Gamepad WiFi Open Source

I. File List

Table 1 Gamepad WiFi file list

檔名	內容
Gamepad_WiFi.ino	Main procedure
Options.h	Option file
Sensors.h	Header file of Sensor.cpp
Sensors.cpp	Code for MPU6050 operation
oled.h	OLED header file
oled.cpp	Code for OLED display
wifi.h	WiFi header file
wifi.cpp	Code for WiFi functionalities

Table 1 shows file list of Gamepad_WiFi. The files are categorized based on their functionalities for the sake of readability. The operation of each file is described in the following chapters.

II. Gamepad_WiFi main function

Gamepad_WiFi.ino has two execution modes: CONTROL mode and SSID_SCAN mode.

In setup stage, Gamepad_WiFi enters CONTROL mode. It initializes OLED, WiFi, ADS1115, as well as UDP. Regarding WiFi initialization, Gamepad_WiFi extracts stored SSID from EEPROM, which was wrote in the previous use. If the obtained SSID contains an initial of either "Wright" or "Hover", Gamepad_WiFi uses this SSID to perform WiFi connection; otherwise, it uses the default SSID instead. After entering loop stage, Gamepad_WiFi gets status of the joysticks and the buttons first. If it is in CONTROL mode, it packs the status of the joysticks into a V7RC command and delivers the command to Li-Gyro flight controller. During CONTROL mode, if it is detected that the user pulls the left joystick to the lower left corner and press both of the buttons above Gamepad, Gamepad_WiFi enters SSID_SCAN mode.

In SSID_SCAN mode, Gamepad_WiFi initilzes the related context, and triggers WiFi scan to get surrounding SSIDs. Once WiFi scan has finished, the derived SSIDs are displayed on OLED. Then, Gamepad_WiFi starts to detect if the user pushes the right joystick forward, or

pulls the right joystick backward. When an event is detected, Gamepad_WiFi moves the cursor upward or downward to point to the SSID that the user selects. When Gamepad_WiFi monitors that the user has pressed the button of the right joystick, it writes the selected SSID to EEPROM, and uses the selected SSID to reconnect WiFi. After that, Gamepad_WiFi enters CONTROL mode. The procedure follows as described in the previous paragraph.

III. Options function

It is used to enable/disable LOG mode or OLED functionality.

IV. Sensor function

This file is reserved for MPU6050 handling, which is not implemented currently.

V. OLED display function

OLED display function provides APIs for the main function. The usage of the APIs includes OLED initialization, OLED screen clean, OLED cursor setting, and OLED print.

VI. WiFi function

WiFi function provides APIs for the main function. The usage of the APIS includes WiFi initialization, EEPROM read/write, SSID prefix checking, WiFi scan, and Wifi reconnection.