

Plantmate Blynk Setup Guide

Step-by-step instructions to connect your device to the Blynk Cloud

Phase 1: Set Up the Blynk Cloud Template

Blynk uses "Templates" to define what a device looks like and what data it uses before you actually connect the physical hardware.

1. Go to **blynk.cloud** on your computer and create a free account.
2. Click on the **Templates** icon (it looks like a little circuit board with 4 squares) on the left sidebar.
3. Click **+ New Template** in the top right.
4. Set the following parameters:
 - **Name:** "Plantmate"
 - **Hardware:** ESP32
 - **Connection Type:** WiFi
5. Click **Done**.

Phase 2: Create the Datastreams (Virtual Pins)

This is where you tell Blynk Cloud what data to expect. You need to match the "Virtual Pin Reference" table programmed into your device.

1. Inside your new Plantmate template, click the **Datastreams** tab.
2. Click **+ New Datastream -> Virtual Pin**.
3. Create a stream for each pin your project uses. Here are a few starting examples:
 - **Temperature:** Name **Temp** , Pin **V0** , Data Type **Double** (or Integer).
 - **Pump 1 Status:** Name **Pump 1** , Pin **V5** , Data Type **Integer** , Min 0, Max 1.
 - **Pump 1 Manual Control:** Name **Pump 1 Button** , Pin **V20** , Data Type **Integer** , Min 0, Max 1.
 - **Target Moisture:** Name **Target 1** , Pin **V22** , Data Type **Integer** , Min 0, Max 100.

Note: You can start with just a few pins (like the pump buttons and moisture sensors) to test the connection before adding all pins from V0 to V31.

Phase 3: Create the Device & Get Credentials

Now you turn that template into a specific device to generate the secret codes your ESP32 needs.

1. Click the **Search/Magnifying Glass** icon on the left sidebar (this is the Devices menu).
2. Click **+ New Device** in the top right.
3. Select **From template**.
4. Choose your "Plantmate" template and click **Create**.
5. A popup will appear on the right side of the screen with a black box containing code that looks like this:

```
#define BLYNK_TEMPLATE_ID "TMPLXXXXXXXXX"  
#define BLYNK_TEMPLATE_NAME "Plantmate"  
#define BLYNK_AUTH_TOKEN "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
```

Phase 4: Pair with Your ESP32

Now we bring the cloud and your hardware together using your local settings webpage.

1. Power on your Plantmate ESP32.
2. Connect your phone or computer to the Plantmate's local WiFi network.
3. Open your browser and navigate to the Plantmate settings page.
4. Navigate to the Blynk Configuration section.
5. **Copy and Paste** the three pieces of information from the Blynk Cloud into your webpage:
 - Paste the **TMPL...** code into the **Template ID** box.
 - Paste the name into the **Template Name** box.
 - Paste the 32-character string into the **Auth Token** box.
6. Click your **Save & Restart Device** button.

Phase 5: Success & Building the Dashboard

When your ESP32 reboots, it will use those saved credentials to log into the Blynk Cloud.

1. Look back at the Blynk webpage on your computer. Your device status should change from "Offline" to "**Online**".
2. Download the **Blynk IoT app** on your phone and log in. You will see your Plantmate device online.
3. Tap the device, enter **Developer Mode** (the wrench icon), and you can start dragging and dropping buttons, sliders, and gauges onto the screen, assigning them to the Virtual Pins you created earlier.