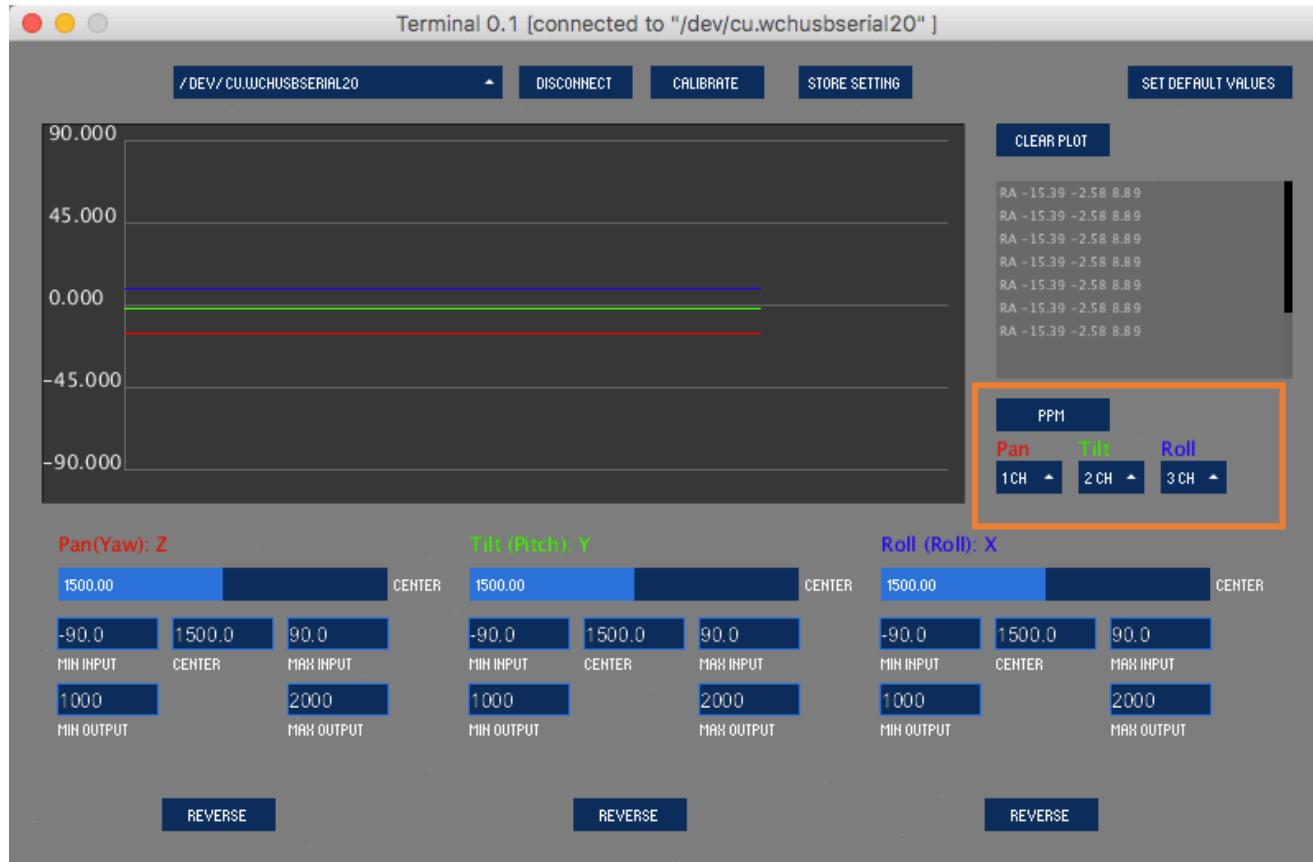
Parameter in Arduino is not changed without pushing this button.



Can change parameters of each parameter.
(Parameters reflect after clicking “STORE SETTING”)

Pan(Yaw): Z			Tilt (Pitch): Y			Roll (Roll): X					
1500.00			1500.00			1500.00					
-90.0	1500.0	90.0	-90.0	1500.0	90.0	-90.0	1500.0	90.0			
MIN INPUT	CENTER	MAX INPUT	MIN INPUT	CENTER	MAX INPUT	MIN INPUT	CENTER	MAX INPUT			
1000			2000			1000			2000		
MIN OUTPUT			MAX OUTPUT			MIN OUTPUT			MAX OUTPUT		
REVERSE			REVERSE			REVERSE					

Changing Default Output Way



PPM
mode

Click PPM button
or
Click PWM button



Bottom channels
are for setting output channel of each axis.

PWM
mode



Bottom channel
is not affected, because PWM out pin is fixed.

When system wakes up, system output signals by selected mode.

By keeping to press reset switch when system wakes up, you can use another mode temporarily.