

Cloud Wiring Handout

Electronics Assembly Part 1: Building the Pro Mini Circuit

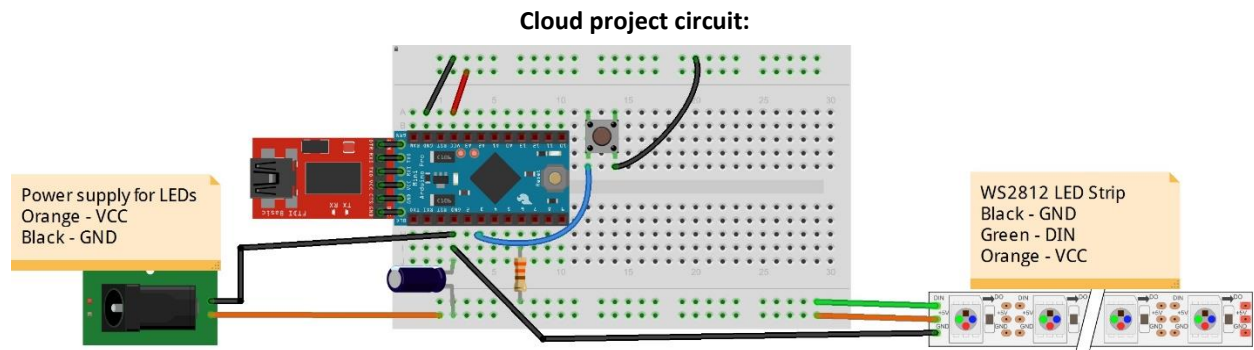


Table 1: Breadboard connection pins.

Component	Breadboard	
pushbutton	j17 (to Pro Mini pin 3)	g15 (GND)
resistor	a22 (Pro Mini pin 6)	Bottom - (LED Strip DIN)
capacitor	a27 (Pro Mini GND pin)	Bottom + (LED VCC)
jumper wire	Top - (GND)	i29 (Pro Mini GND pin)
jumper wire	Top +	i27 (Pro Mini VCC pin)
jumper wire	b25 (Pro Mini pin 3)	f15 (button)
jumper wire	f13 (button)	Top - (GND)
wire	b27 (Pro Mini GND pin)	Ground of barrel jack
wire	Bottom + (LED VCC)	VCC of barrel jack
wire	c27 (Pro Mini/LED power GND pin)	Yellow wire on LED strip (LED GND)
wire	Bottom - (to Pro Mini pin 6)	Green wire on LED strip (DIN)
wire	Bottom + (LED power VCC)	Red wire on LED strip (LED VCC)

Power the Pro Mini

Solder the right-angle male headers to the Pro Mini so that you can connect it to the FTDI Basic. Then, connect the USB cord to a computer or a USB wall charger.

Electronics Assembly Part 2: Adding the Internet-Connected Portion

The circuit to connect the cloud to the Internet:

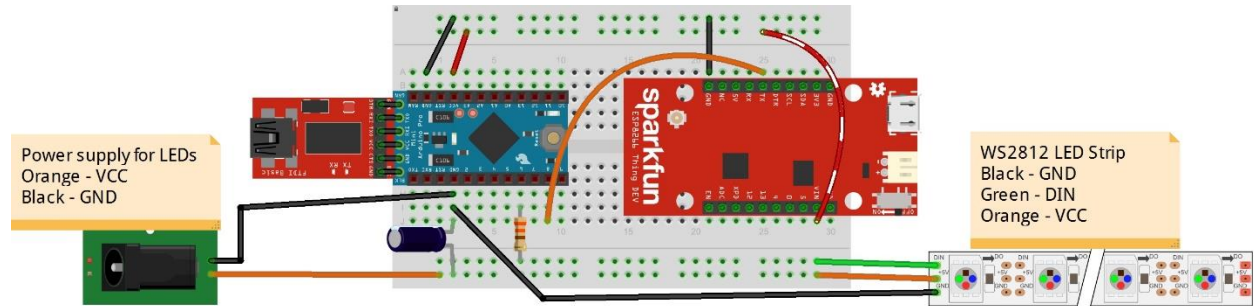


Table 2: Breadboard connection pins.

Component	Breadboard	
resistor	a22 (Pro Mini pin 6)	Bottom - (LED strip DIN)
capacitor	a27 (Pro Mini GND pin)	Bottom + (LED VCC)
jumper wire	Top - (GND)	i29 (Pro Mini GND pin)
jumper wire	Top + (Board VCC)	i27 (Pro Mini VCC pin)
jumper wire	b25 (Pro Mini pin 3)	f15 (button)
jumper wire	f13 (button)	Top - (GND)
jumper wire	a20 (Pro Mini pin 8)	j7 (SparkFun Thing pin TX)
jumper wire	j10 (SparkFun Thing GND pin)	Top - (GND)
jumper wire	a2 (SparkFun Thing VIN pin)	Top + (Board VCC)
wire	b27 (Pro Mini GND pin)	Ground of barrel jack
wire	Bottom + (LED VCC)	VCC of barrel jack
wire	c27 (Pro Mini/LED power GND pin)	Yellow wire on LED strip (LED GND)
wire	Bottom - (to Pro Mini pin 6)	Green wire on LED strip (DIN)
wire	Bottom + (LED power VCC)	Red wire on LED strip (LED VCC)

Connect the Thing Board to the Breadboard

Solder the female headers to where the Thing board will sit on the breadboard.

Also solder the male headers to the Thing Board.

Blynk Setup

1. Download the Blynk app onto a smart device.
2. Create an account. Go to “create new project.” Name your project. Set hardware to “ESP8266” and email (or copy) the provided authentication token, which you will need to paste into the SparkFun Thing code.

Authentication token: _____

3. In the project you just created, you will add three LED light widgets, three button widgets, one ZERGBA widget and one LCD widget.
4. To get these things onto the project board: Touch the screen to make the left side show you items that can be placed. Drag them over to wherever you’d like. Once placed on the board, click on them to assign them pins. Assign all of the widgets to virtual pins, referring to Table 3.


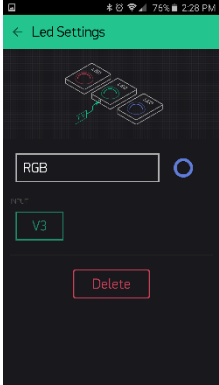
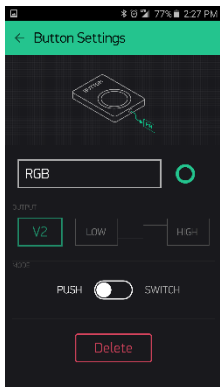
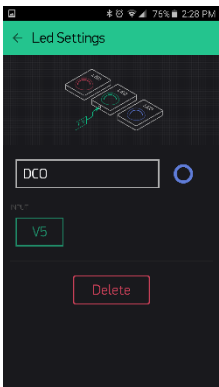
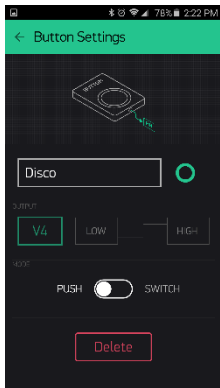
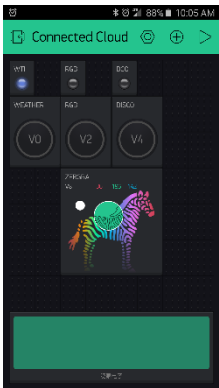
Table 3: Widget pin assignments.

Widget	Pin
weather button	V0
weather indicator LED	V1
RGB button	V2
RGB indicator LED	V3
disco button	V4
disco indicator LED	V5
ZERGBRA	V8
LCD screen	V9

5. For additional help, refer to the **step-by-step photo guide**, starting on the next page.

Step-by-Step Photo Guide for Blynk Setup

<p>1. Log into Blynk or create a new account.</p>	<p>2. Create a new project.</p>
<p>3. Set hardware to “ESP8266” and copy authorization token.</p>	<p>4. Create a new project.</p>
<p>5. Swipe to the left to get the widget box menu to pick new widgets. From here, scroll down to pick LCD.</p>	<p>6. After selecting LCD, it appears on the project board. To attach it to a pin and change its setting, click on it.</p> <p>Set the pin to V9.</p>
<p>7. Repeat the process of selecting widgets for the remaining components. Match up the pins with the component, as with pin V8 and ZERGBA.</p>	<p>8. Set a weather Indicator LED to pin V1.</p>

<p>9. Set the weather button to pin V0.</p> 	<p>10. Set the RGB Indicator LED to pin V3.</p> 
<p>11. Set the RGB button to pin V2.</p> 	<p>12. Set the Disco LED to pin V5.</p> 
<p>13. Set the Disco button to pin V4.</p> 	<p>After creating all the LEDs, buttons, the ZERGBA, and the LCD, and assigning them to the correct virtual pins, arrange them to look like this.</p> <p>All widgets are finalized and the Blynk project is ready!</p> 

SparkFun Thing Code

ESP8266 Thing Hookup Guide: <https://learn.sparkfun.com/tutorials/esp8266-thing-hookup-guide/installing-the-esp8266-arduino-addon>

Download:

1. GitHub libraries for Blynk: <https://github.com/blynkkk/blynk-library>
2. Neo-Pixel library: https://github.com/adafruit/Adafruit_NeoPixel
3. GitHub Cloud Repository: https://github.com/sparkfun/IoT_CloudCloud