

# Using the Blynk IoT application with NodeMCU ESP8266

Dr. Jirapipat Thanyaphongphat





# /TABLE OF CONTENTS



**/01** Blynk Application

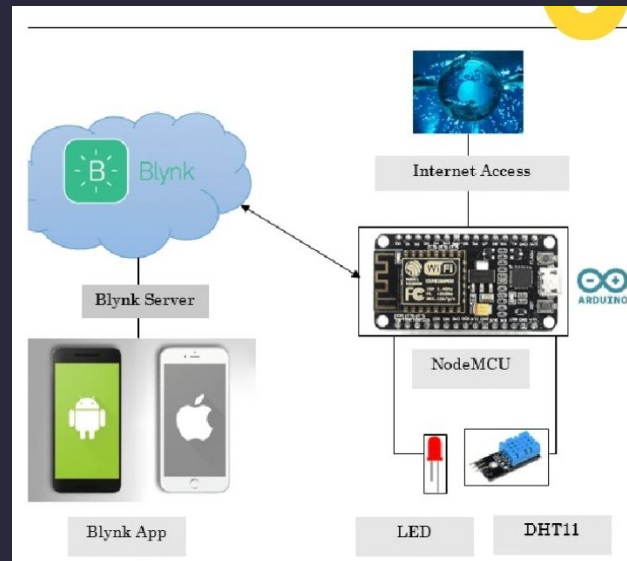
**/02** Creating a Mobile Dashboard (Device)





# /01

## Blynk Application





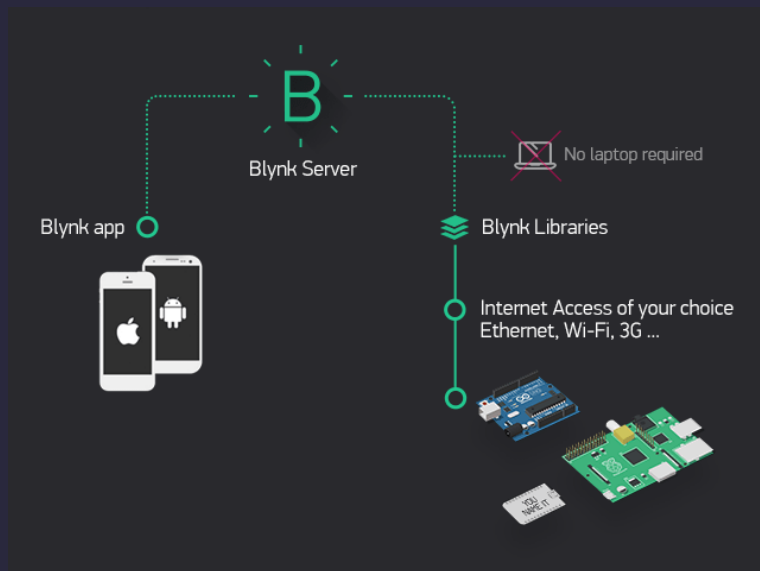
## ————→ **Blynk Application**

Blynk is a ready-made Internet of Things (IoT) application that offers an interesting feature: easy programming without the need to develop your own app. It allows real-time interactions and straightforward connections between various devices and the internet. You can easily connect hardware like Arduino, ESP8266, ESP32, NodeMCU, Raspberry Pi, and more to the internet. What's even better is that Blynk is free and compatible with both iOS and Android systems.

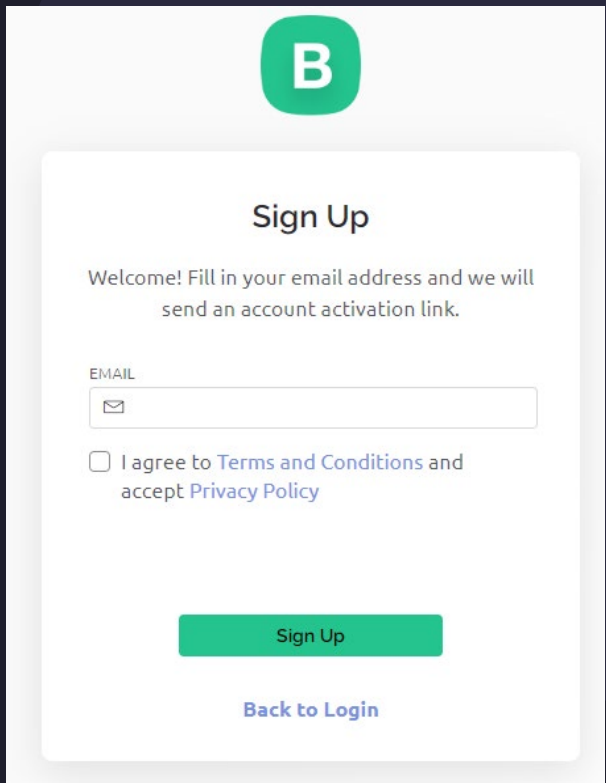
With Blynk, anyone can connect their hardware to the cloud, create iOS, Android, and web apps without writing a single line of code, analyze real-time and historical data from devices, and control them remotely from anywhere in the world. Blynk also offers important features like receiving critical notifications and much more.



## The structure of connecting to the Blynk Server



# Registering for Blynk



The image shows a web browser window displaying the Blynk Sign Up page. At the top, there is a green circular logo with a white letter 'B'. Below the logo, the heading 'Sign Up' is centered. Underneath the heading, a welcome message reads: 'Welcome! Fill in your email address and we will send an account activation link.' Below this message is an email input field with a small envelope icon on the left. Under the input field, there is a checkbox followed by the text 'I agree to [Terms and Conditions](#) and accept [Privacy Policy](#)'. At the bottom of the form, there is a large green button labeled 'Sign Up' and a blue link labeled 'Back to Login'.

1. Go to the website <https://blynk.cloud/dashboard/register>, enter a valid email address, then click on "I agree to Terms and Conditions and accept Privacy Policy" and finally, click on the "Sign Up" button as shown in the image.

2. Check your email inbox that you provided during registration. Look for an email with the subject "Welcome to Blynk.Console." Inside this email, there should be a link or option to "Create Password." Click on that link or option to set up your password for accessing Blynk Console on your own.

# Create a Template

B

## Log In

EMAIL

Please input your email

PASSWORD

A password is required to log in

[Forgot password?](#)

[Log In](#)

[Create new account](#)

1. Go to the website  
<https://blynk.cloud/dashboard/login>, enter your email and password, then click on "Log In."

2. Select "New Template."

🔍

DEVICES

🔍

My devices 0

All 0

📍

LOCATIONS

🔍

My locations 0

All 0

👤

USERS

🔍

My organization members 1

All 1

With no devices 0

### Start by creating your first template

Template is a digital model of a physical object. It is used in Blynk platform as a template to be assigned to devices.

[+ New Template](#)

# Create a Template

3. In the window, select the data as shown in the image. Once done, click on "Done."

**LED Control**

Cancel Save And Apply

Home Datastreams Web Dashboard Automations Metadata Events Mobile Dashboard

TEMPLATE IMAGE (OPTIONAL)

Add image  
Upload from computer or drag-n-drop  
png or jpg, minimum width 500px

FIRMWARE CONFIGURATION

```
define BLYNK_TEMPLATE_ID "TMPL3terZX1b"  
define BLYNK_TEMPLATE_NAME "LED Control"
```

Template ID and Device Name should be included at the top of your main firmware

TEMPLATE NAME  
LED Control

HARDWARE CONNECTION TYPE  
ESP8266 WIFI

DESCRIPTION  
First time experience product

TEMPLATE ID MANUFACTURER 29 / 128  
TMPL3terZX1b Blynk

OFFLINE CHARGE PERIOD  
00 hrs 00 mins 00 secs

HOTSPOT PREFIX  
Hotspot Prefix

Region: us01 Privacy Policy



# Create Data Stream

1. In the Template page, click on the Datastreams tab, then select "New Datastream" and choose "Virtual Pin."

The screenshot displays the 'LED Control' interface. At the top, there's a header bar with a green 'B' icon, a search icon, and tabs for 'Info', 'Metadata', 'Datastreams' (which is selected), 'Events', 'Automations', 'Web Dashboard', and 'Mobile Dashboard'. On the right of the header are 'Cancel' and 'Save' buttons. A left sidebar contains several icons, including a green one with a grid pattern. The main content area is titled 'Datastreams' and includes a descriptive paragraph: 'Datastreams is a way to structure data that regularly flows in and out from device. Use it for sensor data, any telemetry, or actuators.' Below this, a '+ New Datastream' button has been clicked, opening a dropdown menu with the following options: 'Digital', 'Analog', 'Virtual Pin', 'Enumerable', and 'Location'. The 'Location' option is highlighted with a red 'UPGRADE' badge.

**LED Control**

Info Metadata **Datastreams** Events Automations Web Dashboard Mobile Dashboard

**Datastreams**

Datastreams is a way to structure data that regularly flows in and out from device. Use it for sensor data, any telemetry, or actuators.

+ New Datastream

- Digital
- Analog
- Virtual Pin
- Enumerable
- Location **UPGRADE**

# Create Data Stream

2. In the Virtual Pin Datastream window, fill in the information as shown in the image below, then click "Create."


The screenshot shows the 'Virtual Pin Datastream' window with the following fields and values:

- NAME:** SW1
- ALIAS:** SW1
- PIN:** V0
- DATA TYPE:** Integer
- UNITS:** None
- MIN:** 0
- MAX:** 1
- DEFAULT VALUE:** 0

At the bottom of the window are 'Cancel' and 'Create' buttons. A color picker dialog is open over the 'Create' button, showing a color gradient bar and a grid of color swatches under the headings 'Theme', 'Complimentary', and 'Neutrals'.

# Create Data Stream

3. Click on the Home menu, and then click on Add first Device. Enter the Device name and press the Create button.

 LED Control

[Home](#) [Datastreams](#) [Web Dashboard](#) [Automations](#) [Metadata](#) [Events](#) [Mobile Dashboard](#)

What's next?

☐ [Configure template](#)

☐ [Set up the Web Dashboard](#)

☒ [Add First Device](#)

Done:

☒ [Set Up Datastreams](#)


## New Device

DEVICE NAME

[Cancel](#)[Create](#)

# Create Data Stream

4. Click to enter the Device that we've created.



## LED Control

[Home](#) [Datastreams](#) [Web Dashboard](#) [Automations](#) [Metadata](#) [Events](#) [Mobile Dashboard](#)

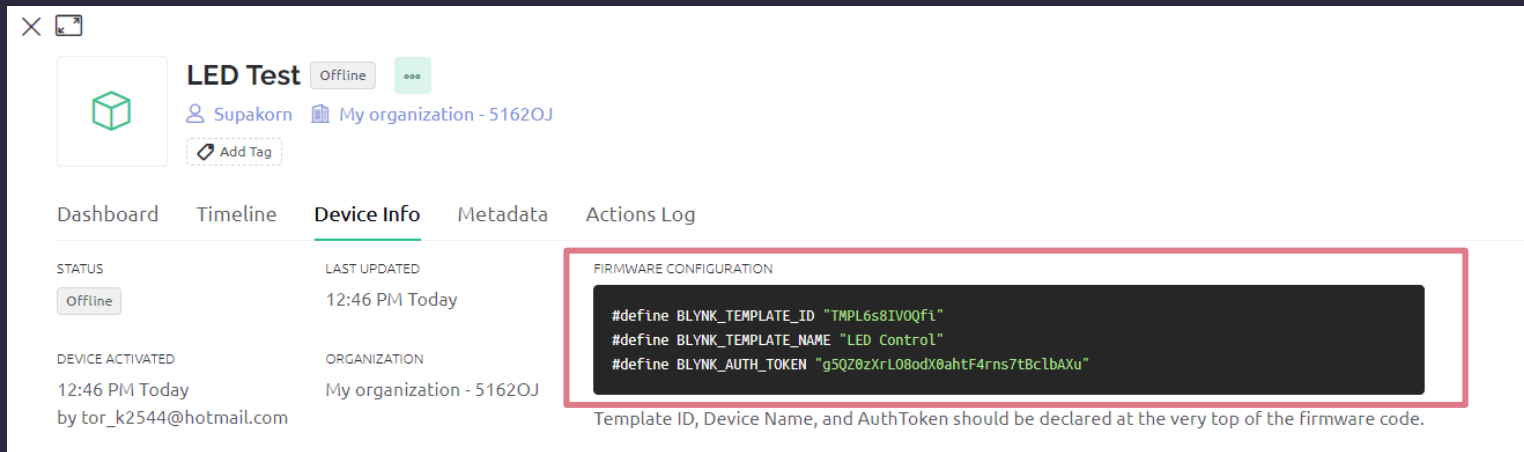
1 Devices

+ New Device

| Device name | Status  | Auth token                |
|-------------|---------|---------------------------|
| LED Test    | Offline | tWIJ - **** - **** - **** |

# Create Data Stream

5. When you click in, go to the Device info menu, copy the code under FIRMWARE CONFIGURATION, and save it.



The screenshot displays the Blynk IoT platform interface for a device named "LED Test". The device is currently "Offline". The user is "Supakorn" and the organization is "My organization - 5162OJ". The "Device Info" tab is selected, and the "FIRMWARE CONFIGURATION" section is highlighted with a red box. The code in this section defines the Blynk template ID, name, and auth token.

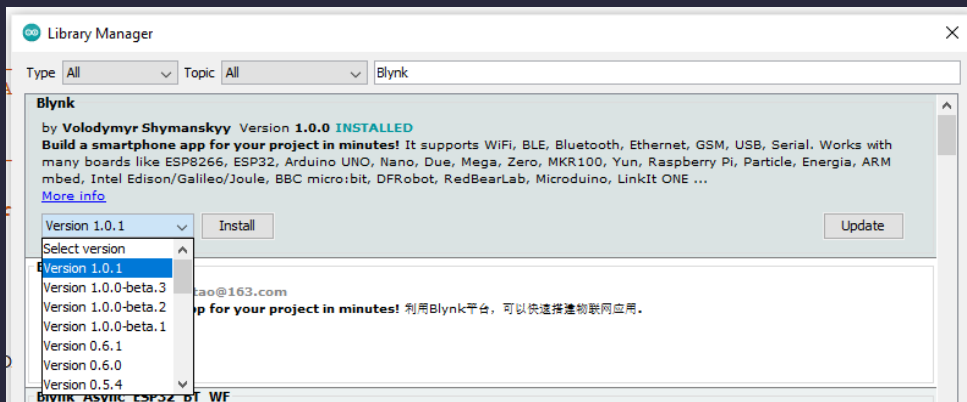
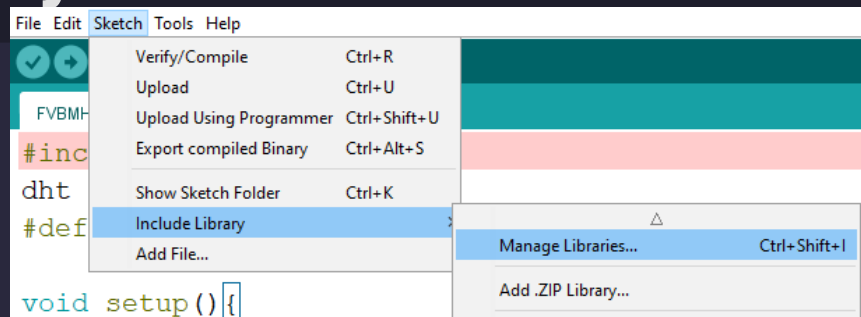
```
#define BLYNK_TEMPLATE_ID "TMPL6s8IV0QfI"
#define BLYNK_TEMPLATE_NAME "LED Control"
#define BLYNK_AUTH_TOKEN "g5QZ8zXrL08odX0ahtF4rns7tBcLbAXu"
```

Template ID, Device Name, and AuthToken should be declared at the very top of the firmware code.

# To install the Blynk library

1. Open Arduino IDE and go to Sketch>Include Library>Manage Libraries

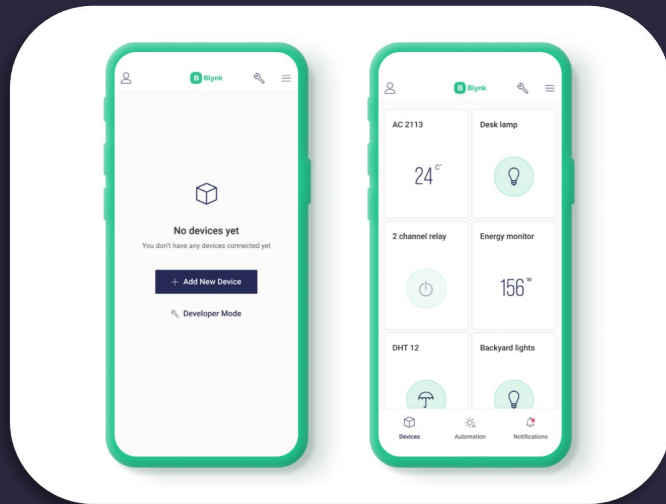
2. Type "Blynk" in the "Filter your search..." box to search for the Blynk library. The Blynk library should appear in the list of available libraries. You can then click the "Install" button to install it.





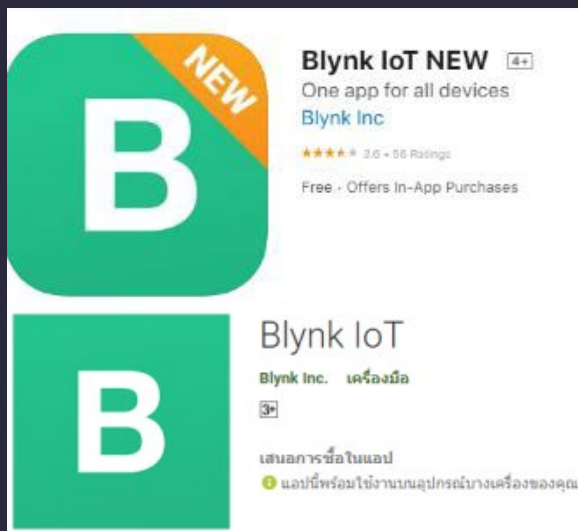
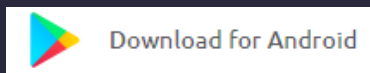
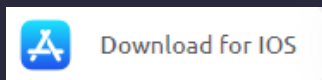
# /02

## /Creating a Mobile Dashboard (Device)



# Creating a Mobile Dashboard (Device)

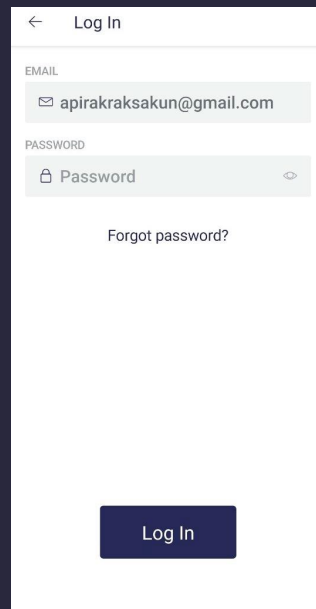
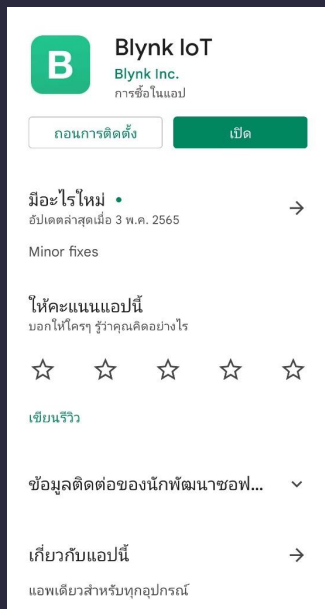
1. Install the "Blynk IoT" application on your mobile phone.





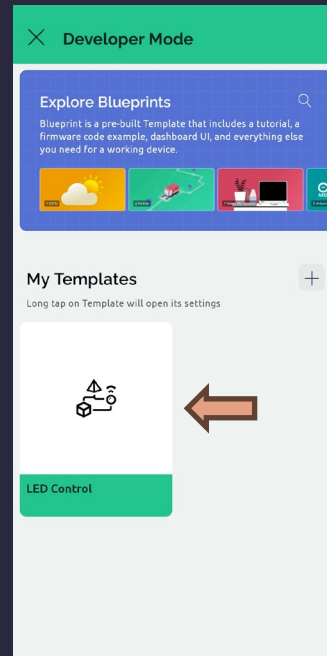
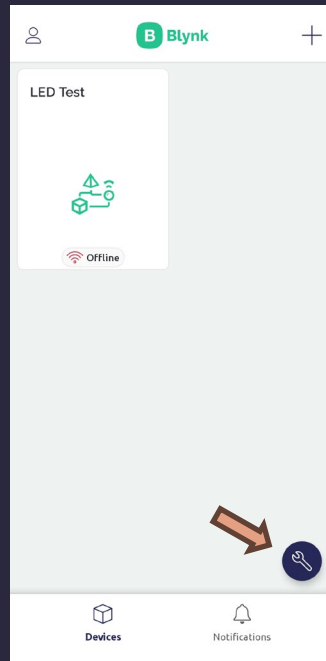
# Creating a Mobile Dashboard (Device)

2. Log in using the email and password you registered with earlier.



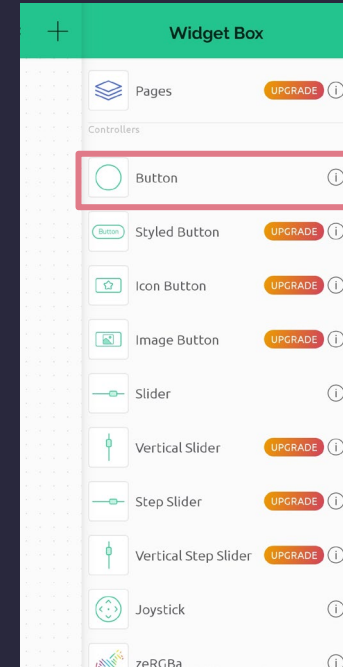
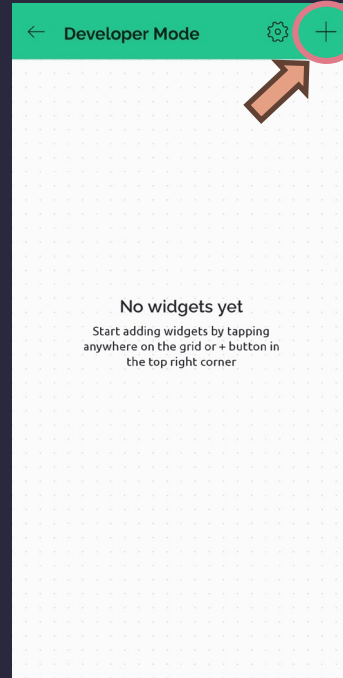
# Creating a Mobile Dashboard (Device)

3. Click on the wrench icon to access the Developer Mode. Then, select the Templates section in the Dashboard, where you've previously created your templates.



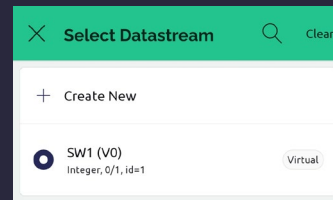
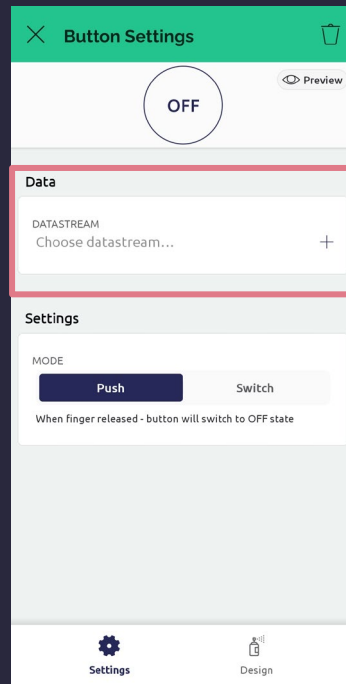
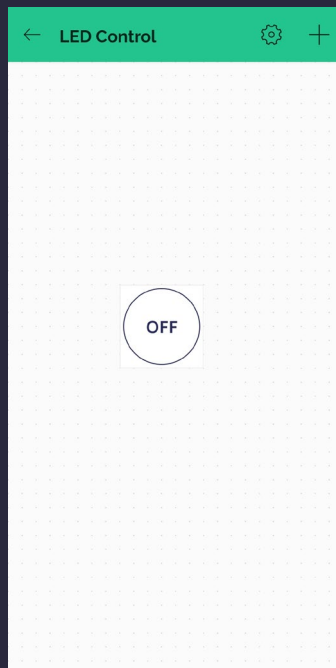
# Creating a Mobile Dashboard (Device)

4. When you enter Developer Mode, click on the "+" symbol and then select Button in order to add a Button.



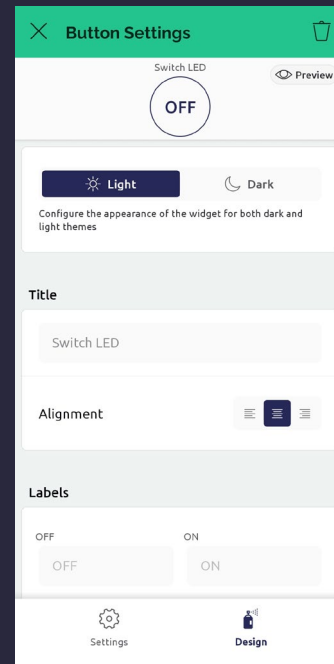
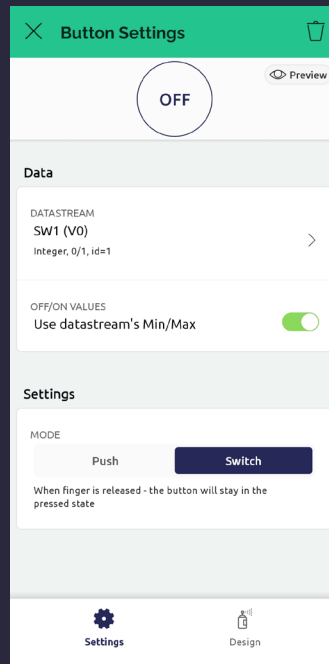
# Creating a Mobile Dashboard (Device)

5. Once you've created the button, click on it to enter its settings. Under the Data section, click and select the Virtual Pin you previously created.



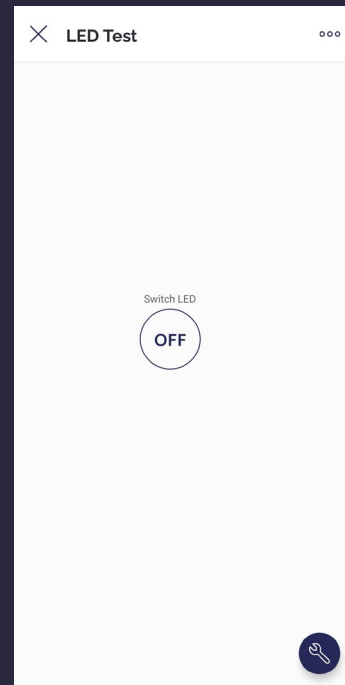
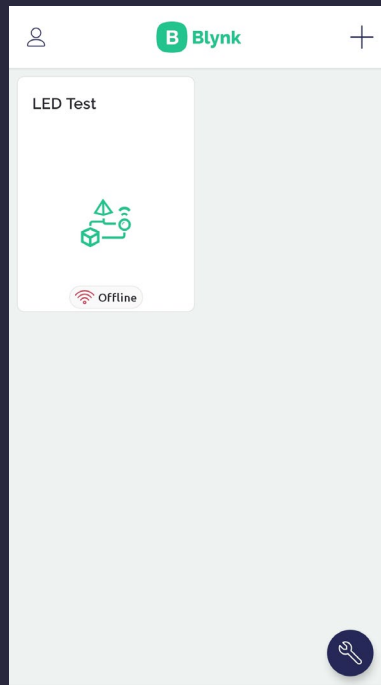
# Creating a Mobile Dashboard (Device)

6. On the button's configuration page, you can set the button type and customize its design. You can edit the button's text or change its color, among other design options.



# Creating a Mobile Dashboard (Device)

7. When you go back to the "Device" page, click on your device, and you will find the button you created.





# Q/A

