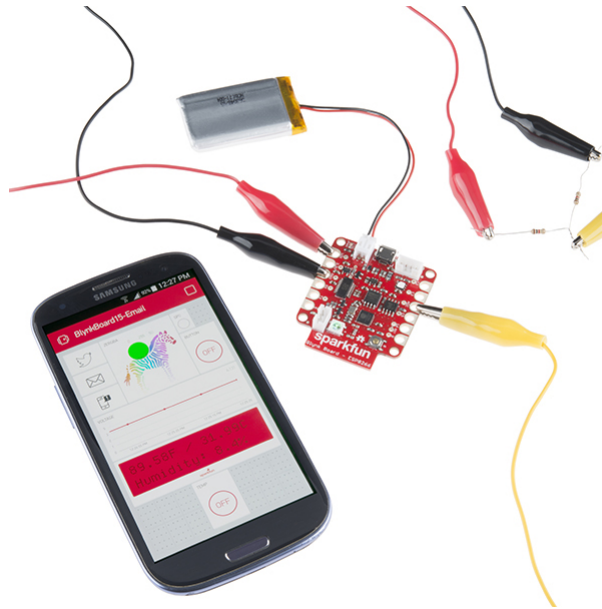


# Getting Started with the SparkFun Blynk Board

## Introduction

The SparkFun Blynk Board – ESP8266 is your hardware gateway to the app-controlled wonderland that is Blynk. Combining the Blynk Board with the Blynk app (on your iOS or Android device), will allow you to control LEDs from your phone, send a tweet when it's time to water your plants, monitor local weather conditions, and much more!



SparkFun 3-25-16 Product Showcase: Blynk Board and Silly Strin...

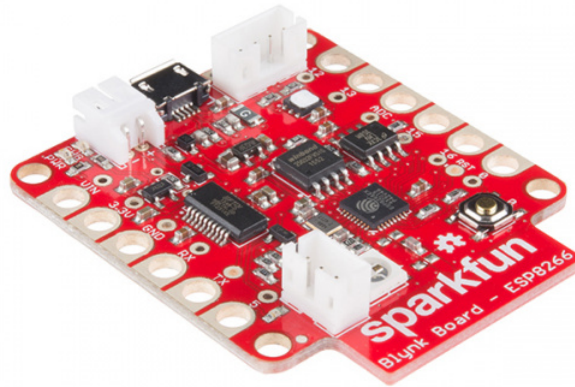


This tutorial will explain how to get your Blynk Board connected to a local Wi-Fi network -- in a process called **provisioning** -- *and* connected to a **project within the Blynk app**. Once you've completed the tutorial, you'll have already created your first project: a zebra-controlled multicolored LED (it'll make sense when you see it).

## Gather the Gear

To follow along with this tutorial, you'll need the following physical and digital goods:

**SparkFun Blynk Board -- ESP8266** -- The Blynk Board comes fully programmed -- ready to start Blynking. All you need to do is connect it to Wi-Fi and your Blynk account. You can obtain the Blynk board individually or from the IoT Starter Kit.



## SparkFun Blynk Board - ESP8266

📍 WRL-13794



## SparkFun IoT Starter Kit with Blynk Board

The Blynk Board also includes a **Blynk Subscription code card**, which you'll need to connect the Blynk Board to your Blynk account (and to charge it up!).

**Micro-B USB Cable** -- The Blynk Board can be powered via a USB cable connected on the other end to either a computer, laptop, or USB wall adapter.



Wall Adapter Power Supply - 5V DC 2A (USB Micro-B)

Ⓢ TOL-12890



USB micro-B Cable - 6 Foot

Ⓢ CAB-10215



USB Wall Charger - 5V, 1A (Black)

Ⓢ TOL-11456



USB Micro-B Cable - 6"

Ⓢ CAB-13244

### Powering the Blynk Board with Lithium-Polymer Batteries

The Blynk Board is equipped with LiPo battery support for truly wireless Blynking. The 2-pin, white JST connector adjacent to the USB port, mates with a variety of SparkFun LiPo batteries. The batteries are available in a range of capacities, but we recommend either the 400mAh, 850mAh, or 1000mAh varieties.

A USB cable is still recommended – it's used to **charge the battery**. But once you find a Blynk project that requires your board not be tied down to a wall or computer, definitely consider equipping it with a battery.

**Blynk App** -- The Blynk smartphone app comes in two flavors: iOS and Android. Before going any further, download the app to your smart device:



The Blynk app is compatible with iDevices running iOS 7.0+, and Android's running any version above or equal to 4.0.

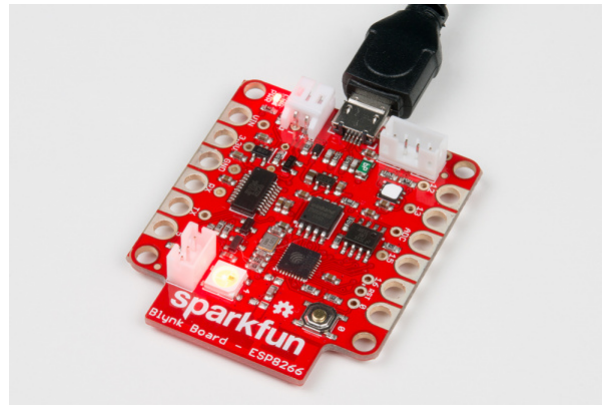
**Local Internet-Connected Wireless (Wi-Fi) Network** -- The Blynk Board is equipped with Wi-Fi support, and should be able to connect to most home wireless networks: **2.4GHz** Wi-Fi networks, that are either open (no password) or protected with WPA, WPA-2, or WEP authentication.



Note that the Blynk Board cannot connect the 5GHz band of a dual-band Wi-Fi router. If your Wi-Fi router has two visible options, like HOME-AB12-2.4 and HOME-AB12-5, connect the Blynk Board to the "2.4" option.

## Powering Up the Blynk Board

Once you've gathered all of the materials from above, it's time to power up the Blynk Board! Grab your **USB Cable**, plug one end into a computer or USB wall adapter, and plug the other into the Blynk Board.



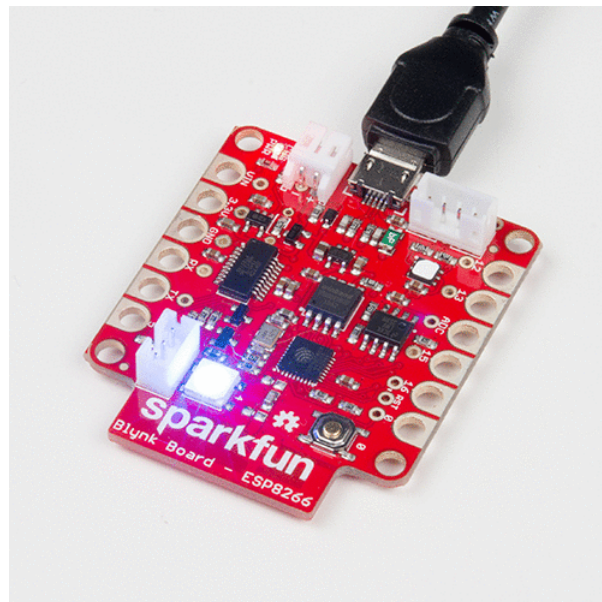
*Blynk Board plugged in, PWR LED (in the upper-left of this image) is illuminated*

You should immediately see the small, **red "PWR" LED** illuminate, followed shortly thereafter by a random-looking blinking of the large, RGB LED.

## Identifying Your Blynk Board

While the Blynk Board's RGB blinking may look random at first, it will follow a repeating pattern -- a unique **sequence of four colors** including either red, green, blue, purple, or yellow, with a long stop in between. This color-code will help identify your board, just in case you're not the only one in town setting up a Blynk Board.

**Four characters matching that color code** will be added to the name of your Blynk Board. For example, if the RGB LED is blinking a pattern of blue, green, red, green..



...the Blynk Board name will be **BlynkMe-BGRG**.

The table below documents which color matches which character.

Color	Blynk Name Character
Red	R
Green	G
Blue	B

Purple	P
Yellow	Y

That's not all the RGB LED does though!

## RGB Status Codes

During setup, the RGB LED on the Blynk Board will be your window into its soul. The board uses this multi-colored LED to indicate all sorts of status modes. If you're ever unclear of what the RGB color-code means, consult the table below:

RGB Color	Blink Speed	Status	Notes
Purple ●	Medium (2Hz)	Device connected to Blynk Board	Verifies that your phone (or possibly someone else's) is connected to the Blynk Board.
Blue ●	Fast (4Hz)	Connecting to Wi-Fi network	After sending it the info, the Blynk Board will attempt to connect to your Wi-Fi network for up to 30 seconds.
Blynk Green ●	Slow (1Hz)	Connecting to Blynk Cloud	After connecting to your Wi-Fi network, the Blynk Board will establish a connection with the Blynk server.
Blynk Green ●	Smoothly fading in/out	Connected to Blynk	After successfully connecting to Wi-Fi and Blynk, this is the sign that everything is working! The LED will continue to "breathe" until you tell it to do something else.
Yellow ●	Slow (1Hz)	Re-connecting to Blynk	Connection issues should resolve themselves, but the Blynk board will likely be unresponsive while blinking yellow. If it continues to Blynk yellow for over a minute, try cycling power to the Blynk Board.
White ●	Medium (2Hz)	Blynk Board waiting for config	If your Blynk Board was unable to connect to either Wi-Fi or Blynk, it'll sit in this mode – waiting for you to press a button. More on this in the Reconfiguring a Blynk Board section

## Provisioning the Blynk Board

In order to connect the Blynk Board to your local Wi-Fi network -- and the Blynk app -- you'll need to send it a few pieces of information, including the **name and password** of your Wi-Fi network. This is a process called provisioning.

Provisioning?

In the provisioning process, we'll use a smartphone, laptop, or computer to connect to directly (over Wi-Fi) to the Blynk Board. Once connected, your smart-device will send the necessary data and tell the Blynk Board to go connect to your Internet-connected wireless network and Blynk.

The Blynk Board is initially configured to operate as a **Wi-Fi access point** (abbreviated "AP", kind of like a router). A smartphone or Wi-Fi-enabled computer can briefly connect to the Blynk Board, and, using either the Blynk app or a browser, send all of the necessary information over to it. After the Blynk Board receives that info, it'll transition from AP to Wi-Fi device and connect to your Wi-Fi network.

## Blynk QR-Code Card

The Blynk Board has plenty of backup provisioning options, but the easiest method is through the Blynk app. Both iOS and Android versions of the Blynk app support Blynk Board provisioning. All you'll need is the **Blynk QR-Code Card**, included with your Blynk Board.



## Getting Started with The SparkFun Blynk Board!



Don't Throw Away Your Blynk QR-Code Card!

Although you'll only be able to benefit from the 15,000 energy points once, the QR-Code card can be used to **re-provision** your Blynk Board, should the need ever arise. We recommend you keep it hand, for now, just in case!

## Provisioning on a Smartphone (or Tablet)

The setup process in each OS looks and feels a little different. **Select one of the sections below** to get directions for your phone (or tablet) OS.

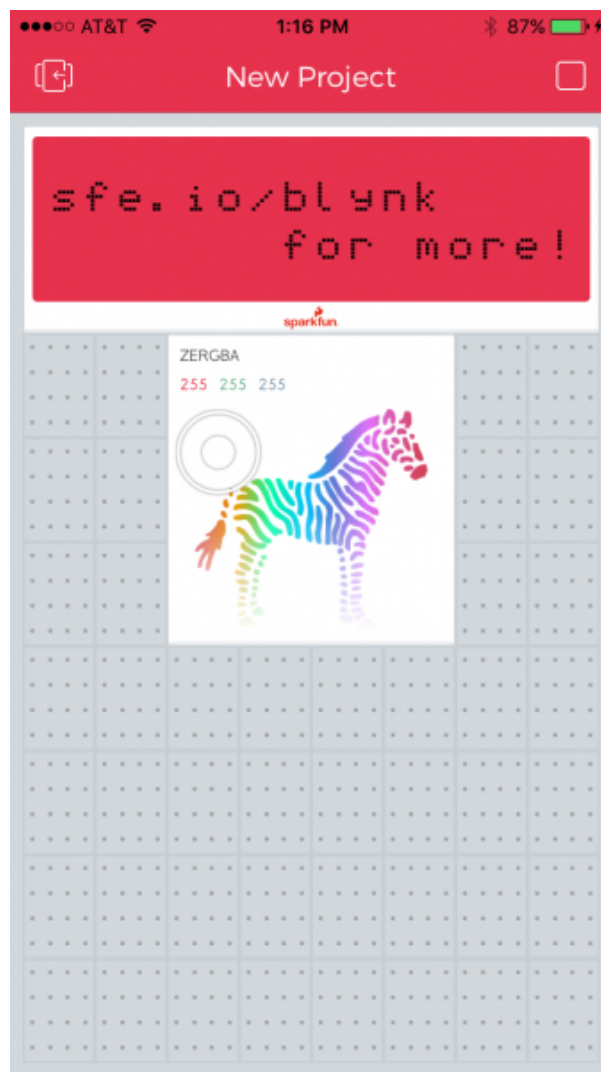
IOS PROVISIONING

ANDROID PROVISIONING

## Do the zeRGBa

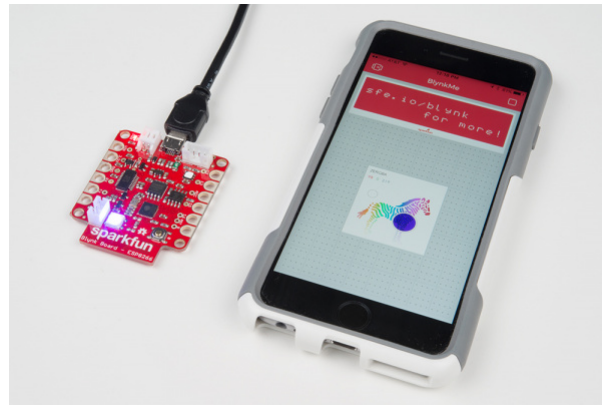
Once you've connected the Blynk Board to a local Wi-Fi network -- and connected it to your Blynk account -- the Blynk app should present you with a nearly blank canvas of a Blynk project.

You should be greeted by a festively colored zebra -- the **zeRGBa** -- and an **LCD widget** with a rather helpful link.



Your first Blynk project should be all set up to communicate with the Blynk Board. It should also already be running, meaning it's play time! **Poke and prod the zeRGBa** to select a new color -- you should quickly see a physical manifestation of that color on the Blynk Board.



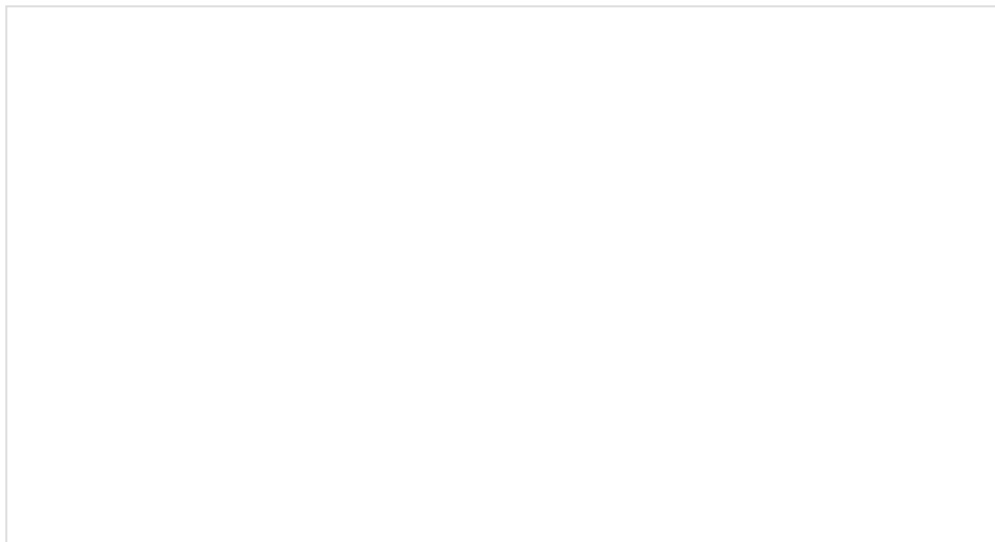


If your zeRGBa isn't making LEDs blink, first **make sure the project is running**. The icon in the upper-right corner of the app should be a square **"stop"** button. If it's a triangular **"play"** button, tap that to run the project.

**Caution:** As tempting as it may be to perform a hypnotic light show, dragging your finger along the zeRGBa may cause the Blynk Board and Blynk App to occasionally "lag out." If the Blynk Board is slow to update the RGB's color, wait a couple seconds for it to re-connect.

To avoid this occasional connection-drop, try "poking" at your zeRGBa color of choice.

**Congratulations! You're well on-your-way to being a professional Blynker. From here we recommend you visit the Blynk Board Project Guide to explore over a dozen Blynk projects built into the Blynk Board.**

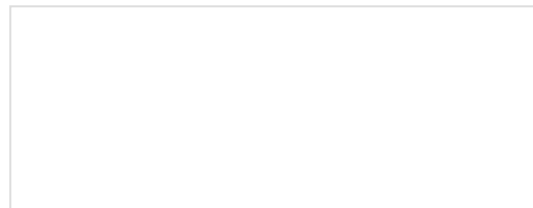
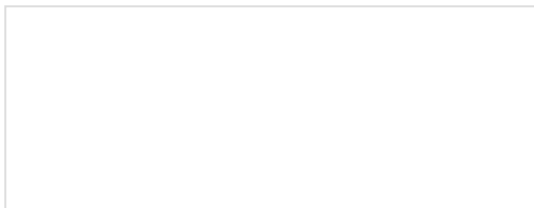


## Blynk Board Project Guide

MARCH 25, 2016

A series of Blynk projects you can set up on the Blynk Board without ever re-programming it.

Or, you may want to check out some of these other Blynk-related tutorials:



### Blynk Board Bridge Widget Demo

A Blynk project that demonstrates how to use the Bridge widget to get two (or more) Blynk Boards to communicate.

### Blynk Board Arduino Development Guide

How to get your computer set up with Arduino and the Blynk Board hardware definitions -- so you can start creating Blynk projects of your own!

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## Troubleshooting

If, for any reason, you can't successfully provision the Blynk Board through the Blynk app, you have a few alternatives. But first, you'll need to **create a new Blynk project**.

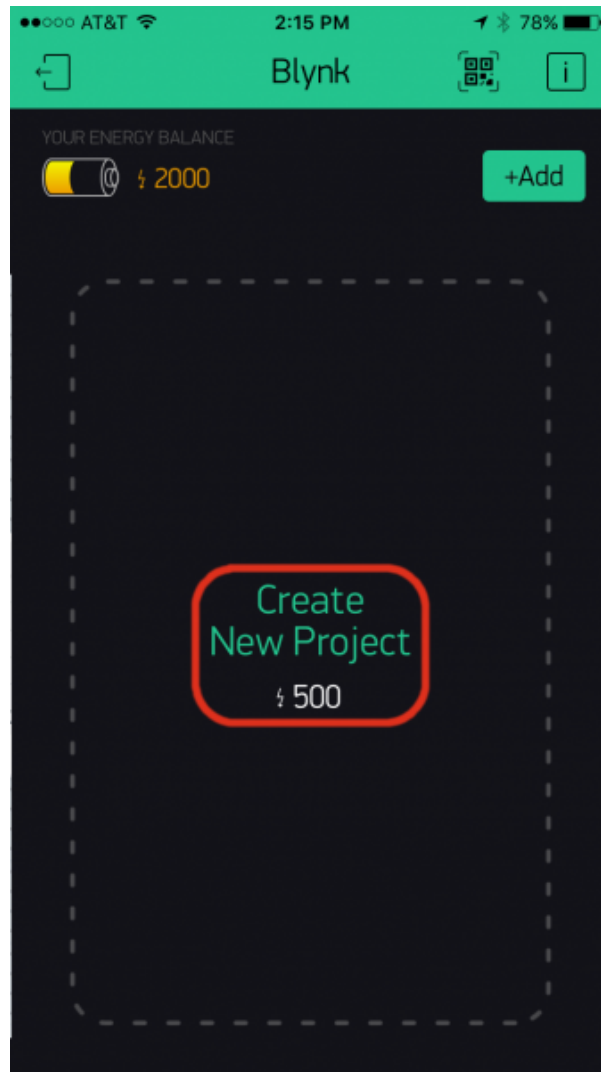
### Creating a Blynk Project

Each of the alternative provisioning methods below will require a Blynk project to be previously created. The new Blynk project will be assigned a **Blynk auth token** -- a 32-character, unique string, which connects the Blynk Board to your Blynk project. That's what we're after in this process.

Follow these steps to create a new Blynk project and get a new auth token:

#### Step 1: Create a Blynk Project

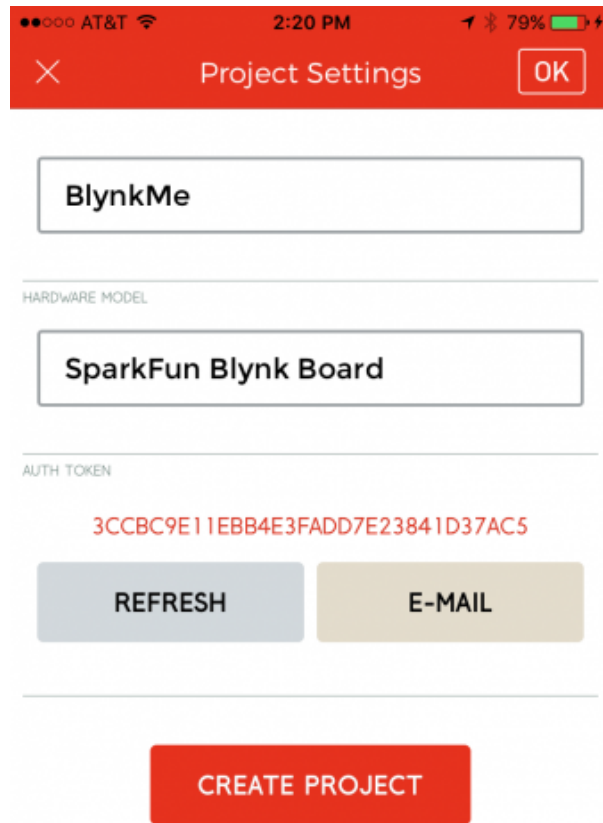
Open the Blynk app, and log in if you haven't. Make sure your phone is connected to an Internet-connected Wi-Fi network. On the Blynk main page, select **Create new project**.



*Create a new Blynk Project by tapping "Create New Project" on the Blynk main page.*

## Step 2: Configure the Blynk Project

On the next page, select **SparkFun Blynk Board** under the "Hardware Model" list. You can give the project any name you please -- the provisioning process sets it to "BlynkMe".

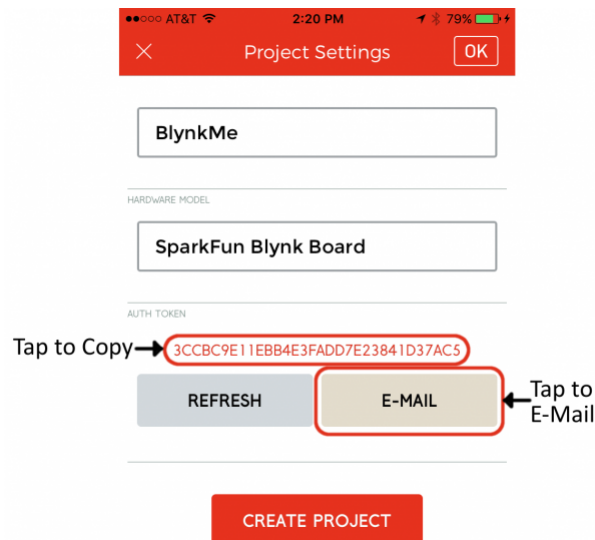


*Configure a new project: name it, and set the board type to "SparkFun Blynk Board."*

**Do not** hit Create Project yet!

Step 3: Email and Copy the Auth Token

Depending on which alternative provisioning option you choose, you'll either need the auth token copied to your phone's clipboard, or sitting in your email inbox. Might as well do both while we're here!



Tap the **E-Mail button** to send the auth token to your Blynk-connected email account. Then **tap the Auth token itself** to copy the string to your phone's clipboard. The phone should pop up a notification confirming that the token was copied.

#### Step 4: Create Project

Finally, with the token emailed and copied, click **Create** or **Create Project**. You should be brought to a new, blank project -- perfect for now!

#### Alternative Provisioning

There are a few options available for alternatively provisioning the Blynk board. In order of our recommendation, you can:

1. Connect the Blynk Board to Wi-Fi/Blynk using a laptop or Wi-Fi-enabled computer.
2. Configure the Blynk Board through a serial terminal on a computer connected over USB to the Blynk Board.
3. Creatively use copy/paste, and app-switching on your smartphone to provision the Blynk Board.

Click one of the links below to see how.

**OPTION 1: LAPTOP/COMPUTER, BROWSER-BASED PROVISIONING**

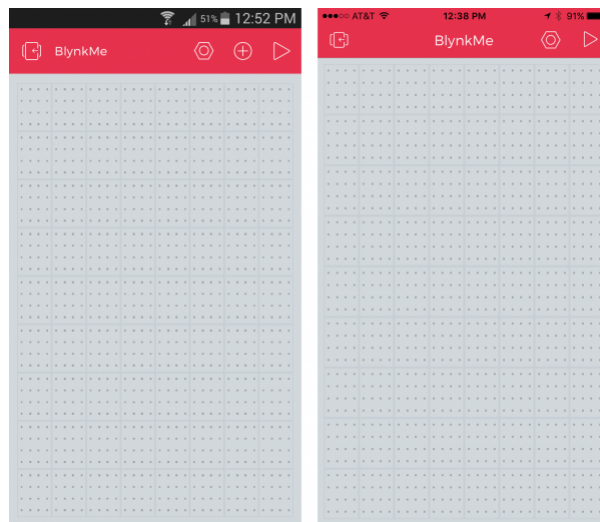
**OPTION 2: SERIAL TERMINAL OVER A USB-CONNECTED COMPUTER/LAPTOP**

**OPTION 3: SMARTPHONE BROWSER-BASED PROVISIONING**

#### Manually Adding a zeRGBa Widget

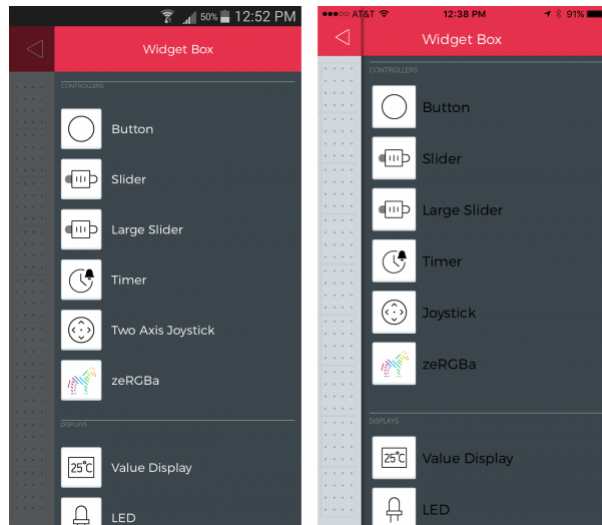
Hopefully one of the three alternative provisioning processes has worked for you. If not, please don't hesitate to get in touch with our technical support team.

If your Blynk Board is breathing Blynk-green, **open the Blynk app on your phone**, and select the bare project you've created. Look at that blank canvas -- room for so many widgets!



*A new Blank Blynk project. (Android left, iOS right)*

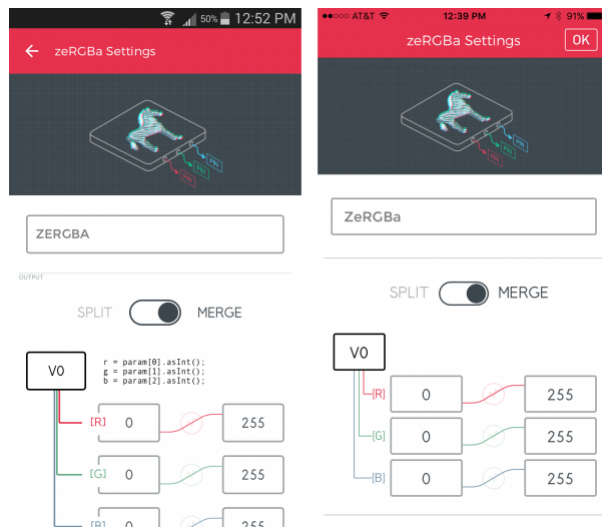
To add a widget to the Blynk app, first make sure the project **isn't running** -- you should see a triangular-shaped "play" icon in the upper-right-hand corner. Now **tap anywhere in the grey project space** to bring up the Blynk widget box.



Add a zeRGBa widget from the Blynk widget box.

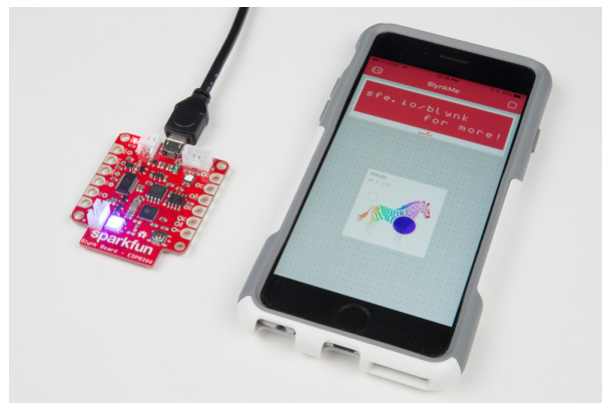
Select the **zeRGBa** widget to add it to your project. You can **tap-and-hold** the widget to drag it around the project space. We find the zeRGBa prefers to be the center-of-attention.

Now **tap the zeRGBa** to enter the widget settings -- you'll get very used to this. Slide the Split/Merge switch over to **Merge**. Then **tap "PIN"**, and set the box to **V0**. The widget settings should look like this:



To back out of the settings tab, hit **OK** on iOS or the **upper-left back arrow** on an Android.

Back at the project screen, **tap the play button** in the upper-right corner to start Blynking! Once you've got the project running, poke-and-prod that colorful zebra!



**Congratulations! You're well on-your-way to being a professional Blynker. From here we recommend you visit the Blynk Board Project Guide to explore over a dozen Blynk projects built into the Blynk Board.**

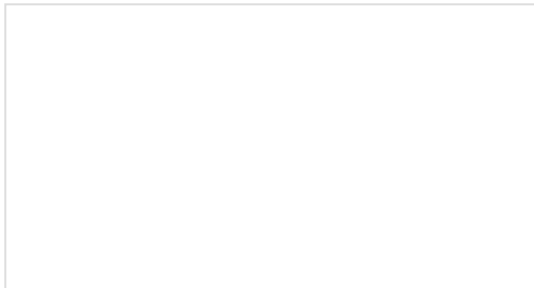


## Blynk Board Project Guide

MARCH 25, 2016

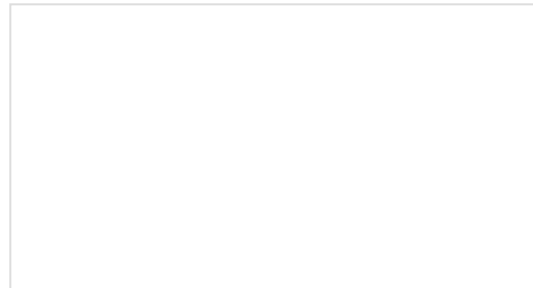
A series of Blynk projects you can set up on the Blynk Board without ever re-programming it.

Or, you may want to check out some of these other Blynk-related tutorials:



### Blynk Board Bridge Widget Demo

A Blynk project that demonstrates how to use the Bridge widget to get two (or more) Blynk Boards to communicate.



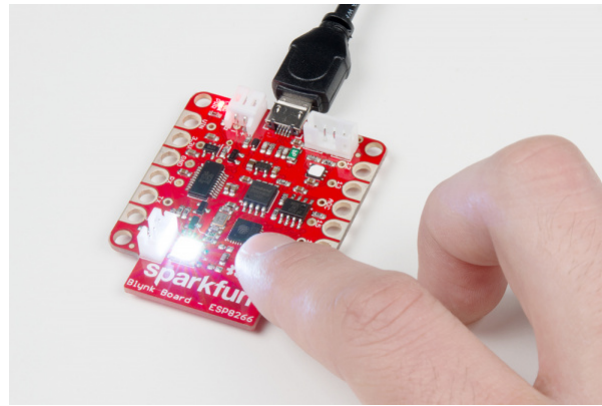
### Blynk Board Arduino Development Guide

How to get your computer set up with Arduino and the Blynk Board hardware definitions -- so you can start creating Blynk projects of your own!

## Reconfiguring a Blynk Board

If you've taken your Blynk Board somewhere new, and need to **reconfigure its Wi-Fi** network -- or if you need to update the Blynk auth token -- there's a built-in method for re-entering configuration mode to reset both credentials.

While the Blynk Board is attempting to connect to a Wi-Fi network or Blynk -- blinking blue or green -- **press and hold the 0 button**.



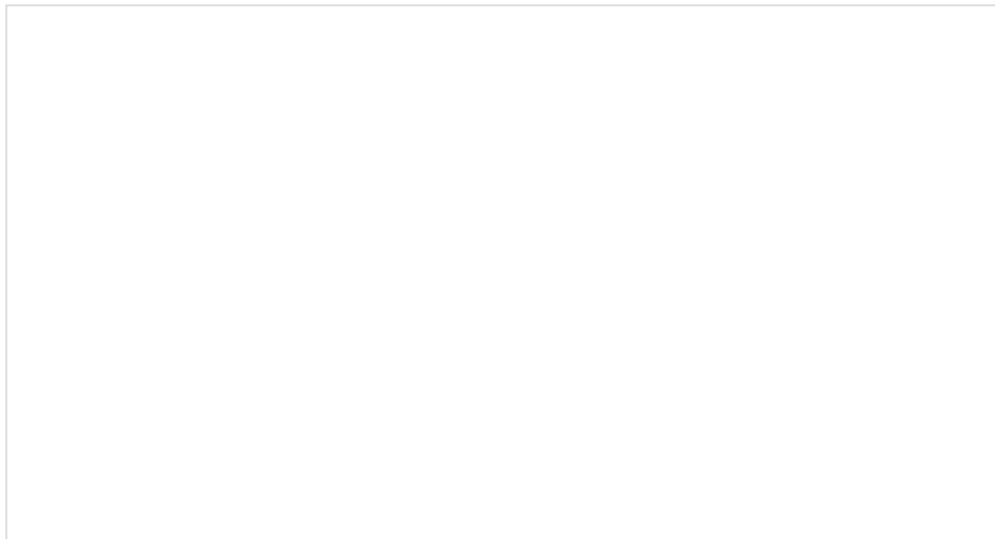
You should see the RGB LED turn white and slowly increase in brightness. After about a second, the LED will begin to dim. Once you've held the button for about **4 seconds** and the LED begins to brighten again, **release the button**.

If the reset was successful, you should see the Blynk Board revert back to its R/G/B/Y/P color-combo sequence. It should also show up as a Wi-Fi access point, and you'll be able to configure it over either Wi-Fi or a serial terminal.

You can even re-scan your Blynk Board QR-Code Card. No, you won't get another 15k energy, but you will be able to step through the provisioning process again!

## Resources and Going Further

If your Blynk Board is successfully provisioned, **head over to the Blynk Board Project tutorial** to explore the Blynk Board's pre-loaded projects.



### Blynk Board Project Guide

MARCH 25, 2016

A series of Blynk projects you can set up on the Blynk Board without ever re-programming it.

If you need any technical assistance with your Blynk Board, don't hesitate to contact our technical support team via either e-mail, chat, or phone.

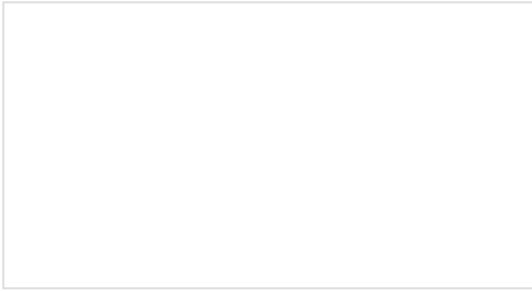
If you need general Blynk Board or Blynk App resources, these may help:

- **SparkFun Blynk Board Resources**

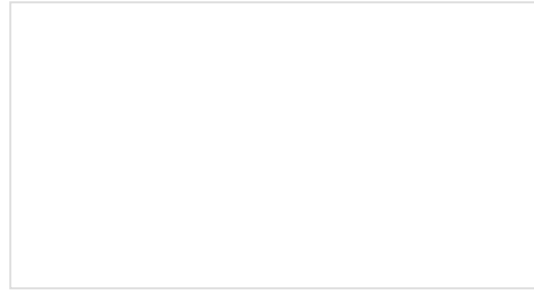


- Blynk Board GitHub Repository
- Blynk Board Schematic
- Blynk Board Eagle PCB Design Files
- Blynk Board Arduino Firmware
- **Blynk Resources**
  - Blynk Homepage
  - Blynk Getting Started Guide
  - Blynk Documentation
  - Blynk Arduino Library

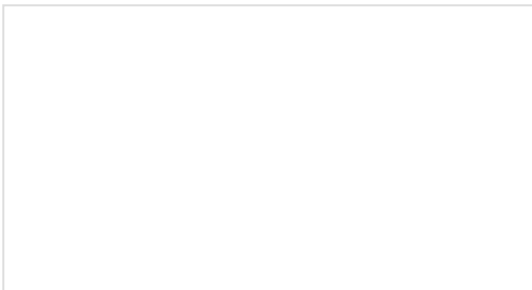
Need some inspiration for your next project? Check out some of these related tutorials:



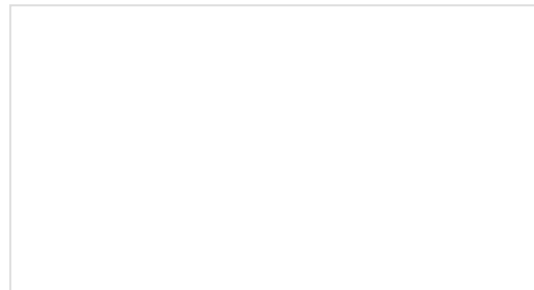
**ESP8266 Thing Development Board Hookup Guide**  
An overview of SparkFun's ESP8266 Thing Development Board - a development board for the Internet of Things.



**LED Cloud-Connected Cloud**  
Make an RGB colored cloud light! You can also control it from your phone, or hook up to the weather!

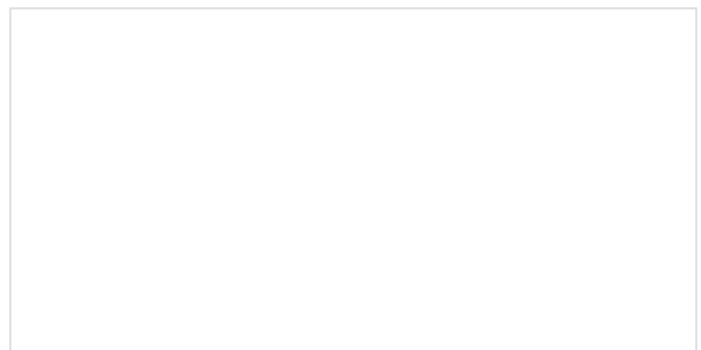
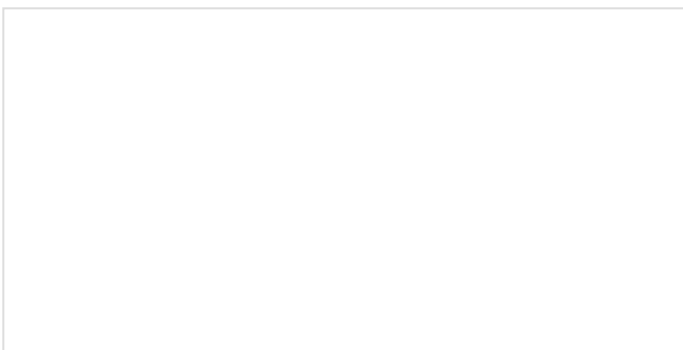


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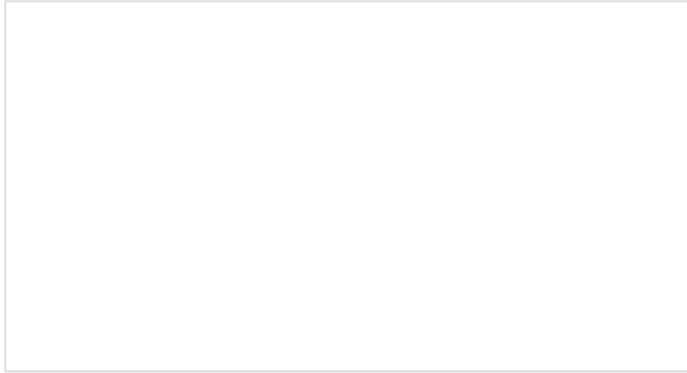
**Blynk Board Washer/Dryer Alarm**  
How to configure the Blynk Board and app to notify you when your washer or dryer is done shaking.

Or check out some of these blog posts for ideas:



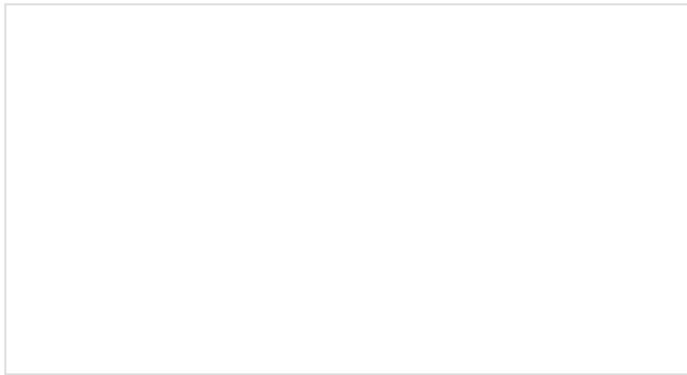
**Designing the Internet of Things**

APRIL 13, 2016



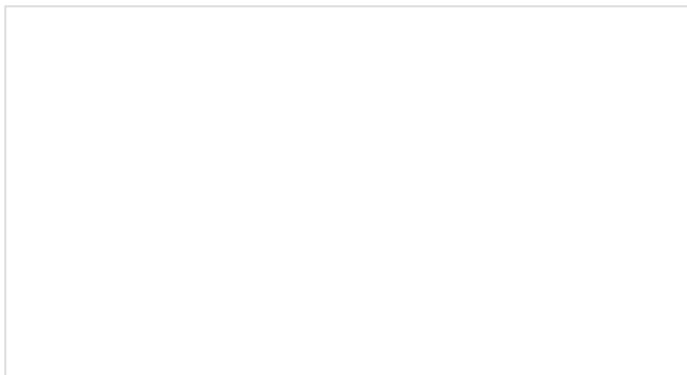
**Baby Blynk Monitor Thing**

SEPTEMBER 14, 2016



**IoTuesday: WiFi Maximizer with DIY Yagi-Uda Antenna**

MARCH 28, 2017



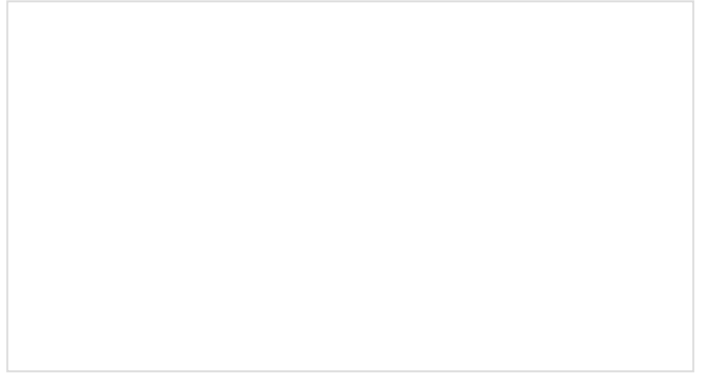
**IoTuesday: Maximize Your WiFi With This One Weird Trick!**

APRIL 18, 2017



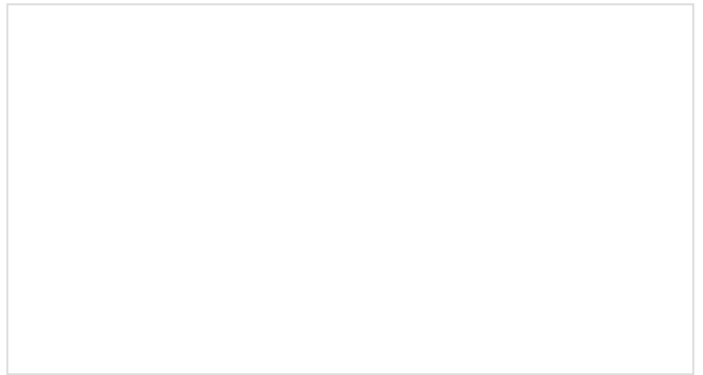
**Hackster Projects of the Month: August 2016**

AUGUST 24, 2016



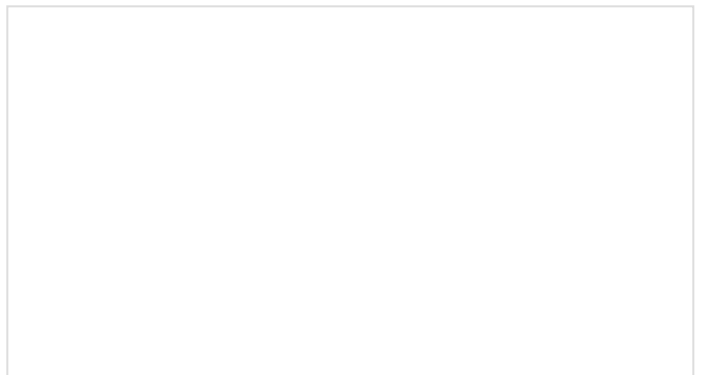
**Hackster Project of the Month: September 2016**

SEPTEMBER 21, 2016



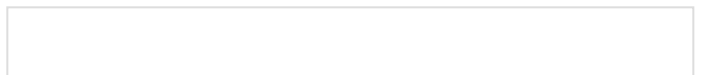
**Hardware Hump Day: Remote Smoke Machine Prank**

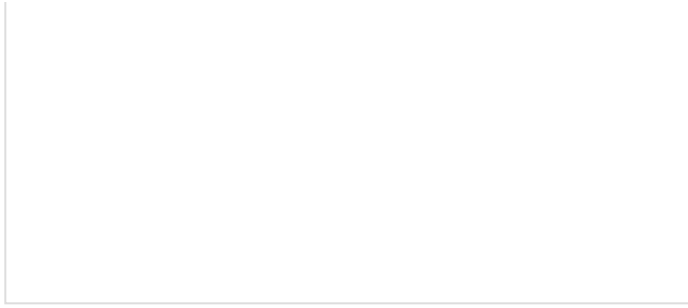
MARCH 29, 2017



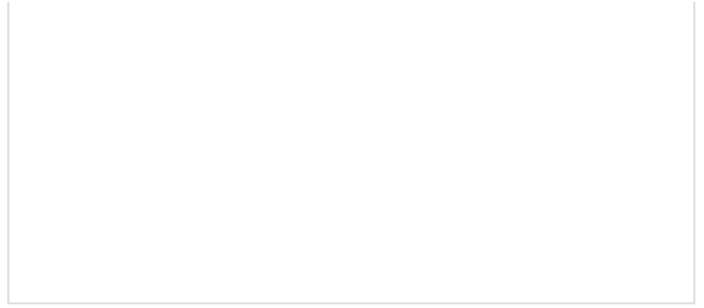
**Enginursday: ComSphere**

MAY 18, 2017

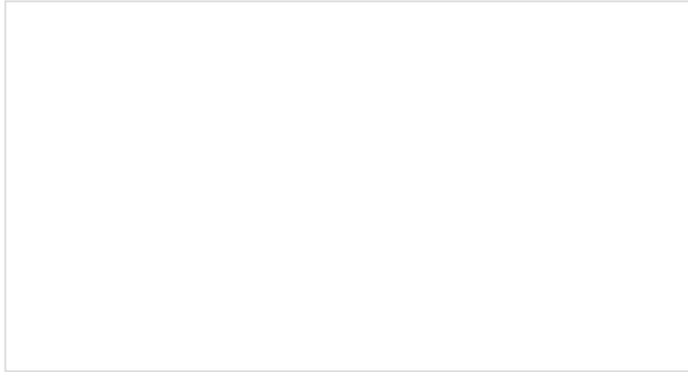




**Three IoT Platforms for Makers**  
JUNE 20, 2017



**ESP8266 + Cayenne = <3**  
JULY 18, 2017



**Look, up in the... ceiling!**  
AUGUST 7, 2018