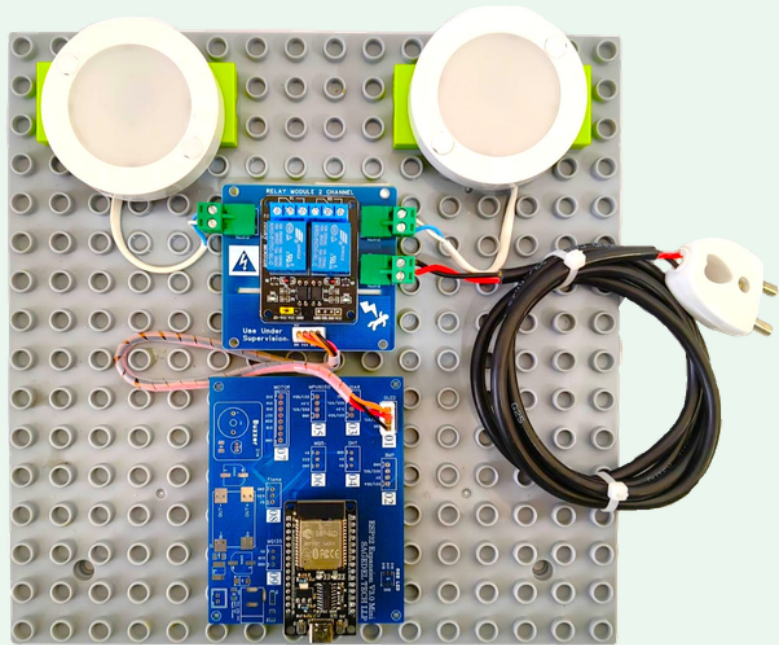


HOME AUTOMATION

Wireless AC Appliance Control

2026



Home Automation System

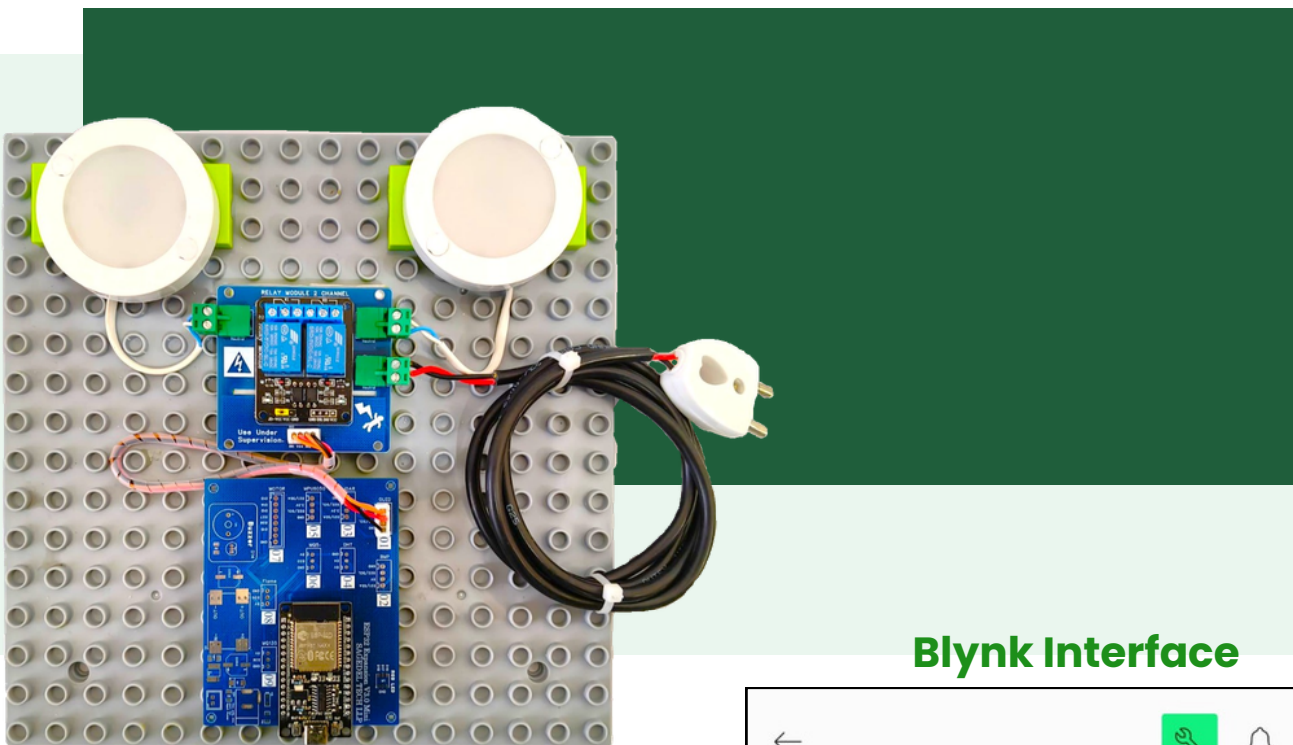


Objective:

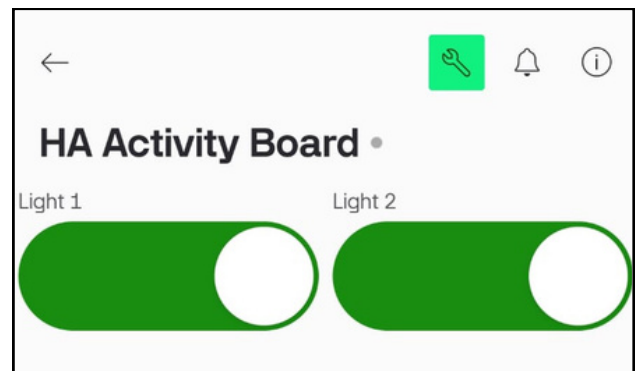
Control home appliances remotely using the ESP32 and the Blynk IoT platform.

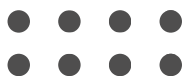
What it Does:

The Home Automation System allows users to switch two electrical appliances ON and OFF remotely through the Blynk mobile app. The ESP32 receives commands over Wi-Fi and controls the connected relay module in real time.

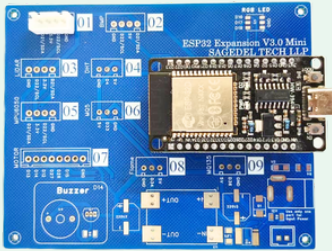


Blynk Interface





Modules & Components used:



ESP32 Expansion Board V3.0

- Supports ESP32 development boards
- JST Based Connectors and Cables for Easy and Strong Connection



2 Channel Relay Module

- Supports ESP32 development boards
- JST Based Connectors and Cables for Easy and Strong Connection
- Supports Upto 2 AC/DC Electrical Loads
- Max 500W per channel



5W AC LED Light

- Supports ESP32 development boards
- JST Based Connectors and Cables for Easy and Strong Connection
- AC Downlight 5W/10W
- 240V 50Hz Power Input



Type C USB Cable

- Supports ESP32 development boards
- ~200mm Cable Size
- Suitable for Programming and Power Delivery



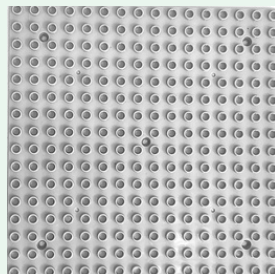
Power Cord

- ~100cm Long 1.0mm Power Cable
- Supports Upto 2 AC/DC Electrical Loads
- Max Rated: 500W Power consumption



JST Cables

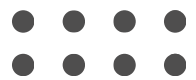
- Supports ESP32 development boards
- JST Based Connectors and Cables for Easy and Strong Connection
- AC Downlight 5W/10W
- 240V 50Hz Power Input



Lego Base

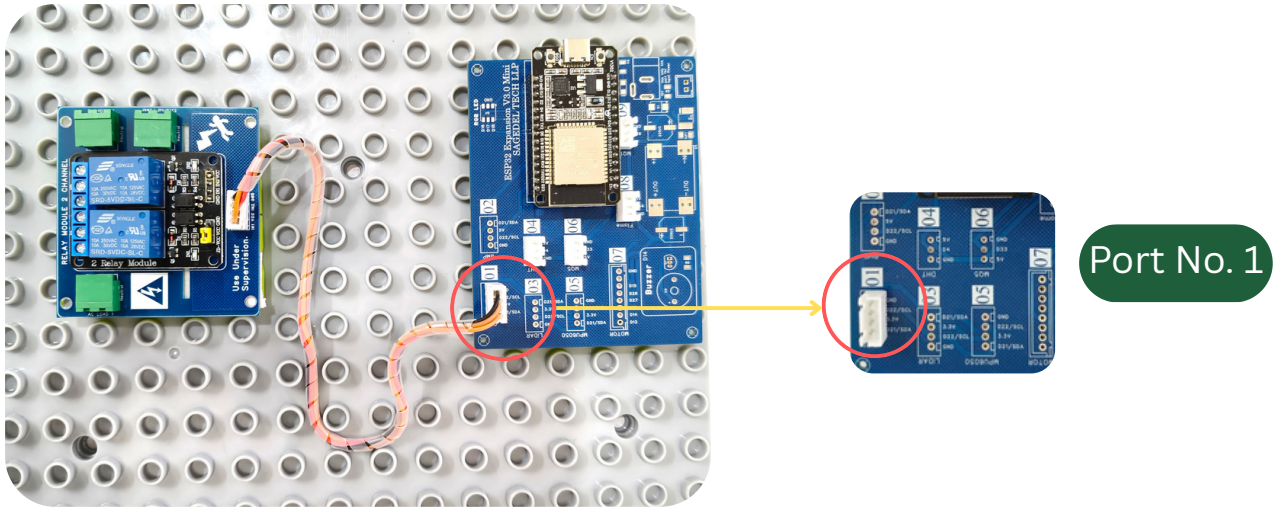
- ~25 cm x 25 cm Base
- Compatible with Provided Modules
- Mounting Holes are provided for Easy Showcasing



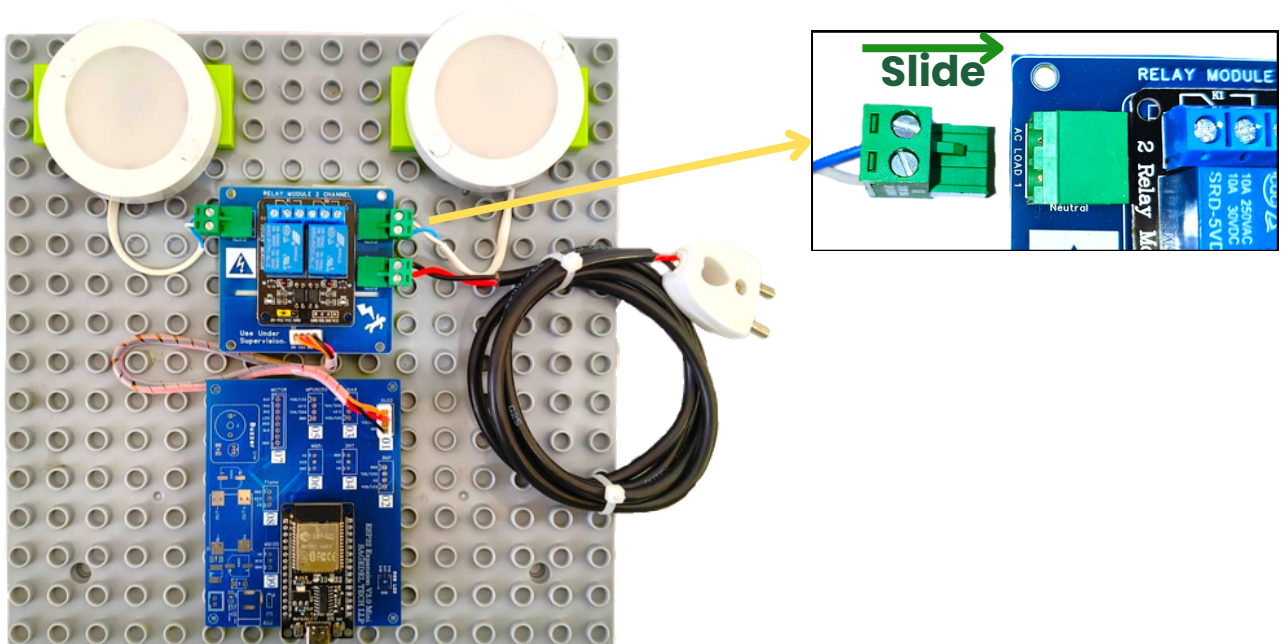


Connections:

1. Connect the **Relay Module** to **Port No. 1** on the ESP32 Expansion V3.0 Mini.

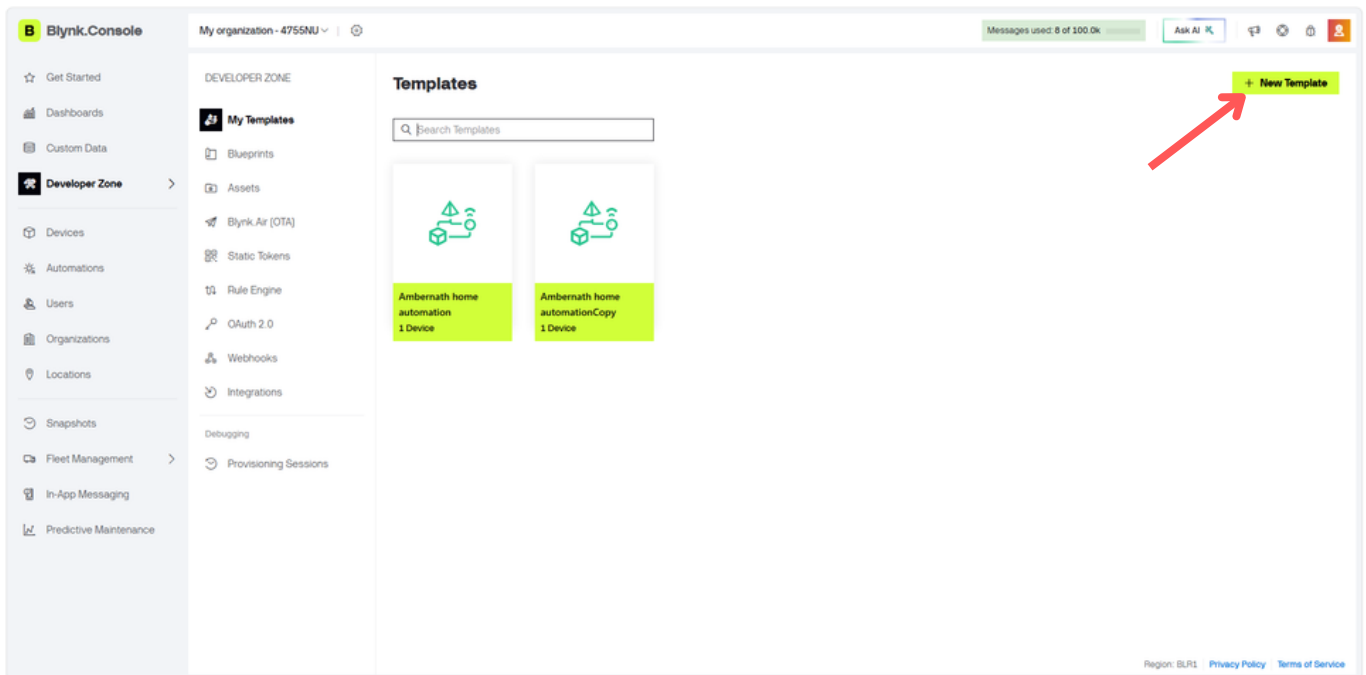


2. Connect Lights to Relay Module at AC Load slide connector & Connect Main Power Cord at AC Mains slide connector.



3. Open www.blynk.io and create a user account by clicking signup button. Insert an active Email ID and click signup.
4. A verification email will be sent to the email id you have entered. Open it and create a password of your choice.

5. Click the new template button. Insert a Project name of your choice. Check the hardware and connection type. (Description can be empty)



Create New Template

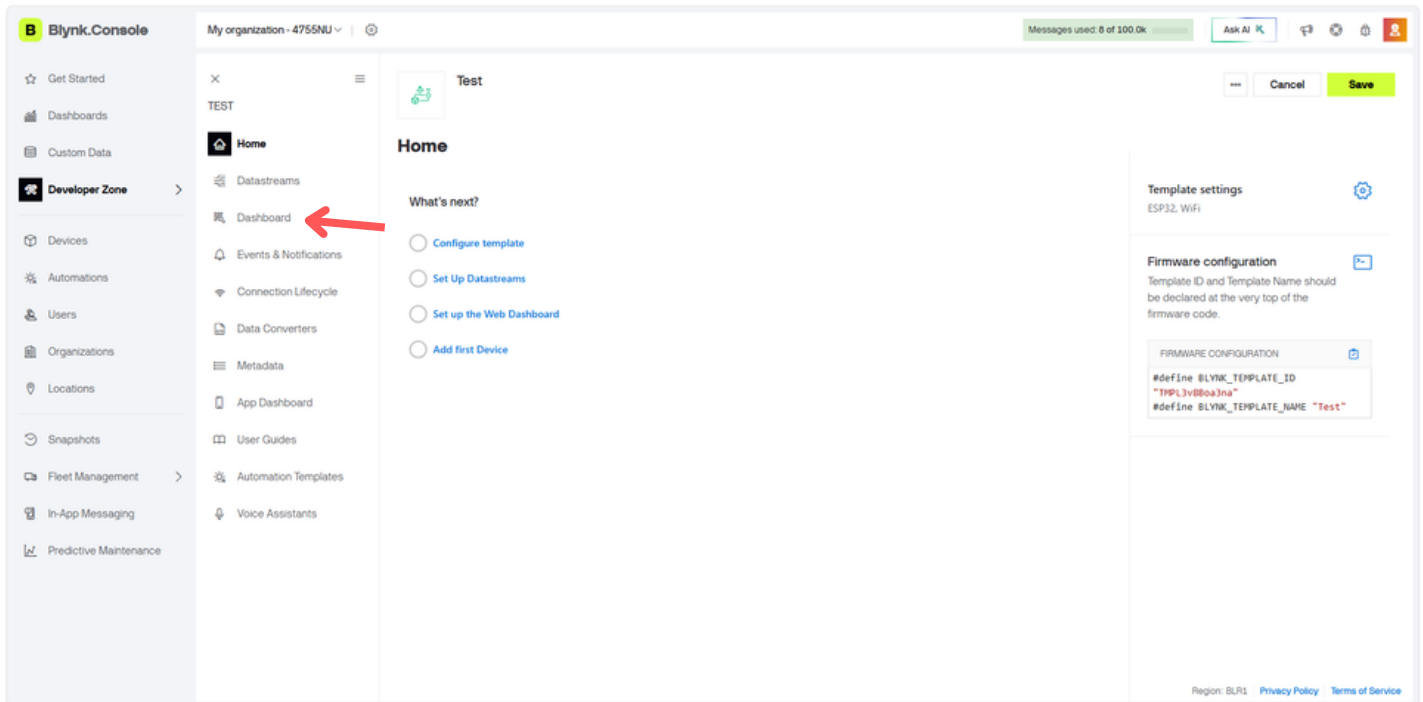
NAME
Name 0 / 50

HARDWARE CONNECTION TYPE
ESP32 WiFi

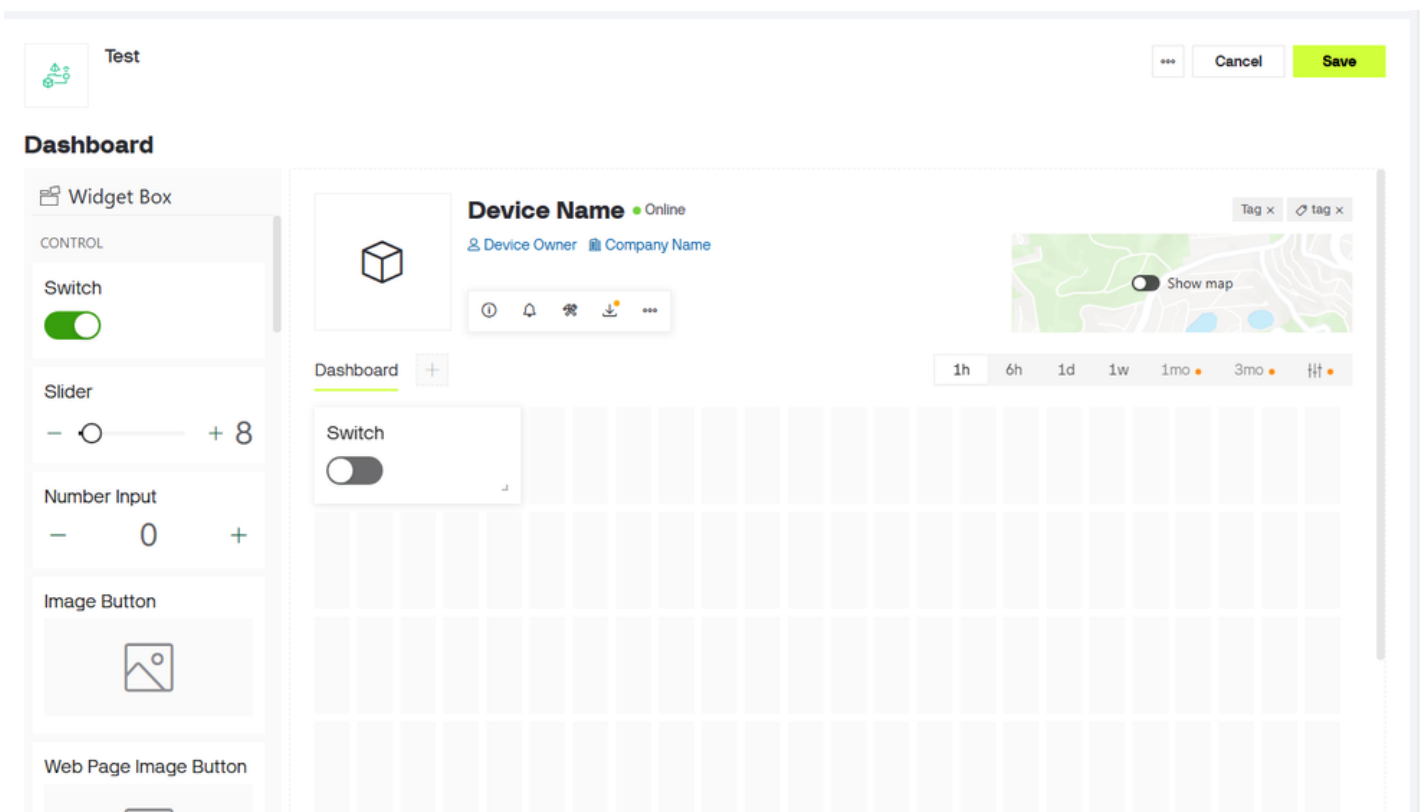
DESCRIPTION
Description 0 / 128

Cancel Done

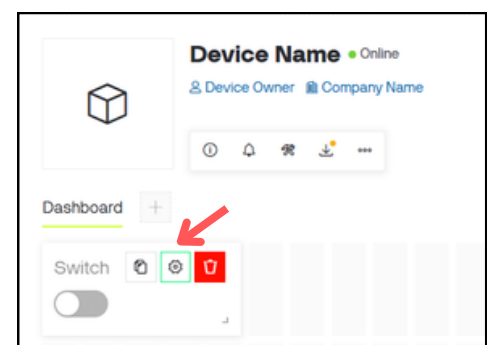
6. Click on Dashboard option in Home menu.



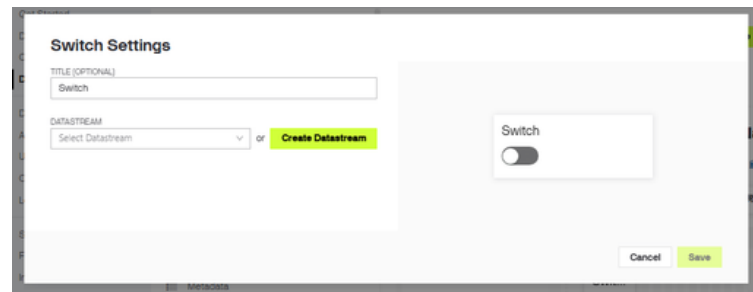
7. Drag the first switch and Drop it in dashboard placement area.



8. Hover over switch and a settings icon will pop up. Click the settings icon



9. In switch settings click create Datastream. In New Datastream menu add a datastream name. Write the Virtual Pin (e.g., V0).



New Datastream

General

DATASTREAM NAME: Relay 1 (7 / 128) → DISPLAY NAME: Relay 1 (Shown in widgets, dashboards and reports.)

VIRTUAL PIN: V0 (indicated by a red arrow) COLOR: Yellow ICON: Relay

DATA TYPE: Integer Double Enum

MIN VALUE: 0 MAX VALUE: 1 DEFAULT VALUE: 0

Semantic

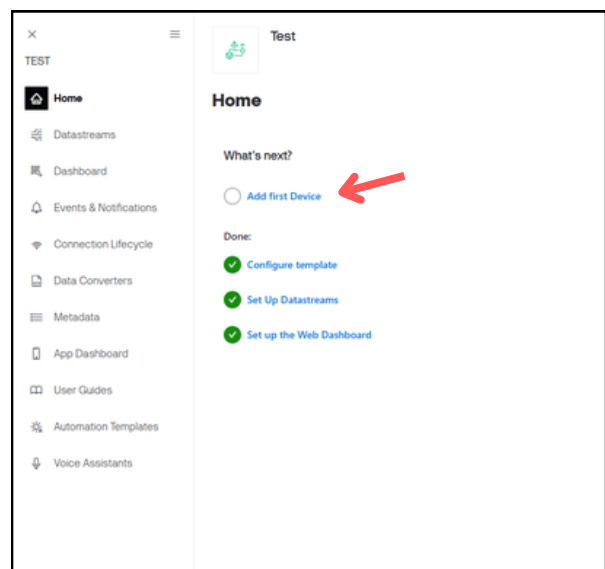
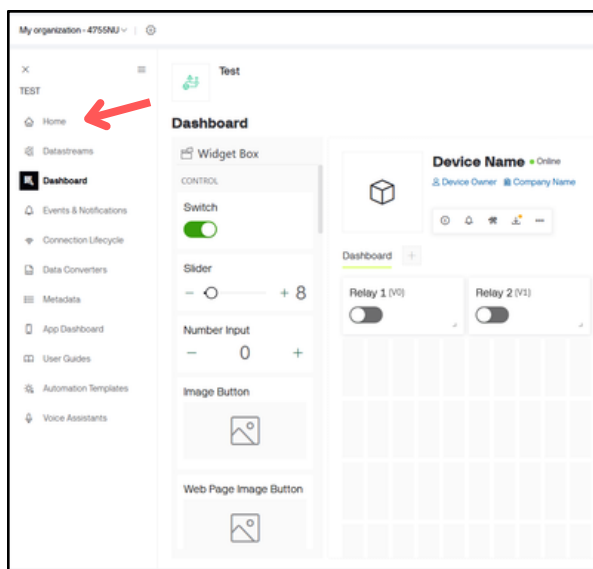
Semantic tags enable Blynk to understand the meaning of the datastream. This will be used in data aggregations, dashboards, automations, and beyond.

+ From presets + Custom tag

Back Save

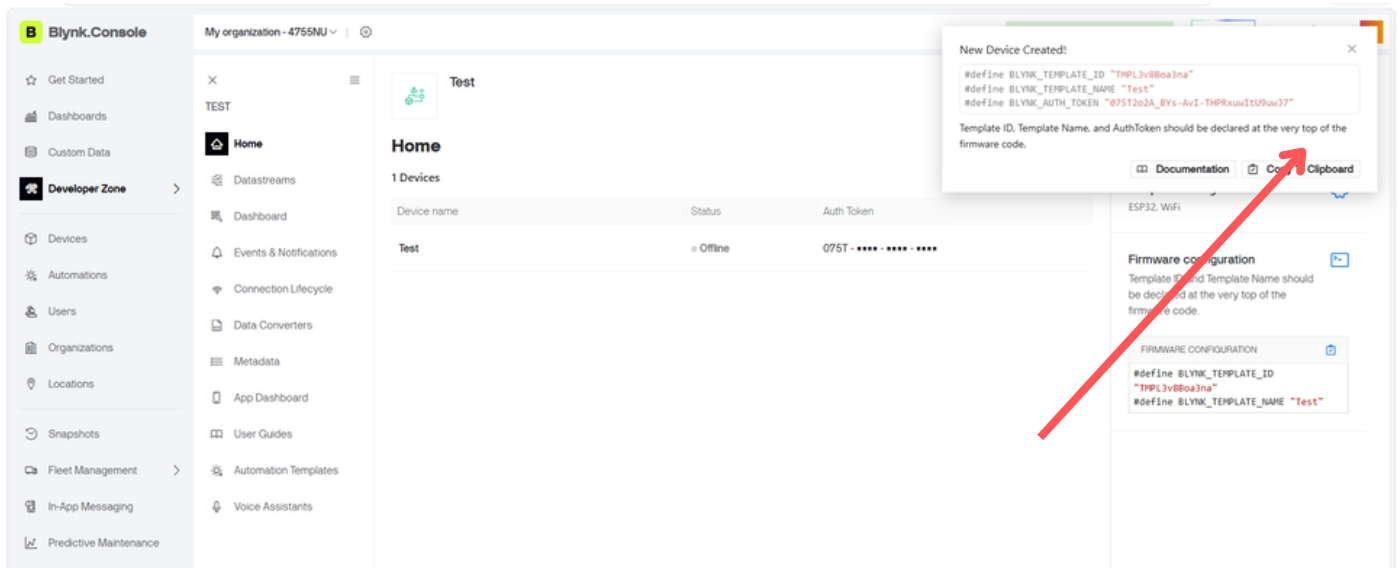
10. Repeat the steps 7–9 to create a 2nd Switch.

11. Now Come back to Home screen. Then Click Add First Device Checkbox.

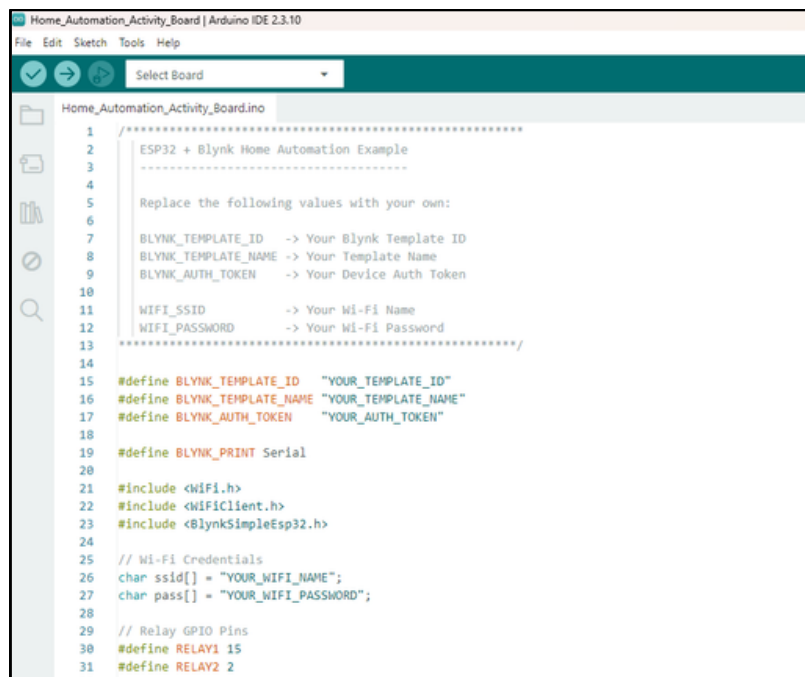


11. Now Come back to Home screen. Then Click Add First Device Checkbox.

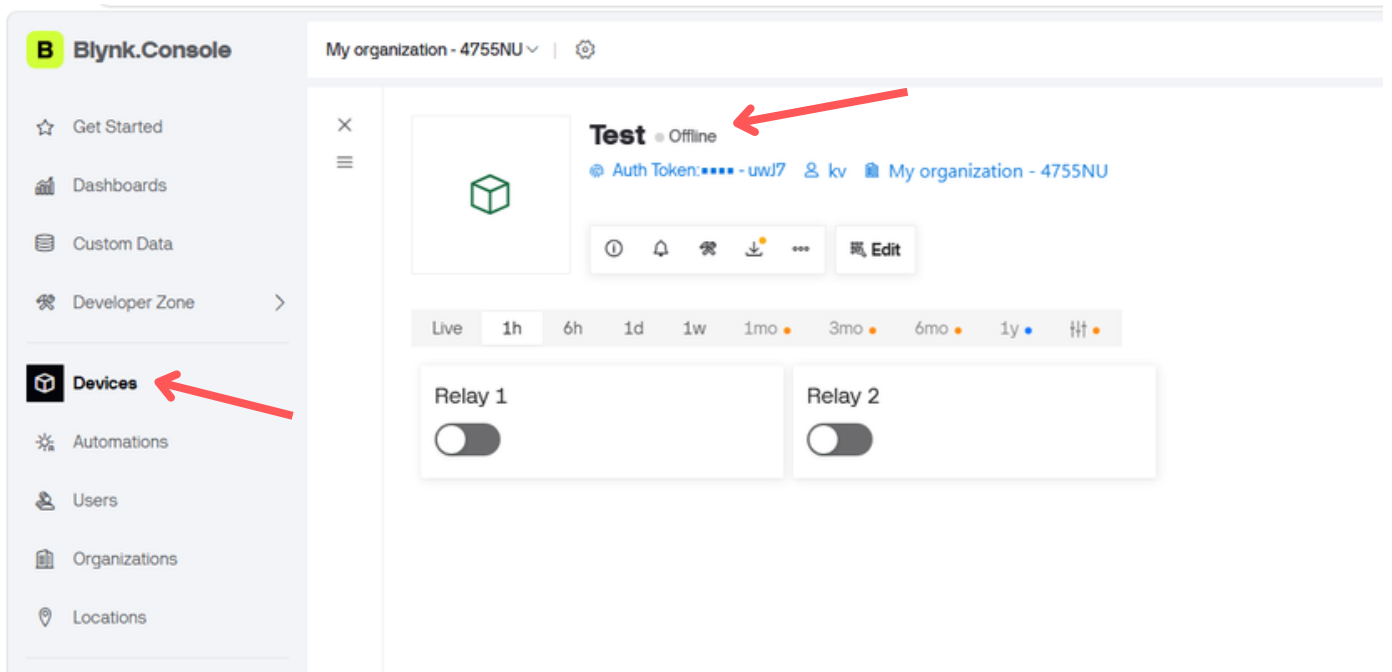
12. Name your device and click create. It will be created and you will get a pop-up with all the required details for code. Click copy to clipboard button. Click the save button on Right top corner.



13. Open Arduino IDE and write/paste your code in it. Replace the Blynk Details, Wifi SSID & Password. Verify Relay GPIO Pin assignment before uploading the code.



14. After code upload. Open the blynk devices menu. and Open your device. Check the status dot and label. When it turns green and label changes to Online. You can start Using your switches on blynk dashboard.



15.If the blynk details, Wifi details & Relay Pin assignment is correct you can easily control your relay remotely over the internet. **Distance doesn't matter.** Verify details and connections if doesn't work.

Product images are for illustrative purposes only. Actual components may vary.