

User Manuel for Cuhead\_wifi\_shield

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## 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
  - o 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<sup>[1]</sup>

### **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
  - o WEP (64-bit and 128-bit)
  - WPA/WPA2 (TKIP and AES) PSK
- Low power usage
  - o Sleep mode: 250µA
  - o 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)
  - o Master in, slave out (MISO) : Arduino pin 12 (port B, pin 4)
  - o Master out, slave in (MOSI) : Arduino pin 11 (port B, pin 3)
- Interrupt (Uses only one of the following, depending on jumper setting)
  - o INT0 : Arduino pin 2 (port D, pin 2)
  - o 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.

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#### (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:

名称	13 5 日 8月	世界	大小
🌗 = gitalWriteTast	2011/7/20 14:05	以件来	
👅 EEPKOM	2011/3/7 157/2	文件来	
🍑 or coll armet	2011/0/14 15:03	文件来	
🎍 Phomet	2011/6/18 0313	文件网	
🍑 Errocto	2011/3/7 15:42	文件文	
🌽 Liquiq Irystal	2011/0/7 15:42	以件来	
퉬 Matrix	2011/0/7 15:42	以件 <del>来</del>	
🍑 Ms inner2	2011/0/25 19#11	文件来	
퉬 Newsig Islerial	2011/7/14 13:40	文件来	
퉬 Onewire	7011/5/76 14:01	文件文	
🍑 BataryEricador	2011/7/2014:85	文件网	
🍑 365Disp ay	2011/7/2014:05	文件来	
🍒 3D	2011/7/14 14:40	以件来	
🍑 se 2020	2011/7/14 10:40	文件来	
퉬 SDcard	2011/7/2017/84	文件来	
🔚 Keron	2 <b>011 /</b> 3/10 1527	文件集	
퉬 SoftwareSer al	2011/3/7 15:42	文件网	
	2011/5/25-092	文件网	
퉬 Sprite	2011/0/7 15:42	以件来	
퉬 Stepper	2011/0/7 15:42	文件来	
퉬 tirne	2011/5/25 5:19	文件来	
🍑 Webcuir o	2011/0/20 5:54	文件来	
🕛 Wire	2011/3/7 15:42	文件文	
🎍 WiSheld	2011/8/12 10:40	文件文	

b: Open arduino programming software. There are two samples in

File—Examples—WiFiShield. Here choose multi—clients as following photo shows:

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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, // Key 1 0x00, //

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Key 2

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.