

DIGILAB

SMART LOOM CURTAIN MANAGER

IOT-A4



MEMBER

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INTRODUCTION

01

ABOUT THIS PROJECT

01

The “Smartloom Curtain Manager” tackles the complexities of automating your window coverings, offering an intelligent and seamless experience. Control your curtains remotely through an intuitive mobile application or user-friendly physical interfaces. Robust security measures ensure the confidentiality and integrity of your commands, protecting against unauthorized access.



ACCEPTANCE CRITERIA

01

1. The system must be able to operate flawlessly and integrate accurately between hardware components and software components,
2. Firmware handles error and power efficiently, while Blynk app provides intuitive control and feedback
3. Curtain reacts within 8 seconds and reaches desired position within 5-7% margin
4. Simple and user-friendly interface with clear feedback and customization options
5. Functional Hardware where ESP32 operates as expected, LDR provides accurate readings, DC motor responds accurately,
6. Smart Curtains should be designed with convenient hardware components, to make them replaceable and easily swappable components, allowing for effortless replacement or repair within a timeframe around 6-12 months.



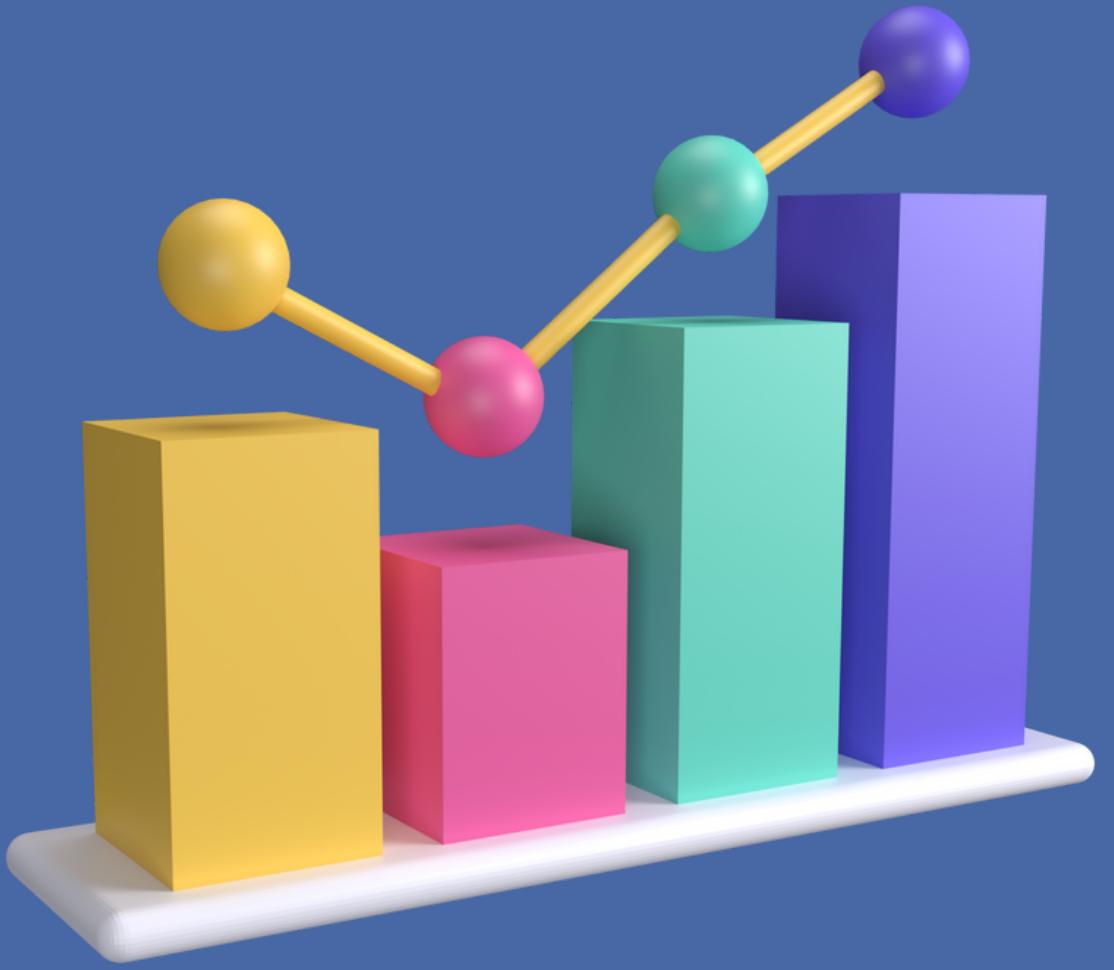
ROLES AND RESPONSIBILITIES

Roles	Responsibilities	Person
Project Leader	Coordinating team efforts, overseeing project integration, and ensuring alignment with project objectives.	Luthfi Misbachul Munir
Hardware Schematic Developer	Designing the blueprint for the hardware components, ensuring accuracy and coherence with project specifications.	Fayza Nirwasita
Hardware Developer	Actively contributing to the coding process and collaborating with the Hardware Schematic Developer to ensure seamless integration.	Muhammad Zaki Nur Said Hanan
Software Developer	Creating a user-friendly interface and managing datastreams for efficient communication between the user and the IoT device.	Mochammad Dyenta Dwiantomitara

TIMELINE AND MILESTONES

SMARTLOOM CURTAIN MANAGER

	November				December			
	W1	W2	W3	W4	W1	W2	W3	W4
Hardware Development								
<input checked="" type="checkbox"/>	Observe Hardware Tools							
<input checked="" type="checkbox"/>	Hardware Design Schematic							
<input checked="" type="checkbox"/>	Testing Each of Tools							
<input checked="" type="checkbox"/>	Create a code each of tools							
<input checked="" type="checkbox"/>	Implementasi Schematic ke Rangkaian Langsung							
Software Development								
<input checked="" type="checkbox"/>	Explore Feature in Blynk							
<input checked="" type="checkbox"/>	Create Template and Datastream							
<input checked="" type="checkbox"/>	Create interface							
<input checked="" type="checkbox"/>	Testing in code							
Integration								
<input checked="" type="checkbox"/>	Testing Hardware							
<input checked="" type="checkbox"/>	Testing Software							
<input checked="" type="checkbox"/>	Integration feature hardware and software							
<input checked="" type="checkbox"/>	Testing integration							
Final Product Development								
<input checked="" type="checkbox"/>	Create Prototype							
<input checked="" type="checkbox"/>	Integrating with hardware							
<input checked="" type="checkbox"/>	Final Testing							



IMPLEMENTATION

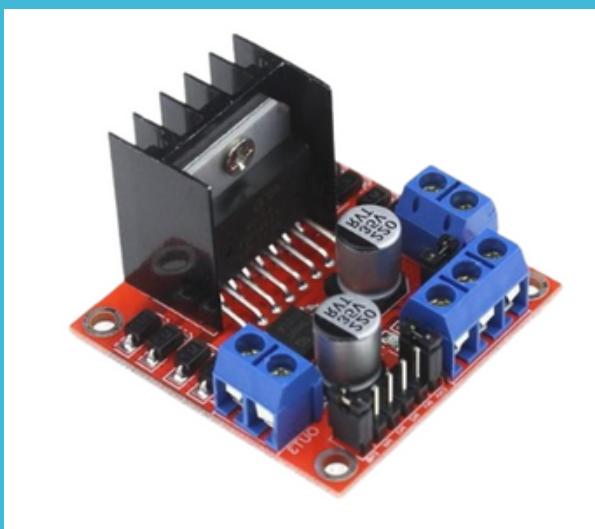
02

HARDWARE DEVELOPMENT



**ESP32
Microcontroller**

Cardboard safety
package



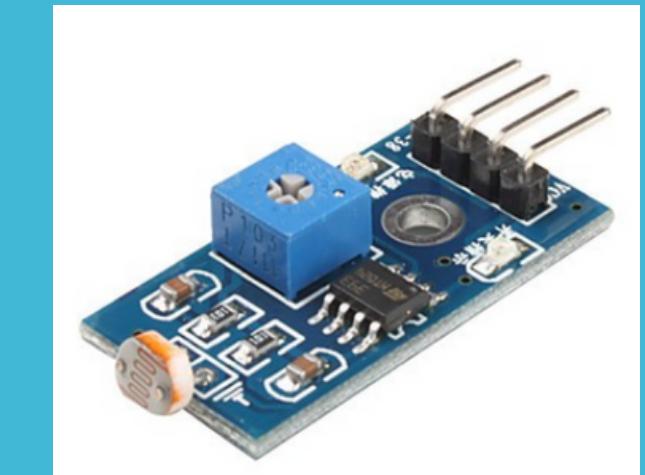
**L298N Motor
Driver Module**



Motor DC



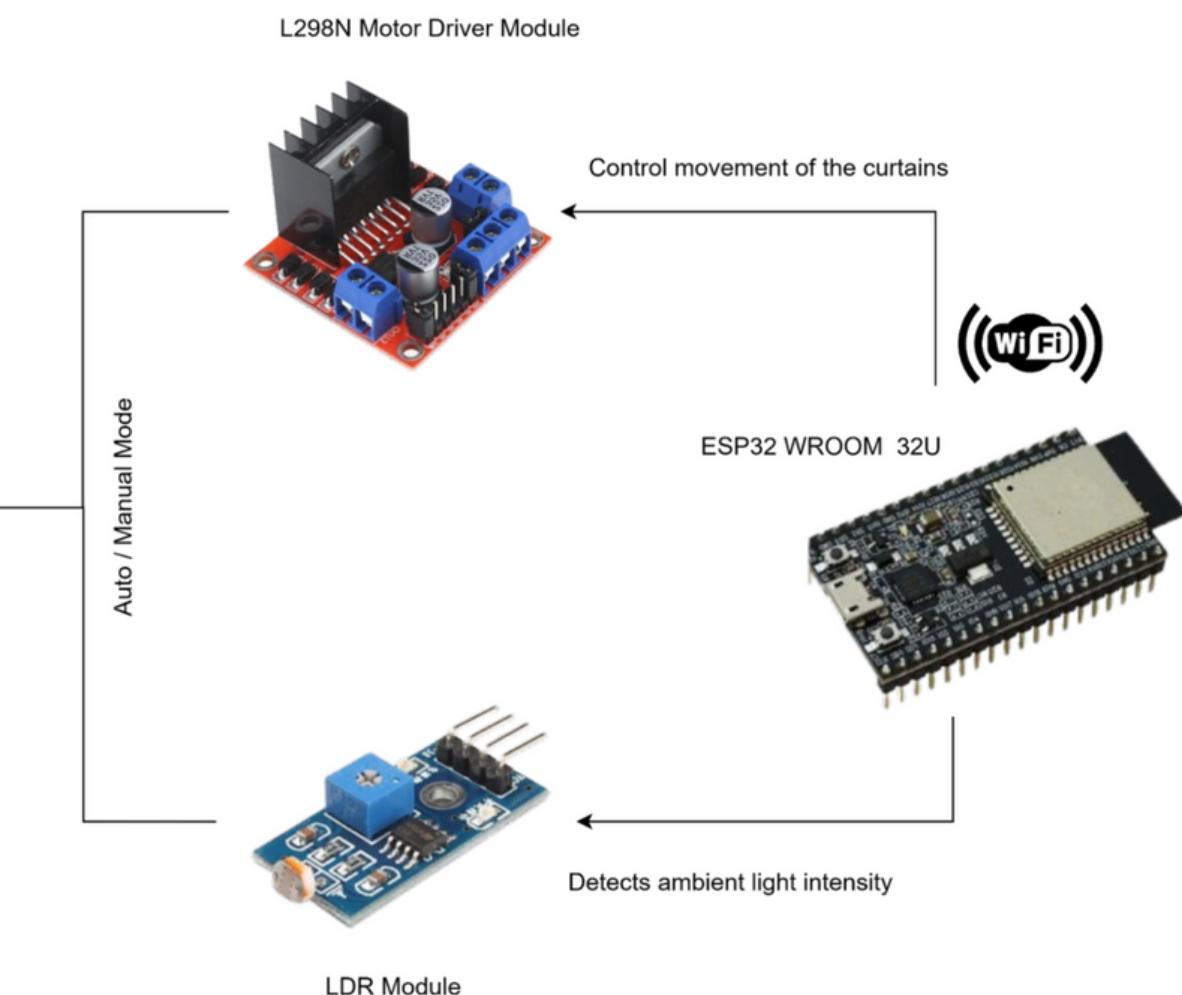
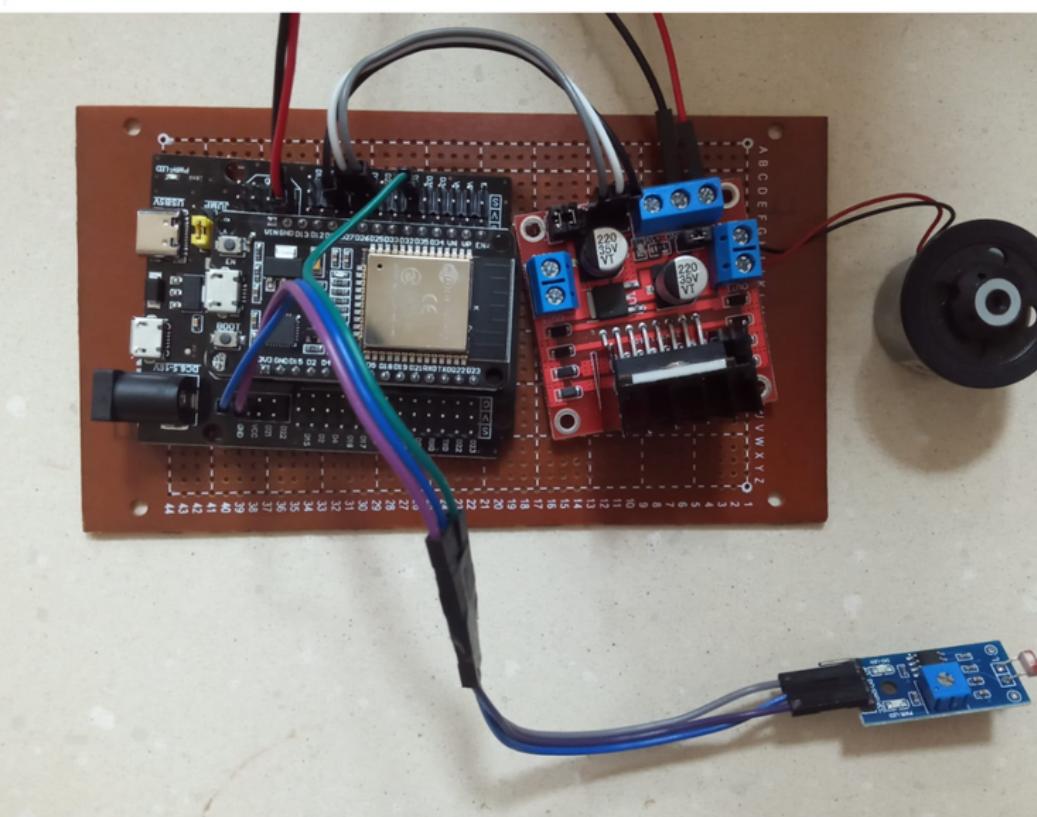
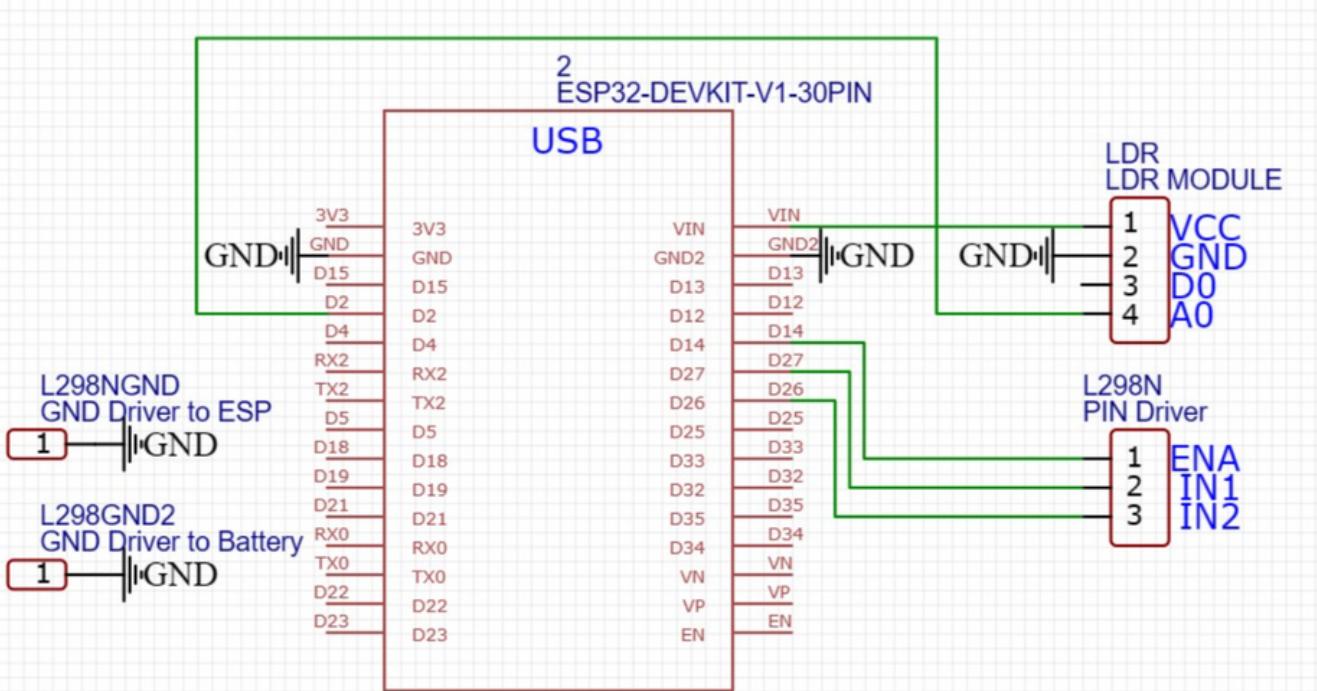
**Light Dependent
Resistor (LDR) module**



**ESP32 Expansion
Board**



HARDWARE DEVELOPMENT



SOFTWARE DEVELOPMENT

02

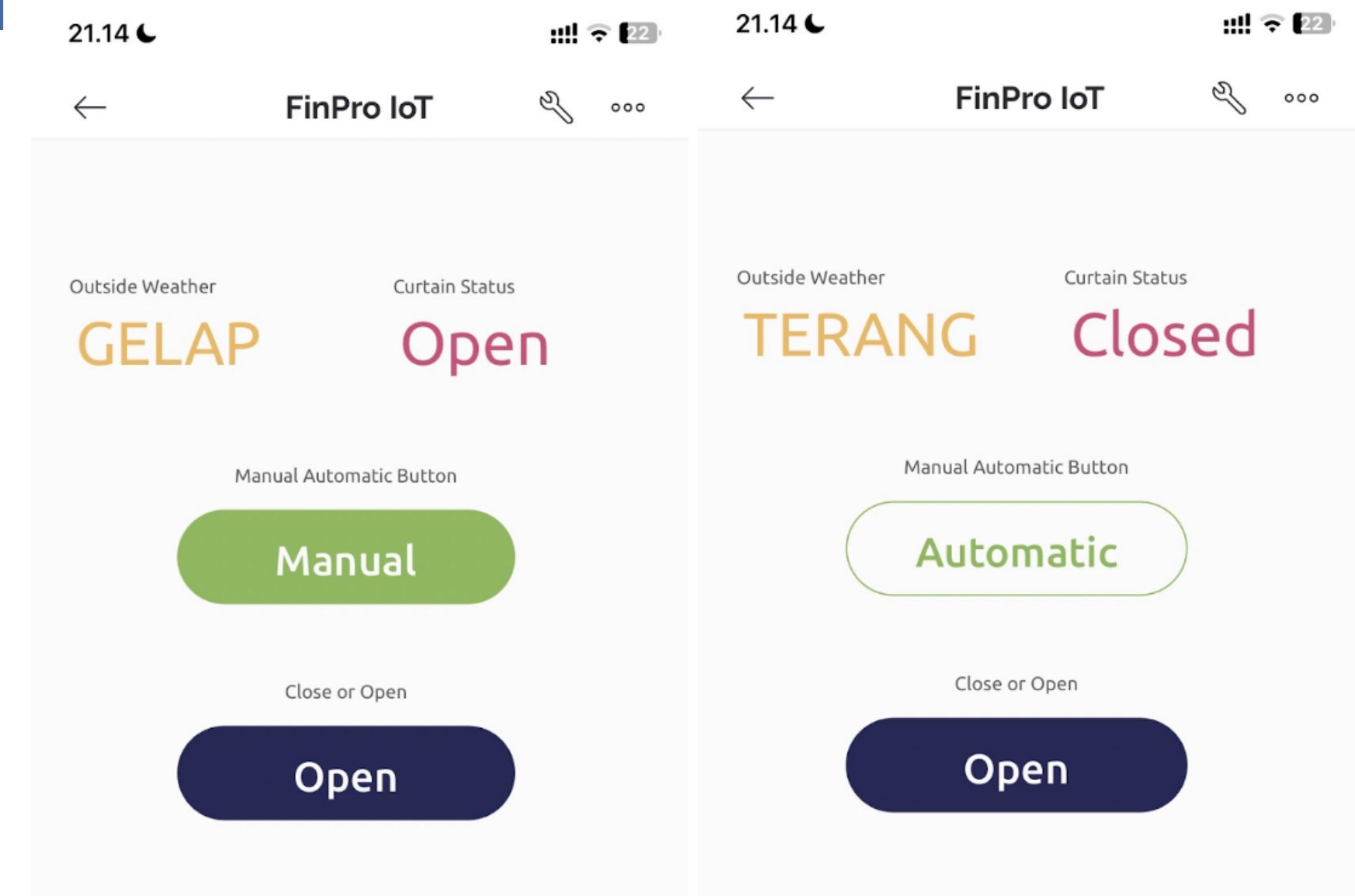
The screenshot shows a software interface for managing datastreams. At the top, there's a header with 'My organization - 4961IC' and a gear icon. On the right side of the header are icons for notifications, settings, and user profile. Below the header, the title 'FinPro' is displayed next to a small icon of a green cube with arrows. A navigation bar below the title includes links for Home, Datastreams (which is underlined in green), Web Dashboard, Automations, Metadata, Events, and Mobile Dashboard. A search bar labeled 'Search datastream' is positioned below the navigation bar. The main area contains a table with four data rows. The columns are labeled: Id, Name, Alias, Color, Pin, Data Type, Units, Is Raw, Min, and Max. The data rows are as follows:

Id	Name	Alias	Color	Pin	Data Type	Units	Is Raw	Min	Max
1	CloseOpenButton	CloseOpenButton	Green	V0	Integer		false	0	1
2	Curtain Status	Curtain Status	Blue	V1	String		false		
3	Outside Weather	Outside Weather	Cyan	V2	String		false		
4	Manual Automatic Button	Manual Automatic Button	Orange	V3	Integer		false	0	1

At the bottom right of the interface, there are links for 'Region: sgp1' and 'Privacy Policy'.

SOFTWARE DEVELOPMENT

02





TESTING &RESULT

03

LDR SENSOR



Dark:

```
LDR Value : 2151  
Jam : 21  
Prev Jam : 21  
Application : 1  
Is active : 0
```

Bright:

```
prev : GELAP  
status : TERANG  
LDR Value : 439  
Jam : 21  
Prev Jam : 21  
Application : 0  
Is active : 0
```

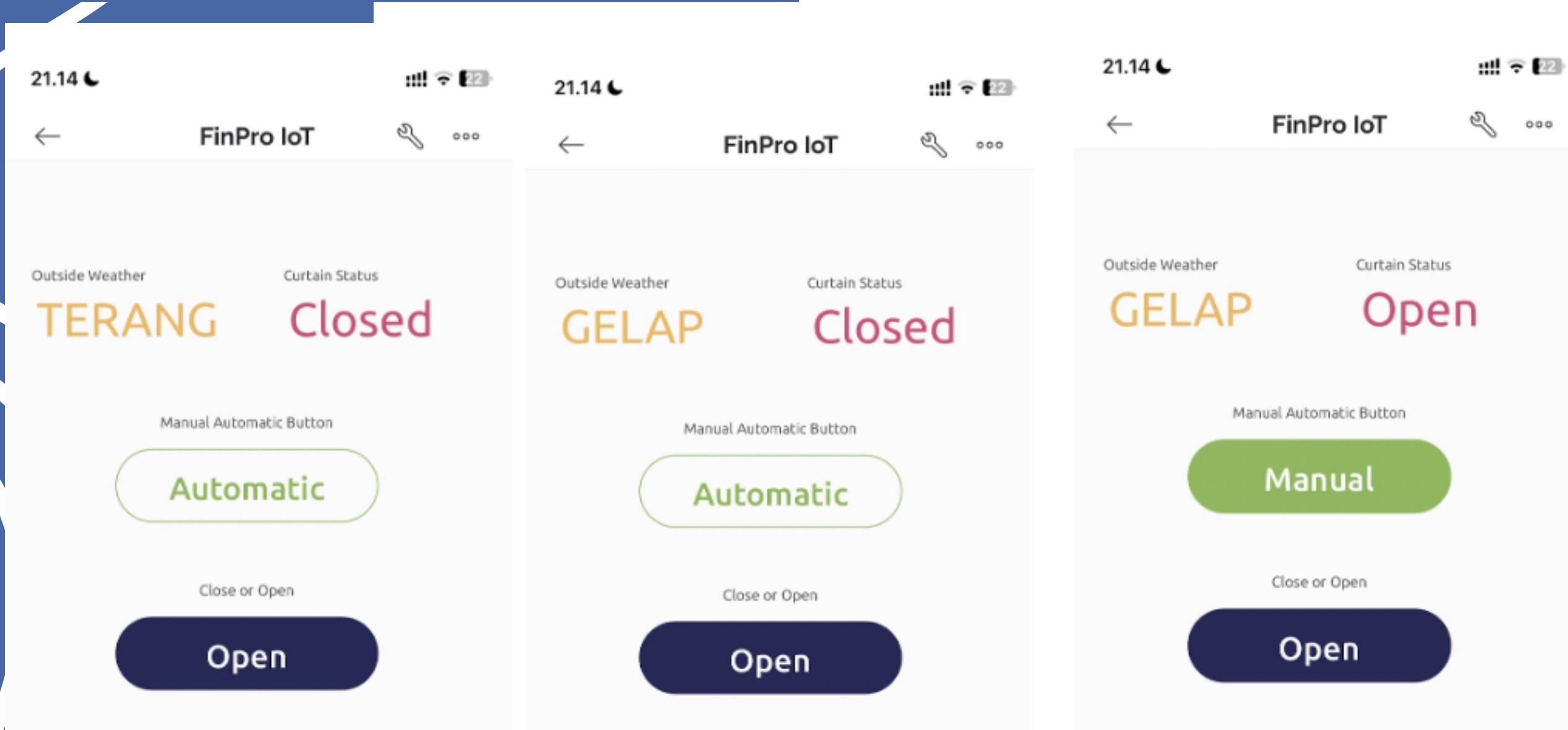
DC MOTOR



Button State: 0
Button Close Pressed
Closing Motor
LDR Value : 2312
Jam : 21
Prev Jam : 21
Application : 1
Is active : 0

Button State: 1
Button Open Pressed
Opening Motor
LDR Value : 2383
Jam : 21
Prev Jam : 21
Application : 1
Is active : 0

BLYNK

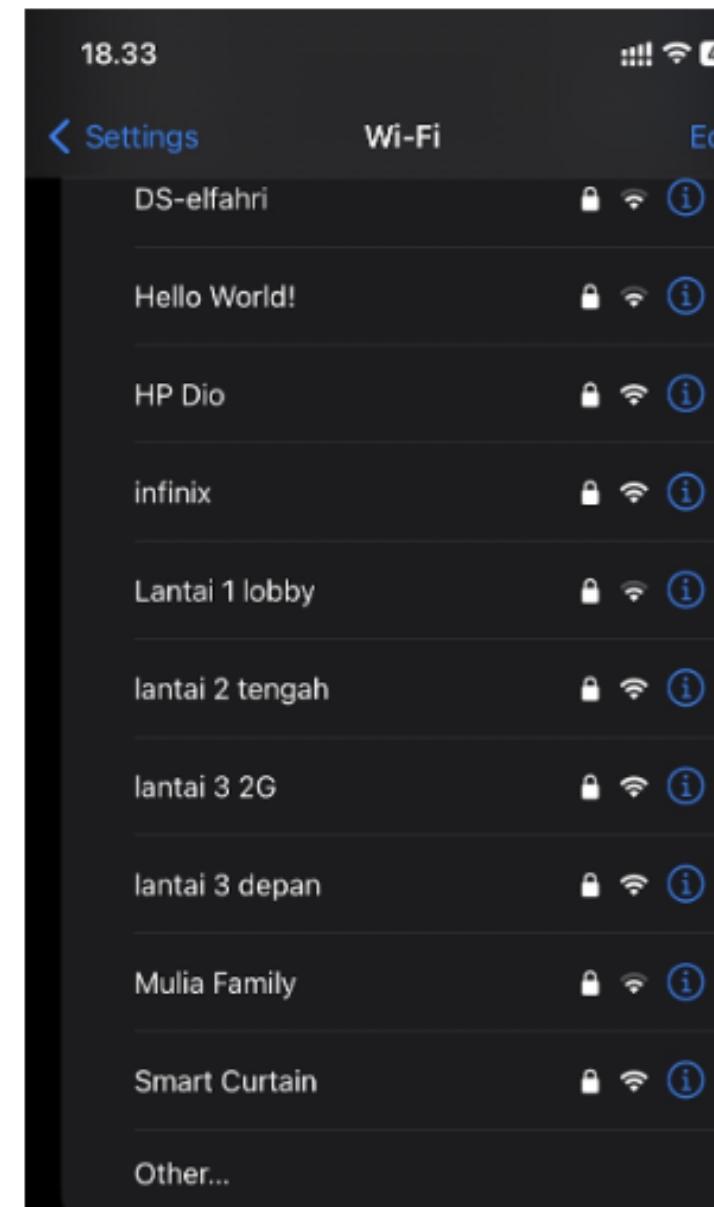


ESP32

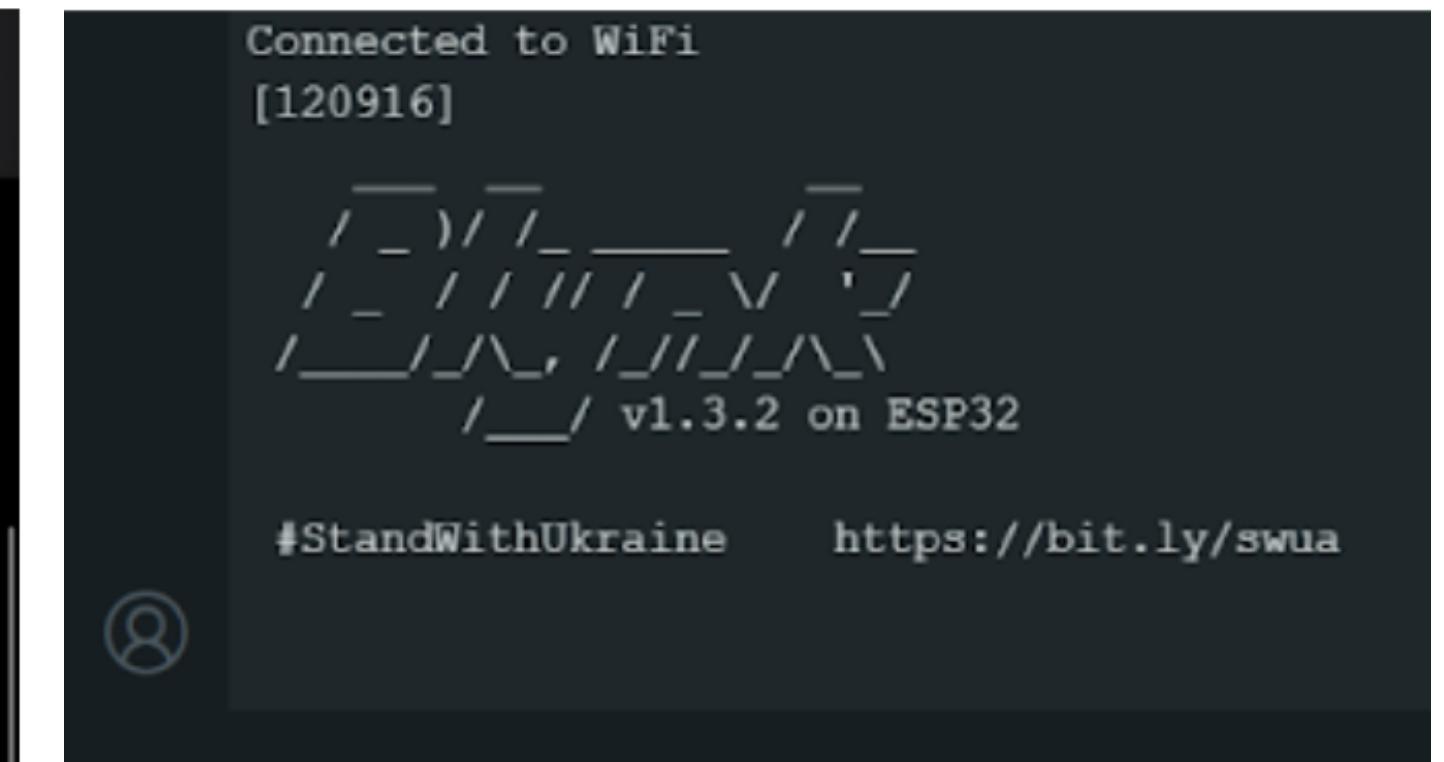
Before connected to WiFi:

```
rst:0x1 (POWERON_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
configsip: 0, SPIWP:0xee
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x00
mode:DIO, clock div:1
load:0x3fff0030,len:1184
load:0x40078000,len:13260
load:0x40080400,len:3028
entry 0x400805e4
*wm:[1] resetSettings
*wm:[1] SETTINGS_ERASED
*wm:[1] AutoConnect
*wm:[2] ESP32 event handler enabled
*wm:[2] Connecting as wifi client...
*wm:[2] setSTAConfig static ip not set, skipping
*wm:[1] No wifi saved, skipping
*wm:[2] Connection result: WL_NO_SSID_AVAIL
*wm:[1] AutoConnect: FAILED
*wm:[2] Starting Config Portal
*wm:[2] AccessPoint set password is VALID
*wm:[2] Disabling STA
*wm:[2] Enabling AP
*wm:[1] StartAP with SSID: Smart Curtain
*wm:[1] AP IP address: 192.168.4.1
*wm:[1] Starting Web Portal
*wm:[2] HTTP server started
*wm:[2] Config Portal Running, blocking, waiting for clients...
```

Connecting to WiFi:



Connected to WiFi:



THANK YOU

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