

Clyde + Arduino WiFi Shield

Monday, September 15, 2014

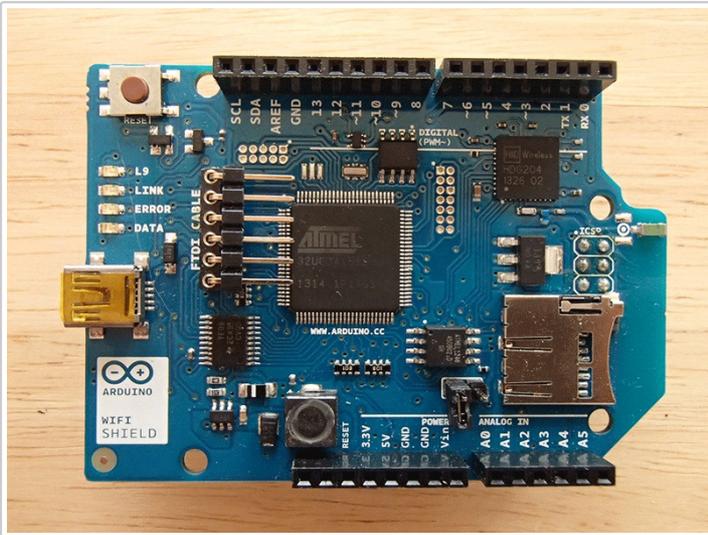
This article is the third in an ongoing series about connecting Clyde to other devices. We will cover several WiFi, Bluetooth and ZigBee shields.

Overview

Arduino WiFi Shield

\$89.34 USD, <http://store.arduino.cc/product/A000058>

Arduino's WiFi Shield is a simple way to add WiFi to Clyde. Wirelessly connect Clyde to the internet by following these simple instructions.



Clyde is currently sold out, but the next improved litter is on the way!

PRE-ORDER CLYDE V2 FROM \$135

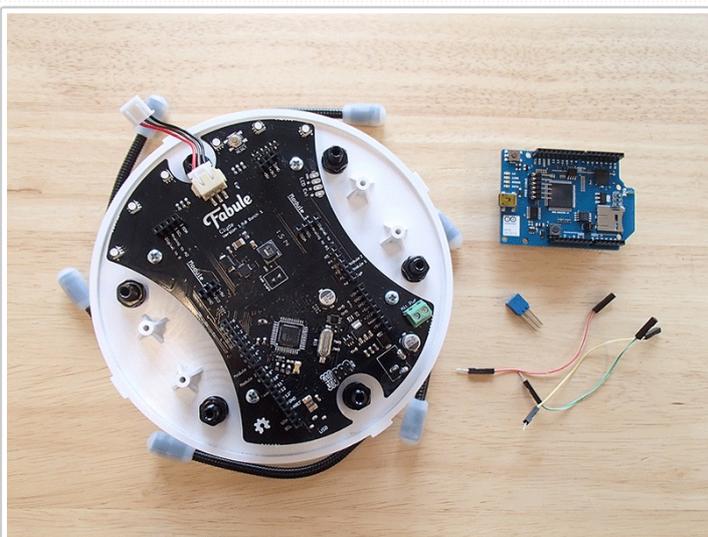
[Learn more about Clyde](#)

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Hardware



What you'll need

Clyde

Arduino WiFi Shield, <http://store.arduino.cc/product/A000058>

2x3 stackable header, like this: <http://www.adafruit.com/products/85>

3 male-to-female jumper cables, like this:

<http://www.adafruit.com/products/1954>

Tags: 802.11b/g, wireless, shields, wifi

Categories: Connectivity Shields

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[Clyde + Seeed Studio RN171 WiFi Shi...](#)

[Clyde + Sparkfun WiFly Shield](#)

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Connect Clyde to Arduino WiFi Shield

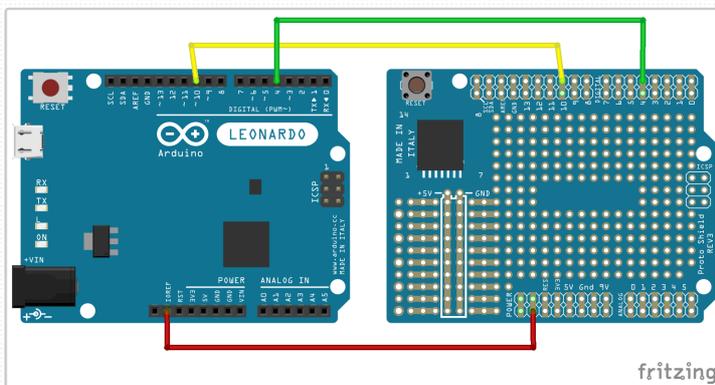
Arduino WiFi Shield communicates over SPI. On Clyde the SPI are through ICSP headers pins. Unfortunately, the shield does not fit in Clyde's head if place on the board's pinout. And even if it did, Clyde has a non-standard ICSP pinout placement. Clyde's ICSP header pin is further inset and rotated 180 degrees. So you'll have to use a few jumper wires and an extra 2x3 header pin to make the necessary connections.

First, connect the header pins between Clyde and the Arduino WiFi Shield using the male-to-female jumper wires. Here are the mappings.

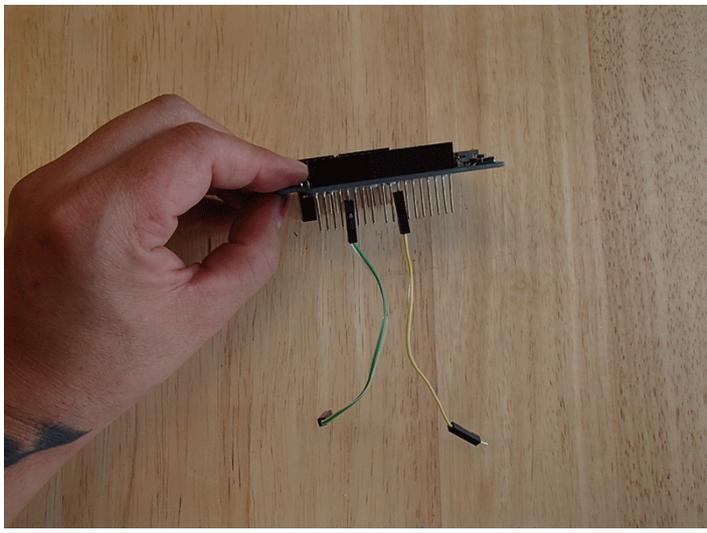
Clyde	Arduino WiFi Shield
5v+	IOREF (not labelled, it is beside RESET)
D4	D4
D10	D10

We have included a diagram we created with [Fritzing](#), a free simple electronics documentation software, to help demonstrate the connections. Clyde is not a Fritzing part, so we use a Leonardo in its place. The Arduino WiFi Shield also not a Fritzing part, so we use an Arduino Prototyping Shield. We have selected the Leonardo part and the Arduino Prototyping Shield part because they have the same layout as Clyde and Arduino WiFi Shield respectively, and can therefore demonstrate the necessary connections between the two. There is one exception, this diagram does not illustrate the connections between the ICSP pins. We will show that connection in images.

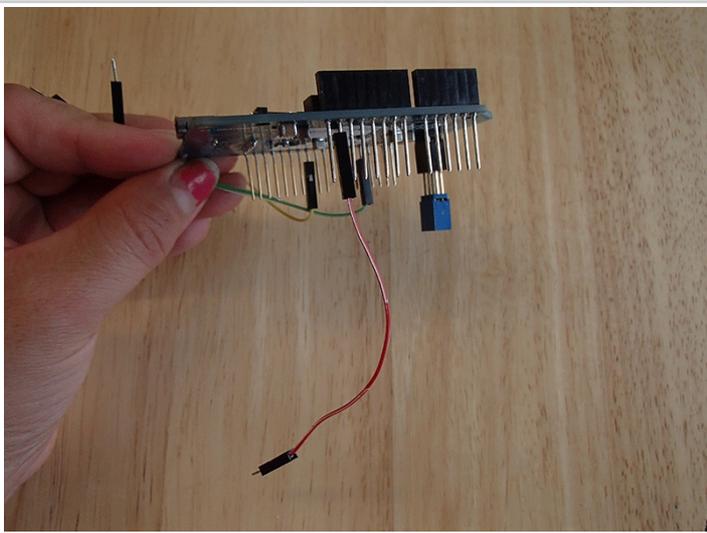
Clyde/Leonardo + Arduino WiFi Shield/Arduino Prototyping Shield Breadboard Diagram



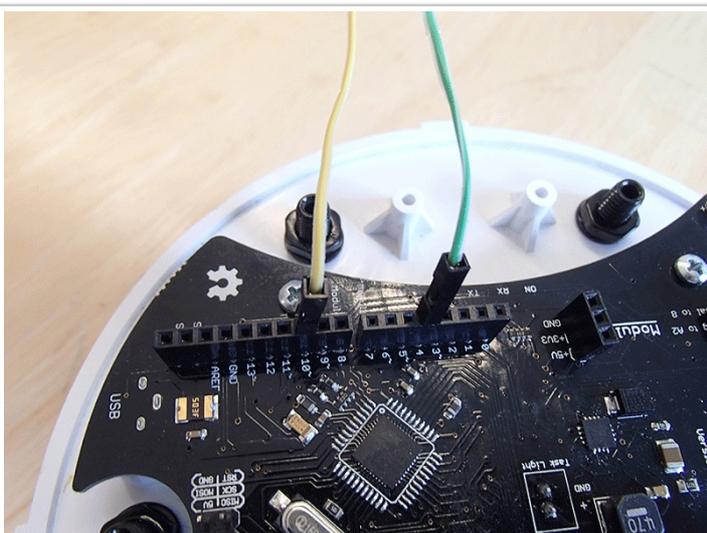
Connect jumper wires to shield's digital pins 4 and 10.



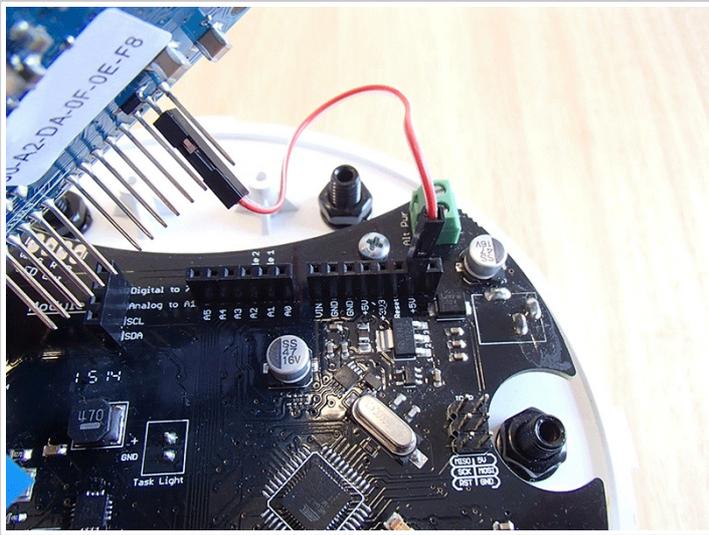
Connect a jumper wire to IOREF. It is not labelled, it is the one beside the RESET header. Connect the 2x3 header.



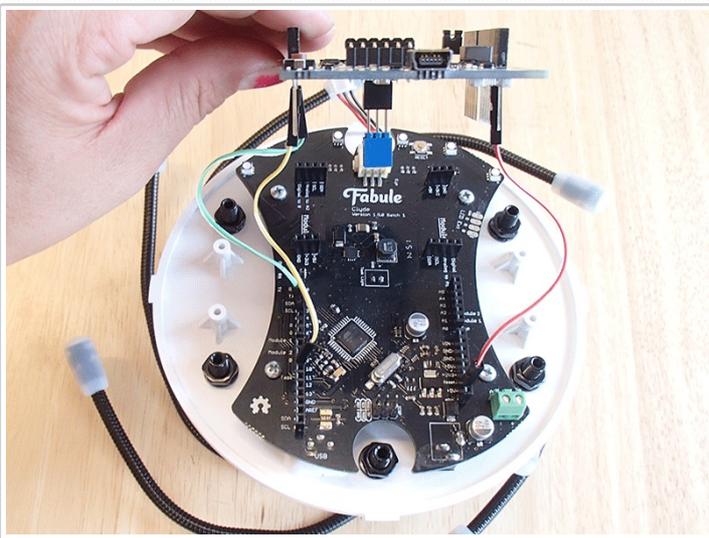
Connect digital pin jumper wires to Clyde's digital pins 4 and 10.



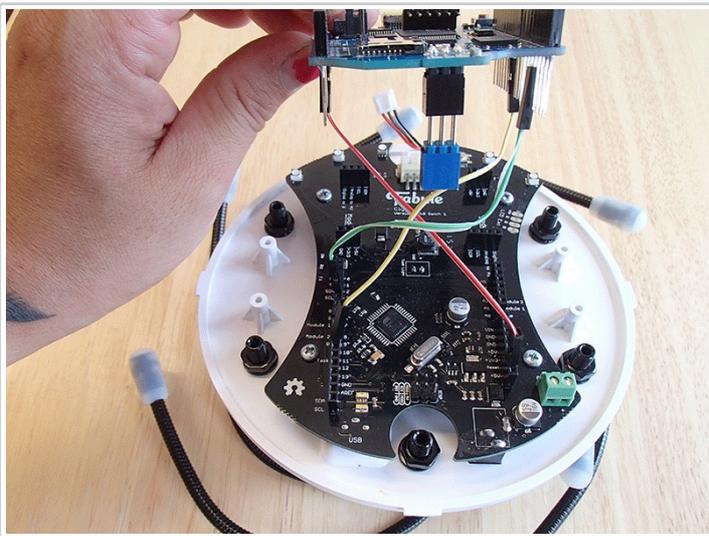
Connect IOREF jumper wire to Clyde's +5v.



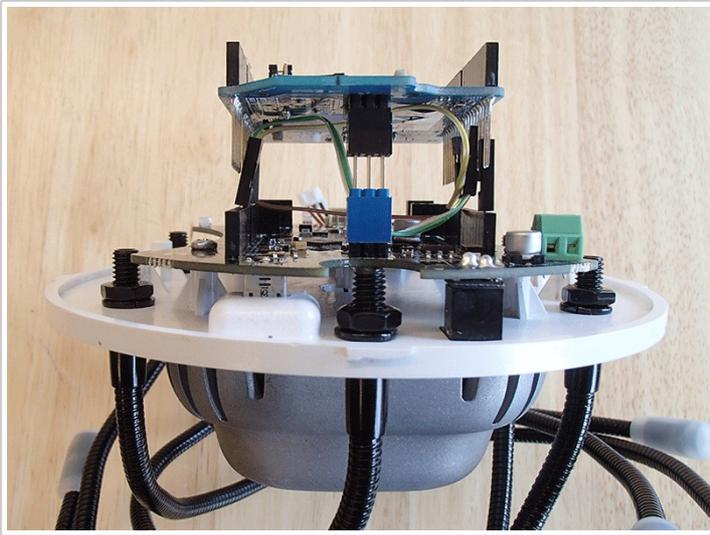
Once all the jumper wires are connected we are ready to connect the ICSP. On Clyde the ICSP connector is flipped. The pinouts are printed on the board alongside the ICSP connector. So we will have to turn the shield 180 degrees so that the wires are crossed.



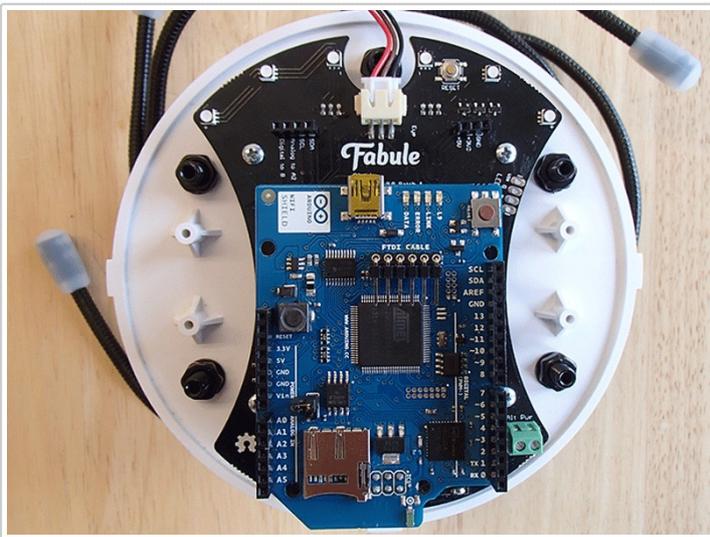
Turn the shield 180 degrees so the jumper wires are crossed.



Plug the 2x3 header pin into Clyde's ICSP pins.



Hardware setup is complete. Now you are ready to move onto the software.



Software

Now for the code. Arduino IDE comes with a WiFi Library that works with the Arduino WiFi Shield and Clyde without modification. The WiFi library provides example sketches to test the connection to your WiFi network. The examples are simple programs that connect an Arduino, or Arduino compatible board like Clyde, to your WiFi network and then prints some network details to the Serial Monitor. There are examples for each type of network encryption. Choose the one that matches your WiFi network. We will use ConnectWithWPA in this example.

To open the sketch, in Arduino IDE go to:
File > Examples > WiFi > ConnectWithWPA
Library examples are read-only, so save yourself a copy:
File > Save As > ConnectWithWPAClyde

Change the WiFi network credentials.

Set the following variables for your own WiFi network:

```
char ssid[] = "yourNetwork"; // your network SSID (name)
char pass[] = "secretPassword"; // your network password
```

Upload the sketch to Clyde. Open the Serial Monitor and you should see some output. If it was successful it will say "You're connected to the network" followed by network information. If you are having problems, take a look at [Getting Started with Arduino WiFi Shield](#) or start a discussion on our [forum](#).

Links

Purchase: <http://store.arduino.cc/product/A000058>

Arduino WiFi Shield Product Page:

<http://arduino.cc/en/Main/ArduinoWiFiShield>

Getting Started with Arduino WiFi Shield:

<http://arduino.cc/en/Guide/ArduinoWiFiShield>

WiFi Library Reference: <http://arduino.cc/en/Reference/WiFi>

WiFi Shield Firmware and Library at GitHub:

<https://github.com/arduino/wifishield>



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