

MADD - BLYNK TUTORIAL

1. Go to <https://blynk.cloud/>
2. Click to Create new account
3. Register a new account
4. Once registered it will pop-up a Blynk Tour. Read through it if you want to learn the basics of Blynk, otherwise skip it and follow this tutorial directly. Click. Let's go at the end of the Quickstart window.
5. Select ESP8266 on hardware and Wifi as your connectivity

Quickstart

1

 Hardware

2

 IDE

3

 Blynk Library

4

 Code

5

 Device activation

Which hardware are you using?

We will help you prepare the code for you board

ESP8266

What is your device connectivity type

Blynk supports various connection types (BLE is not supported yet).

WiFi



6. Select Arduino as your IDE
7. Install Blynk library on Arduino
8. Fill in the gaps with your Wifi name and Password, you need this to connect your board to Blynk.
9. Copy your code and place it on a new file on Arduino. Upload it to your board.

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Once you upload the file you should be able to see that your device has connected with the Blynk platform.

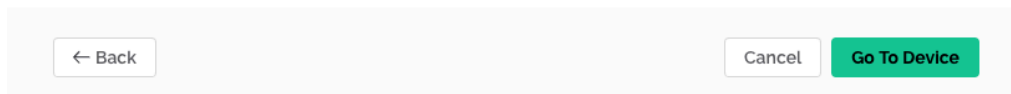
Congrats!



Your device is online! Time to push some buttons!

Here is what you can try:

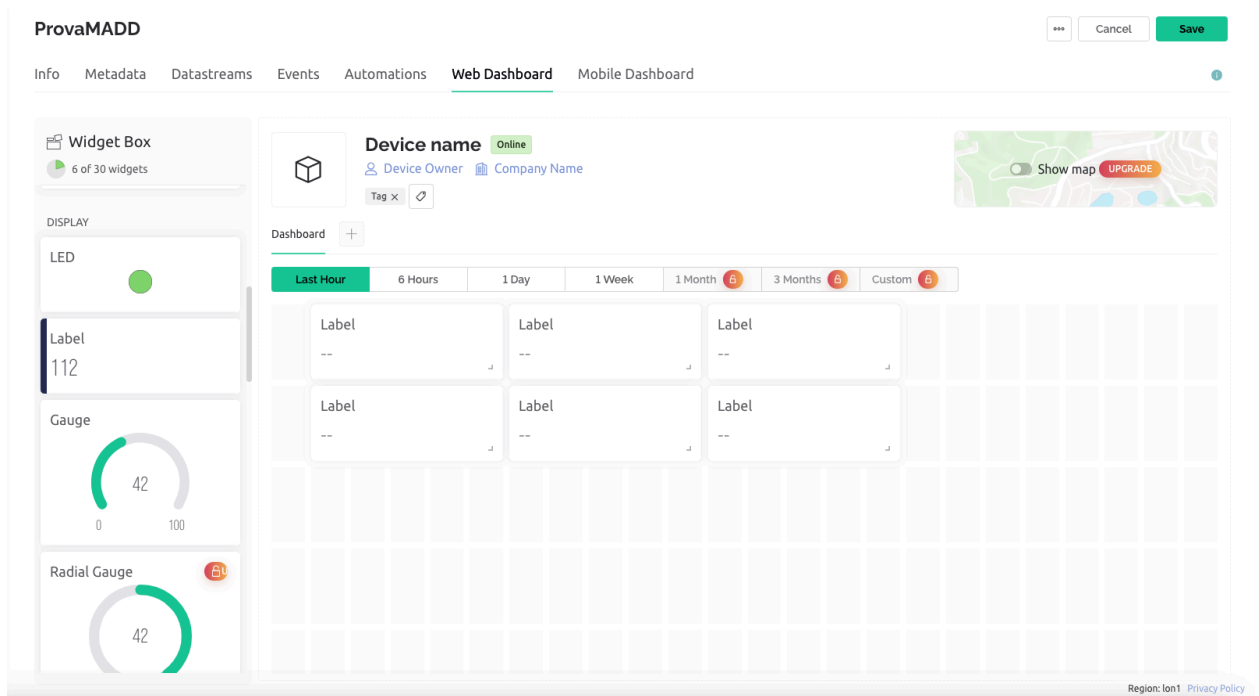
- Go to the device and see how you can control it from the web dashboard.
- Open Blynk.App and try controlling your device from your smartphone.



10. Click “go to my device”. We will have to create a Template for our dashboard. Go to the left hand side of the platform and click on Templates > + New Template. Name your device as you like. Just make sure you select ESP8266 on your hardware (Wemos D1 mini integrates ESP8266). Write down your Template ID and your template name.
11. Go to Datastreams > new Datastream. We are going to include all the data we want to extract from our sensors. Click on Virtual Pin
12. Name all the parameters as suggested:
Temperature > Pin: Pin V1 > Data type: Double > Units: celsius > Min -10 Max 50
Humidity > Pin: Pin V2 > Data type: Double > Units: percentage, % > Min -0 Max 100
CO2 > Pin V3 > Data type: Integer > Units: parts per million, % > Min 400 Max 3000
PM1 > Pin V4 > Data type: Integer > Units: microgram cubic meter, % > Min 0 Max 1000
PM25 > Pin V5 > Data type: Integer > Units: microgram cubic meter, % > Min 0 Max 1000
PM10 > Pin V6 > Data type: Integer > Units: microgram cubic meter, % > Min 0 Max 1000
13. Click Save. Go to “web dashboard” and click on Edit (top right) to create your dashboard.
14. Insert panels from the left side to the right. In the free version you have limited panels to add. Let’s try with labels. Actually you could add Gauge or Graph as well.

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15. Add 6 labels.



16. Go to the first one and click on the wheel icon. Link it with the virtual pin we created before. Do the same with the rest.

Label Settings

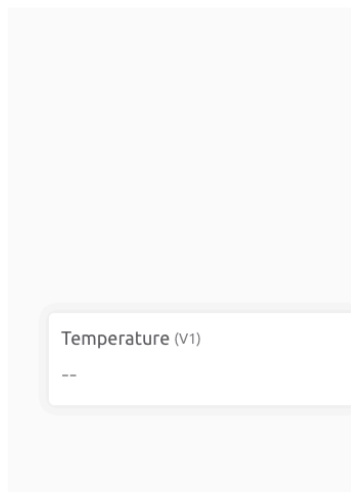
TITLE (OPTIONAL)

Datastream

CONTENT ALIGNMENT
☒ ☐ ☐

WIDGET BACKGROUND
☒ Change color based on value

LEVEL
☒ Show level



17. Click Save. Now go to the magnifying glass icon. And click on a new device. Select "From Template" and choose the template you just created. Once you have it, go to "Device info" and copy (ctrl+c) the code of the firmware configuration.

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18. Go to <https://github.com/mconangla/MADD24> and download the Blynk code or do that directly [here](#)
19. Open the MADD_Blynk.ino code in Arduino
20. In this code you will just need to change two things.
 1. Change the ssid name for your wifi name. It can either be a hotspot from your phone, an open wifi, your home wifi, etc. Take into account it only works with 2.4Ghz networks, so if you share your iPhone's connection, you should turn on the Maximum Compatibility mode.

Change these variables in the code:

```
// Your WiFi credentials.  
// Set password to "" for open networks.  
char ssid[] = "YOURWIFINAME";  
char pass[] = "YOURWIFIPASSWORD";
```

2. Change the Template_ID, Template_Name and Auth_Token from Blynk. Paste them (ctrl+v) from the information you copied before

Change these variables in the code:

```
///// Blynk libraries /////  
/* Fill-in information from Blynk Device Info here */  
  
#define BLYNK_TEMPLATE_ID          "TMPxxxxxx"  
#define BLYNK_TEMPLATE_NAME        "Device"  
#define BLYNK_AUTH_TOKEN           "YourAuthToken"
```

21. Upload your code in your Wemos mini board. Your board has a microcontroller that might need you to install a driver in your computer. The microcontroller is the CH340, in case you want to look information about (it's a pretty common chinese chip).

Windows driver: [Windows CH340 Driver](#)

Mac driver: [V1.5 CH340 MacOS Driver Pkg](#)

If you want more info: <https://sparks.gogo.co.nz/ch340.html>

When uploading the code you might see (sometimes not) two different ports with almost the same name on Arduino. The one without the - on it should work fine. Otherwise, try the other.

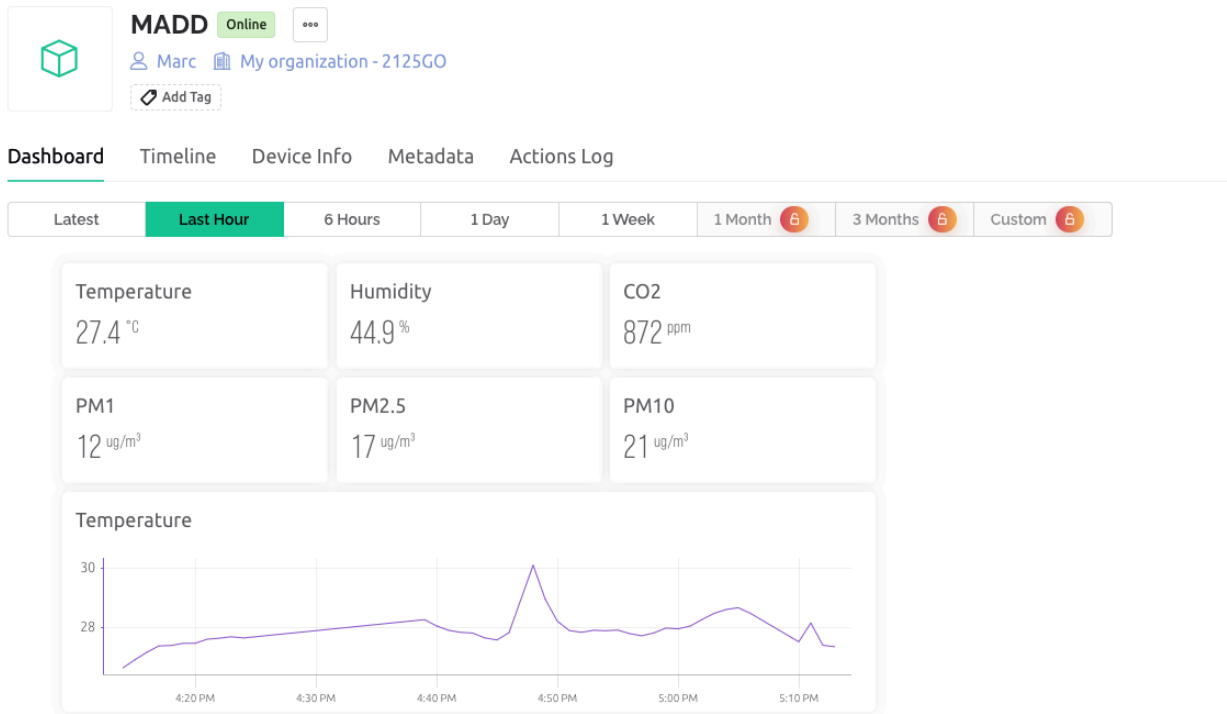
22. If everything went well you should see in serial (115200 baud rate) something like this. It might take some seconds before the board actually connects to your Wifi. Be patient.

```
17:11:31.056 -> PM1.0:12µg/m3   PM2.5:15µg/m3   PM10:21µg/m3  
17:11:31.056 -> Temperature:27.9°C      Humidity:43.1%RH      CO2:855ppm  
17:11:31.413 -> Sensors' data uploaded to Blynk
```

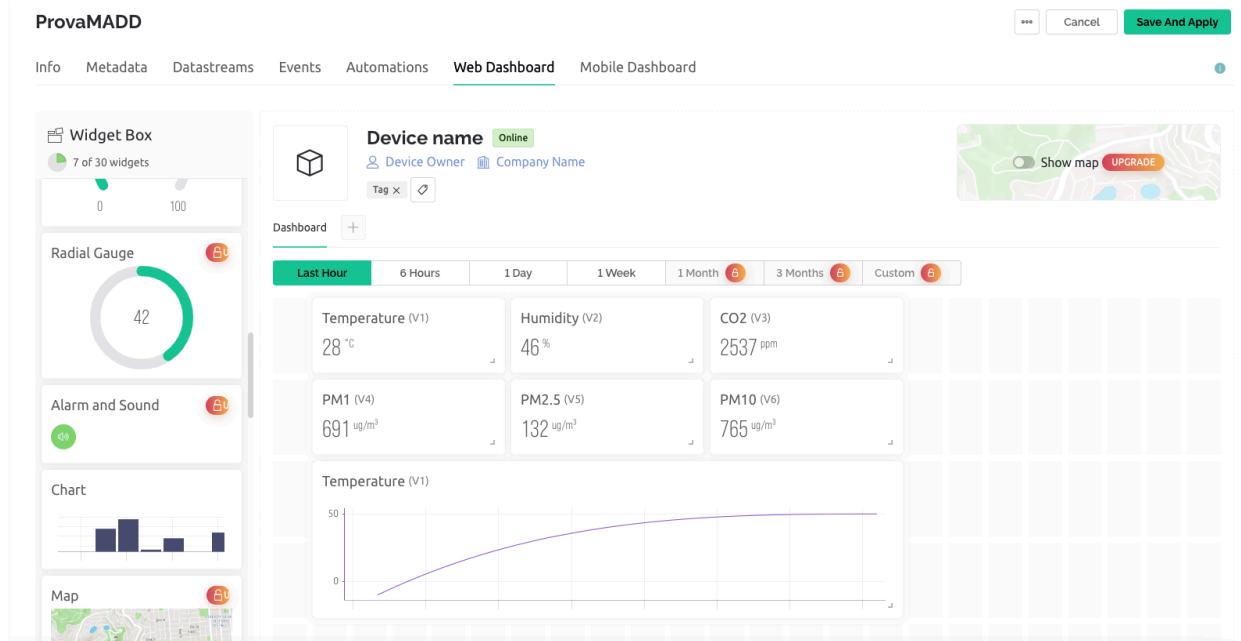
You will see the actual code has some differences compared to the ThingSpeak one. Blynk timer is specifically needed to run Blynk. Feel free to change/adapt anything except this.

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23. You should see some data coming through your Blynk Dashboard.



24. If you want to add some different visualizations (gauges, charts, etc.) you may need to come back to the template again > web dashboard > edit panel and add any kind of element you want. Disclaimer: some of them are a premium option of Blynk (= pay) which you don't need to do for MADD of course.



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ALTERNATIVE USE:

There's an Android/iPhone application of Blynk, which might be super handy for some use cases. The only handicap is that you have to set up the dashboard from scratch, as it's totally separate from the web version.

Once you have it ready it might be useful in case you want to go with your device + mobile and take measurements. That's all you need!

That's it. Let me know guys if you have any doubts.

You can always write me on Teams or directly at mconangla@elisava.net

Happy data!

Marc