User Manuel
Cuhead_wifi_shield

Catalogue

Version 1.1

1: Description

This is the shield you need to get Wi-Fi connectivity to your Arduino-based project! This shield provides 802.11b connectivity and is a direct drop-on plug-and-play solution to your Arduino Diecimila/Duemilanove/Uno.

Compatible with Asynclab wifi shield!

2: Shield Feature

- Add-on shield built for Arduino Diecimila, Duemilanove and Uno
  - Dimensions, shape, even color match exactly!
  - True plug-n-play solution
- Uses SPI for host communication (max speed 25MHz)
- All Arduino headers brought out for easy access
- Easy access reset button on-board
- On-board PCB antenna
- Switchable interrupt pin usage between INT0 and digital pin 8
- Switchable LED on digital pin 9
- Switchable CS pin for serial flash between digital pin 10 and digital pin 7[1]

3:Wi-Fi Module Features

- 802.11b Wi-Fi certified
  - 1Mbps and 2Mbps throughput speeds
- Supports both infrastructure (BSS) and ad hoc (IBSS) wireless networks
- Ability to create secured and unsecured networks
  - WEP (64-bit and 128-bit)
  - WPA/WPA2 (TKIP and AES) PSK
- Low power usage
  - Sleep mode: 250μA
  - Transmit: 230mA
  - Receive: 85mA

4：Pin Usage

- SPI
    - ○ Slave select (SS) : Arduino pin 10 (port B, pin 2)
    - ○ Clock (SCK) : Arduino pin 13 (port B, pin 5)
    - ○ Master in, slave out (MISO) : Arduino pin 12 (port B, pin 4)
    - ○ Master out, slave in (MOSI) : Arduino pin 11 (port B, pin 3)
- Interrupt (Uses only one of the following, depending on jumper setting)
    - ○ INT0 : Arduino pin 2 (port D, pin 2)
    - ○ DIG8 : Arduino pin 8 (port B, pin 0)
- LED : Arduino pin 9 (port B, pin 1)
    - ○ To regain use of this pin, remove the LED jumper cap
- 5V power
- GND

If you setup the serial dataflash CS pin to use pin 10, then the WiFi module will **not** be usable. In order to use the dataflash and WiFi concurrently, the dataflash jumper CS pin must be set to pin7.
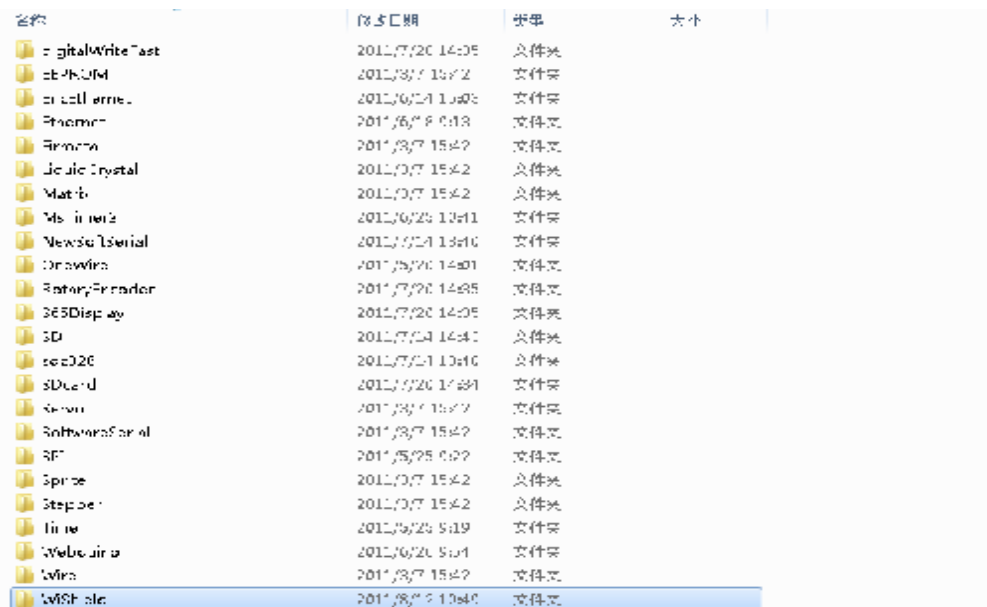
5：Operation Steps

(1)：Hardware

Insert **cupperhead_wifi_shield** to arduino Duemilanove, and connect it to PC.

(2)：Software

a：Open the floder wifi library for arduino in download files. Decompress the WiShield.zip to the folder libraries of the arduino installation files. As following photo shows:

b：Open arduino programming software. There are two samples in File—Examples—WiFiShield. Here choose multi—clients as following photo shows:
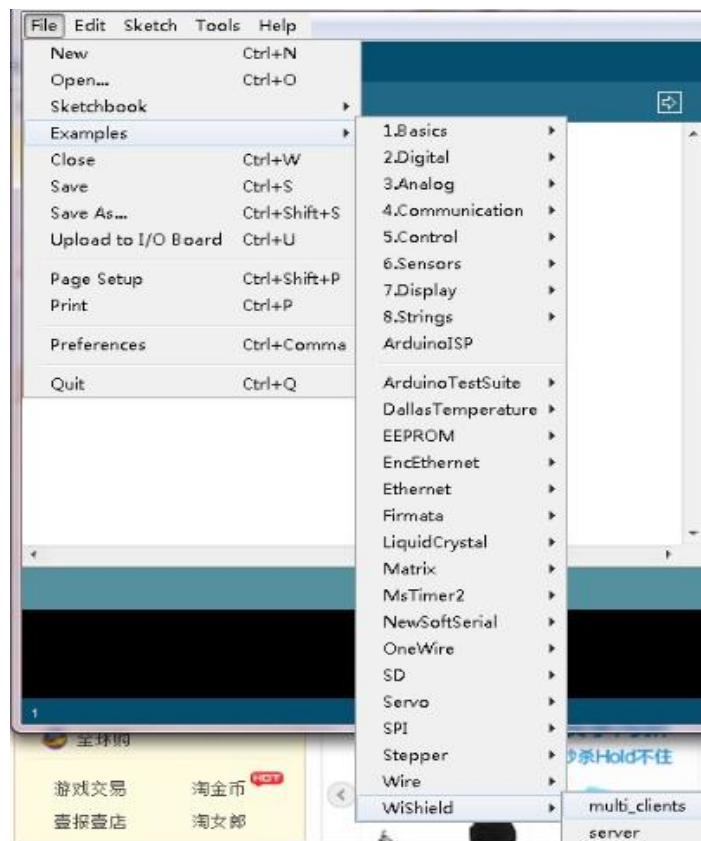
C：Wireless configuration parameters

```
byte local_ip[]      = {192,168,3,178};      // IP address of WiShield
byte gateway_ip[]    = {192,168,3,1};      // router or gateway IP address
byte subnet_mask[] = {255,255,255,0};      // subnet mask for the local network
prog_char ssid[] PROGMEM= {"SOLID"};     // router wireless name

unsigned char security_type = 2;// router wireless encryption type: 0 - open; 1 - WEP; 2 -
WPA; 3 - WPA2

const prog_char security_passphrase[] PROGMEM = {"wxst2010"};// router wireless
 password of
WPA type.

prog_uchar wep_keys[] PROGMEM = {
  0x01, 0x02, 0x03, 0x04, 0x05, 0x06, 0x07, 0x08, 0x09, 0x0a, 0x0b, 0x0c, 0x0d,      //
 Key 0
  0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,      //
 Key 1
  0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,      //
```

Key 2
  0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00 // Key 3
};   // router wireless password of WEPtype.

After change the codes to your own ones, burn them into the Arduino. When the Wifi is
  connected to router wireless, the light WIFI_on turns on.
In this case, Wifi can communicate with external devices, for example: use STMP protocol
  to send Emails.