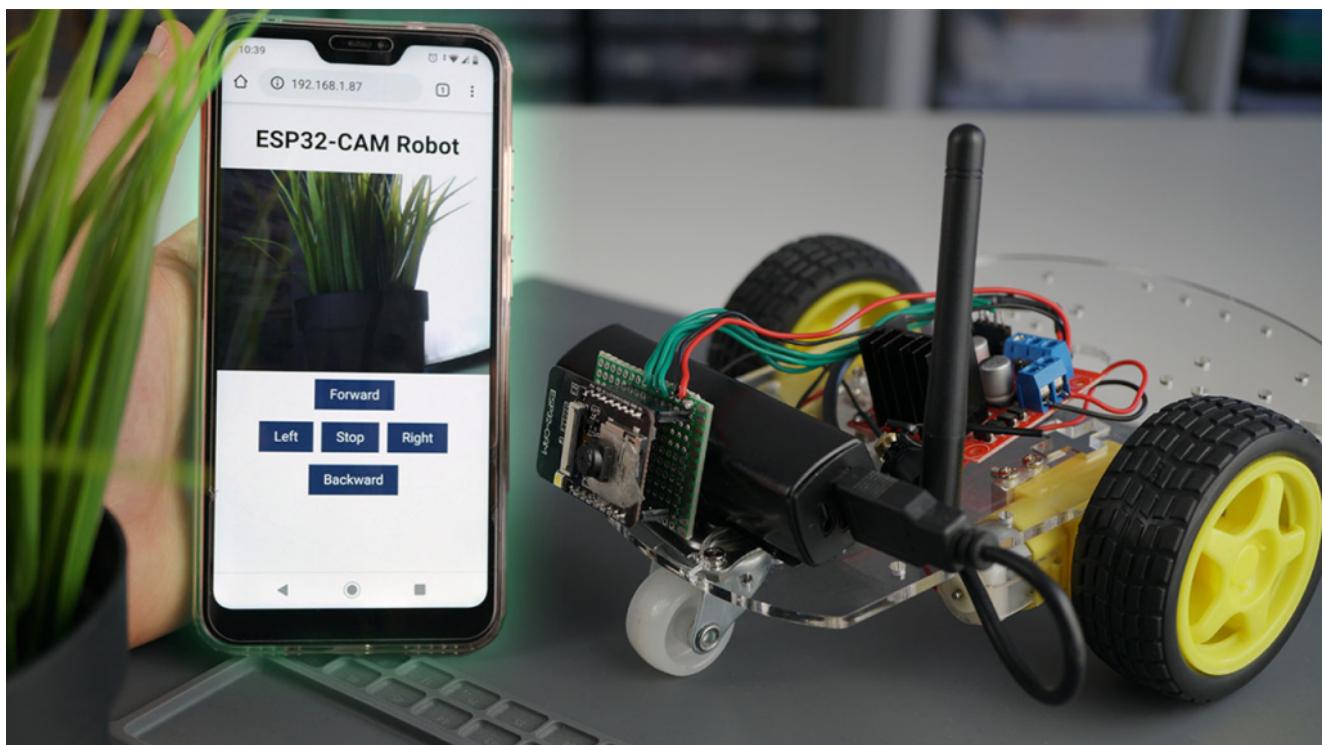


ESP32-CAM Remote Controlled Car Robot Web Server

Build a Wi-Fi remote controlled car robot with the ESP32-CAM. You'll be able to control the robot using a web server that displays a video streaming of what the robot "sees". You can control your robot remotely even if it's out of your sight. The ESP32-CAM will be programmed using Arduino IDE.



Boards compatibility: this project requires 4 GPIOs to control the DC motors. So, you can use any ESP32 camera board with 4 available GPIOs like the ESP32-CAM Ai-Thinker board or the TTGO T-Journal.

Project Overview

Before starting the project, we'll highlight the most important features and components used to build the robot.

Wi-Fi

The robot will be controlled via Wi-Fi using your ESP32-CAM. We'll create a web-based interface to control the robot, that can be accessed in any device inside your local network.

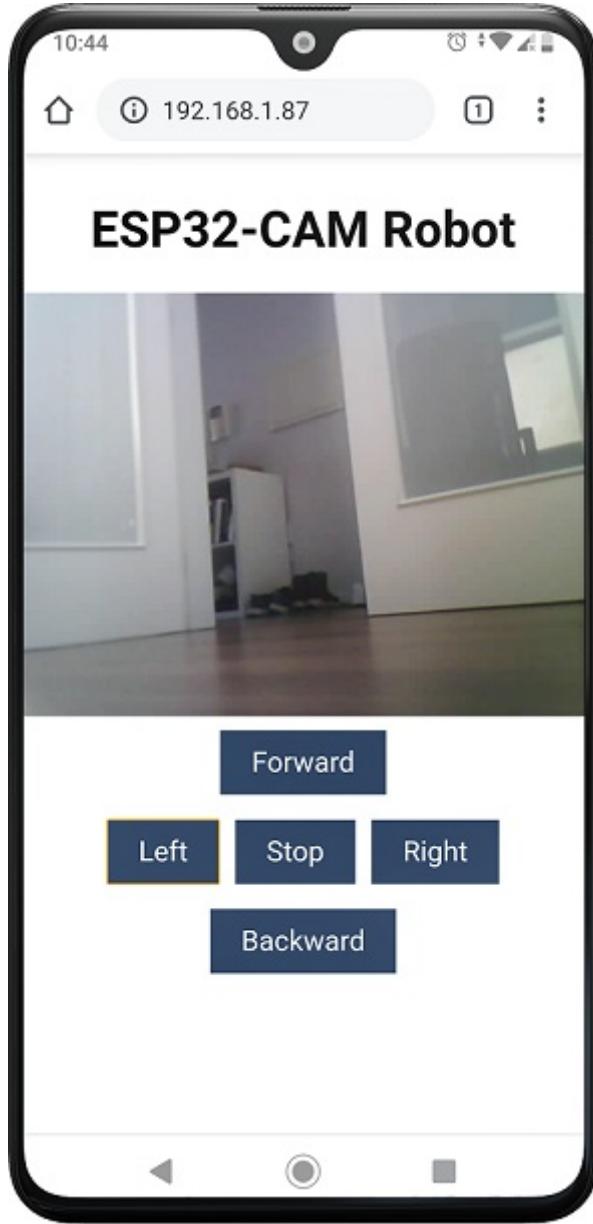
The web page also shows a video streaming of what the robot "sees". For good results with video streaming, we recommend using an [ESP32-CAM with external antenna](#).



Important: without an external antenna the video stream lags and the web server is extremely slow to control the robot.

Robot Controls

The web server has 5 controls: **Forward**, **Backward**, **Left**, **Right**, and **Stop**.

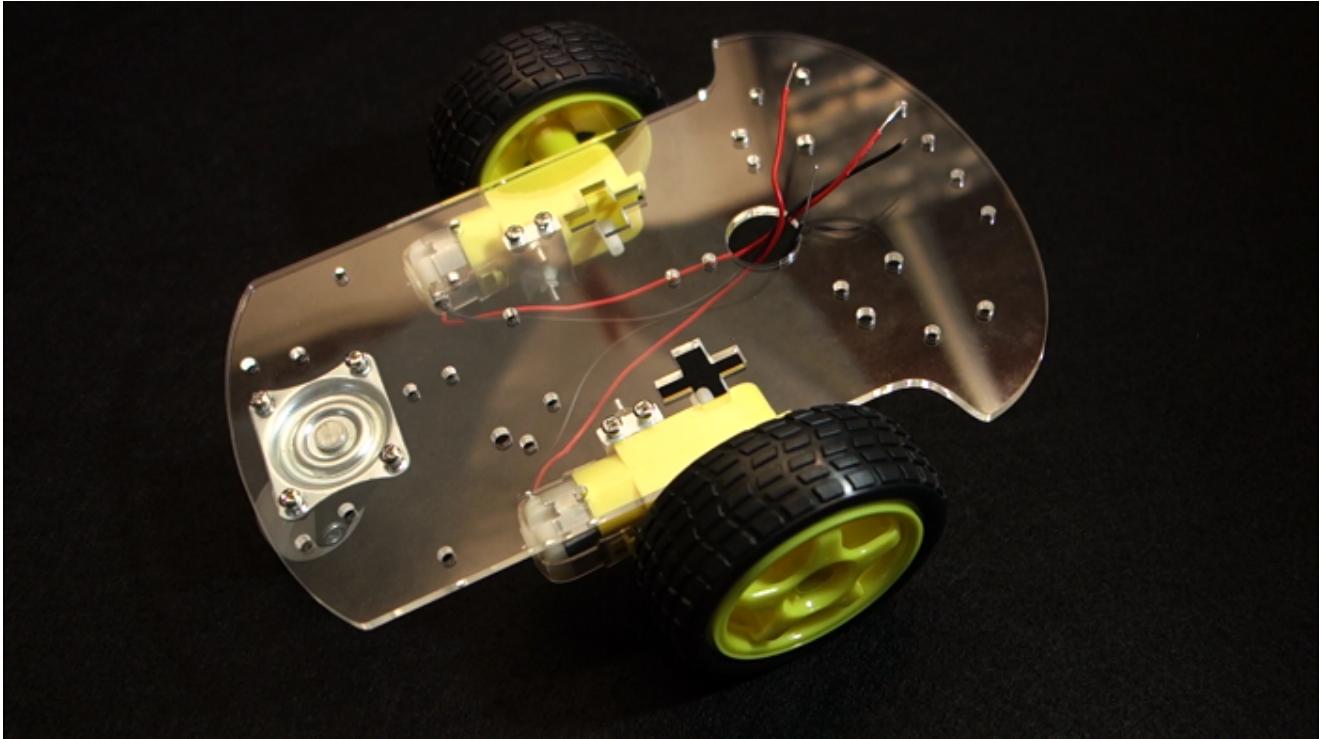


The robot moves as long as you're pressing the buttons. When you release any button, the robot stops. However, we've included the **Stop** button that can be useful in case the ESP32 doesn't receive the stop command when you release a button.

Smart Robot Chassis Kit

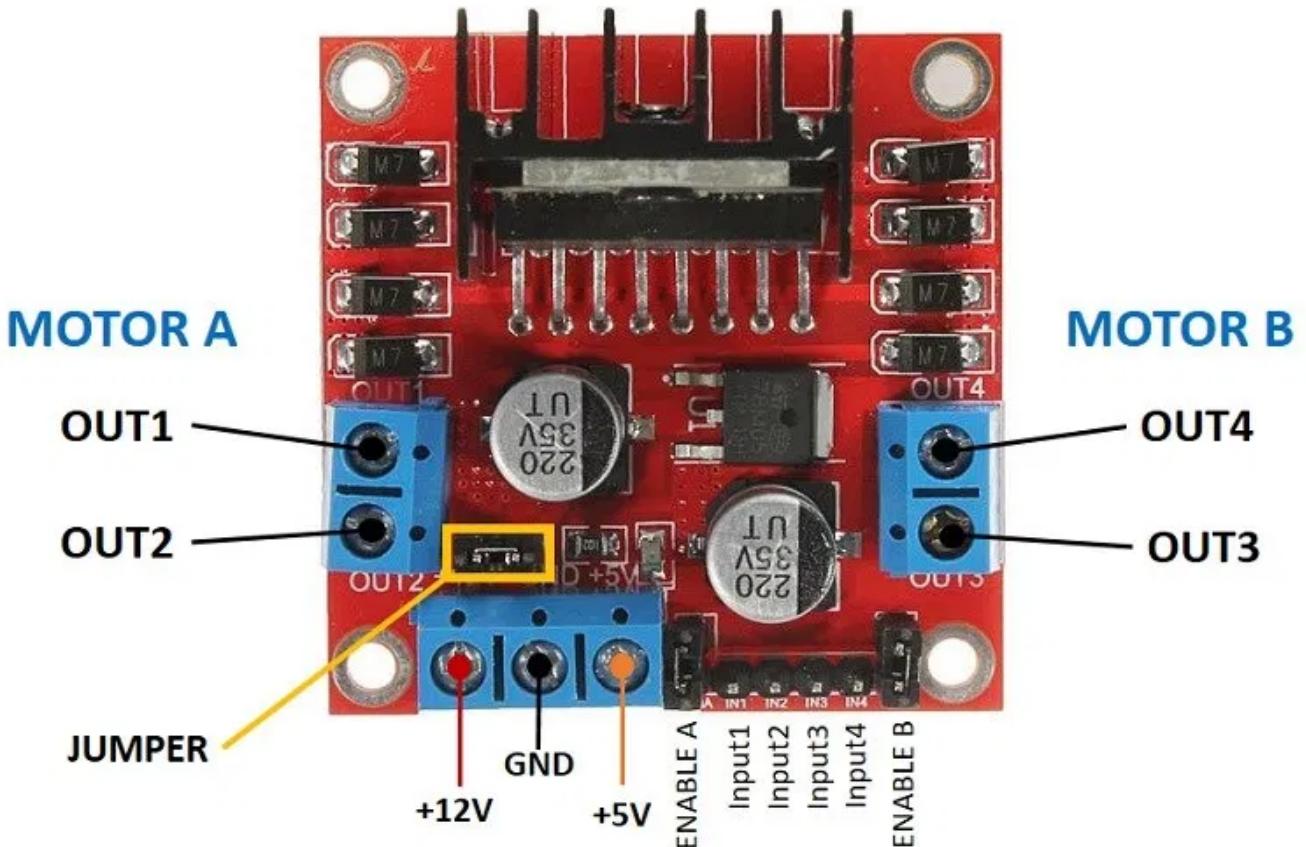
We're going to use the [Smart Robot Chassis Kit](#). You can find it in most online stores. The kit costs around \$10 and it's easy to assemble – [watch this video to see how to assemble the robot chassis kit](#).

You can use any other chassis kit as long as it comes with two DC motors.



L298N Motor Driver

There are many ways to control DC motors. We'll use the L298N motor driver that provides an easy way to control the speed and direction of 2 DC motors.



We won't explain how the L298N motor driver works. You can read the following article for an in-depth tutorial about the L298N motor driver:

- [ESP32 with DC Motor and L298N Motor Driver – Control Speed and Direction](#)

Power

To keep the circuitry simple, we'll power the robot (motors) and the ESP32 using the same power source. We used a power bank/portable charger (like the ones used to charge your smartphone) and it worked well.



Note: the motors draw a lot of current, so if you feel your robot is not moving properly, you may need to use an external power supply for the motors. This means you need two different power sources. One to power the DC motors, and the other to power the ESP32.

Parts Required

For this project, we'll use the following parts:

- [ESP32-CAM AI-Thinker with external antenna](#)
- [L298N Motor Driver](#)
- [Robot Car Chassis Kit](#)
- Power bank or other 5V power supply
- [Prototyping circuit board \(optional\)](#)

You can use the preceding links or go directly to MakerAdvisor.com/tools to find all the parts for your projects at the best price!



Code

Copy the following code to your Arduino IDE.

```
*****
Rui Santos
Complete instructions at https://RandomNerdTutorials.com/esp32-cam-car-robot-web-server/

Permission is hereby granted, free of charge, to any person obtaining
The above copyright notice and this permission notice shall be
*****
```

```
#include "esp_camera.h"
#include <WiFi.h>
#include "esp_timer.h"
#include "img_converters.h"
#include "Arduino.h"
#include "fb_gfx.h"
#include "soc/soc.h"          // disable brownout problems
#include "soc/rtc_cntl_reg.h"  // disable brownout problems
#include "esp_http_server.h"

// Replace with your network credentials
const char* ssid = "REPLACE_WITH_YOUR_SSID";
const char* password = "REPLACE_WITH_YOUR_PASSWORD";

#define PART_BOUNDARY "12345678900000000000987654321"

#define CAMERA_MODEL_AI_THINKER
//#define CAMERA_MODEL_M5STACK_PSRAM
//#define CAMERA_MODEL_M5STACK_WITTHOUT_PSRAM
```

[View raw code](#)

Insert your network credentials and the code should work straight away.

```
const char* ssid = "REPLACE_WITH_YOUR_SSID";
const char* password = "REPLACE_WITH_YOUR_PASSWORD";
```

How the Code Works

Let's take a look at the relevant parts to control the robot. Define the GPIOs that will control the motors. Each motor is controlled by two pins.

```
#define MOTOR_1_PIN_1 14
#define MOTOR_1_PIN_2 15
#define MOTOR_2_PIN_1 13
#define MOTOR_2_PIN_2 12
```

When you click the buttons, you make a request on a different URL.

```
<table>
  <tr><td colspan="3" align="center"><button class="button" onclick="toggleCheckbox(0)">Left</button></td>
  <tr><td align="center"><button class="button" onmousedown="toggleCheckbox(1)">Up</button></td>
    <td colspan="3" align="center"><button class="button" onclick="toggleCheckbox(2)">Down</button></td>
  </tr>
</table>
<script>
  function toggleCheckbox(x) {
    var xhr = new XMLHttpRequest();
    xhr.open("GET", "/action?go=" + x, true);
    xhr.send();
  }
  window.onload = document.getElementById("photo").src = "/image.jpg";
</script>
```

Here's the requests made depending on the button that is being pressed:

Forward:

<ESP_IP_ADDRESS>/action?go=forward

Backward:

/action?go=backward

Left:

/action?go=left

Right:

/action?go=right

Stop:

/action?go=stop

When you release the button, a request is made on the /action?go=stop URL. The robot only moves as long as you're pressing the buttons.

Handle Requests

To handle what happens when we get requests on those URLs, we use these if...else statements:

```
if(!strcmp(variable, "forward")) {  
    Serial.println("Forward");  
    digitalWrite(MOTOR_1_PIN_1, 1);  
    digitalWrite(MOTOR_1_PIN_2, 0);
```

```
digitalWrite(MOTOR_2_PIN_1, 1);
digitalWrite(MOTOR_2_PIN_2, 0);
}

else if(!strcmp(variable, "left")) {
    Serial.println("Left");
    digitalWrite(MOTOR_1_PIN_1, 0);
    digitalWrite(MOTOR_1_PIN_2, 1);
    digitalWrite(MOTOR_2_PIN_1, 1);
    digitalWrite(MOTOR_2_PIN_2, 0);
}

else if(!strcmp(variable, "right")) {
    Serial.println("Right");
    digitalWrite(MOTOR_1_PIN_1, 1);
    digitalWrite(MOTOR_1_PIN_2, 0);
    digitalWrite(MOTOR_2_PIN_1, 0);
    digitalWrite(MOTOR_2_PIN_2, 1);
}

else if(!strcmp(variable, "backward")) {
    Serial.println("Backward");
    digitalWrite(MOTOR_1_PIN_1, 0);
    digitalWrite(MOTOR_1_PIN_2, 1);
    digitalWrite(MOTOR_2_PIN_1, 0);
    digitalWrite(MOTOR_2_PIN_2, 1);
}

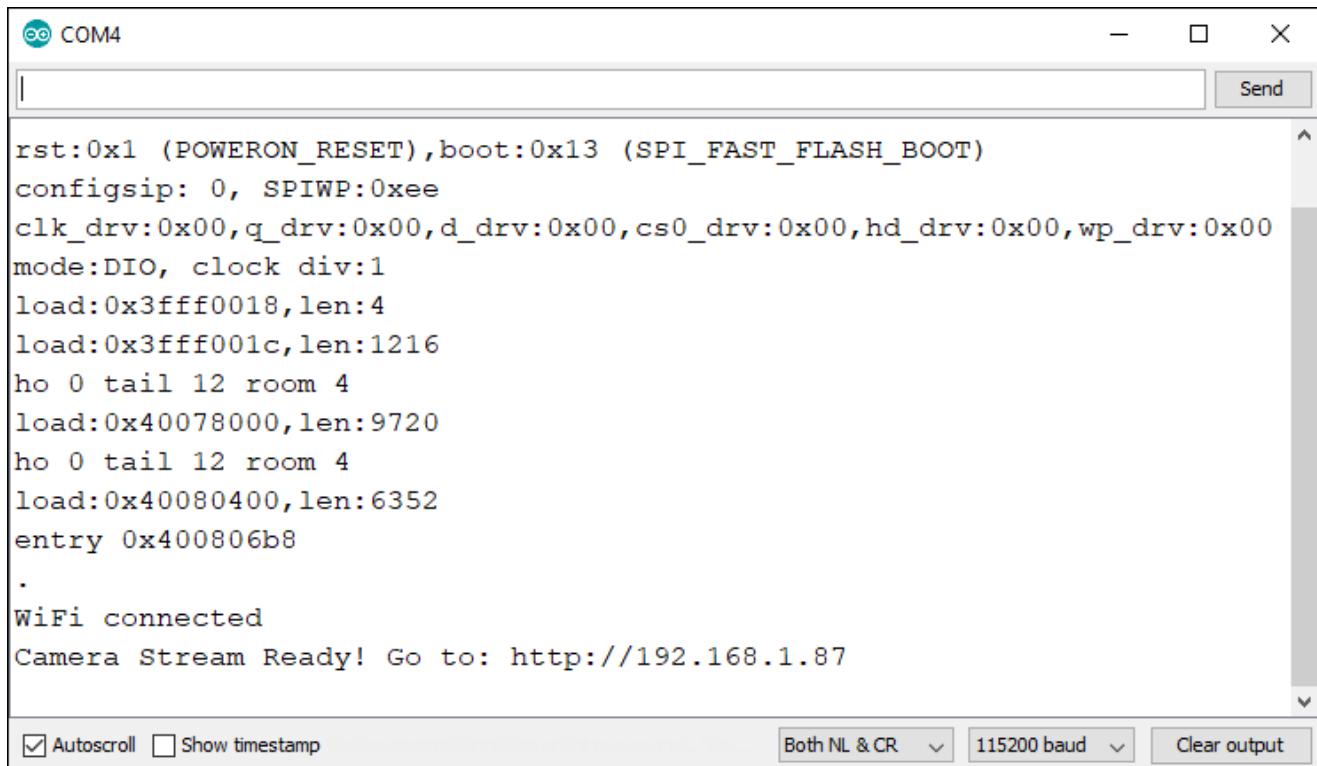
else if(!strcmp(variable, "stop")) {
    Serial.println("Stop");
    digitalWrite(MOTOR_1_PIN_1, 0);
    digitalWrite(MOTOR_1_PIN_2, 0);
    digitalWrite(MOTOR_2_PIN_1, 0);
    digitalWrite(MOTOR_2_PIN_2, 0);
}
```

Testing the Code

After inserting your network credentials, you can upload the code to your ESP32-CAM board. If you don't know how to upload code to the board, follow the next tutorial:

- How to Program / Upload Code to ESP32-CAM AI-Thinker (Arduino IDE)

After uploading, open the Serial Monitor to get its IP address.

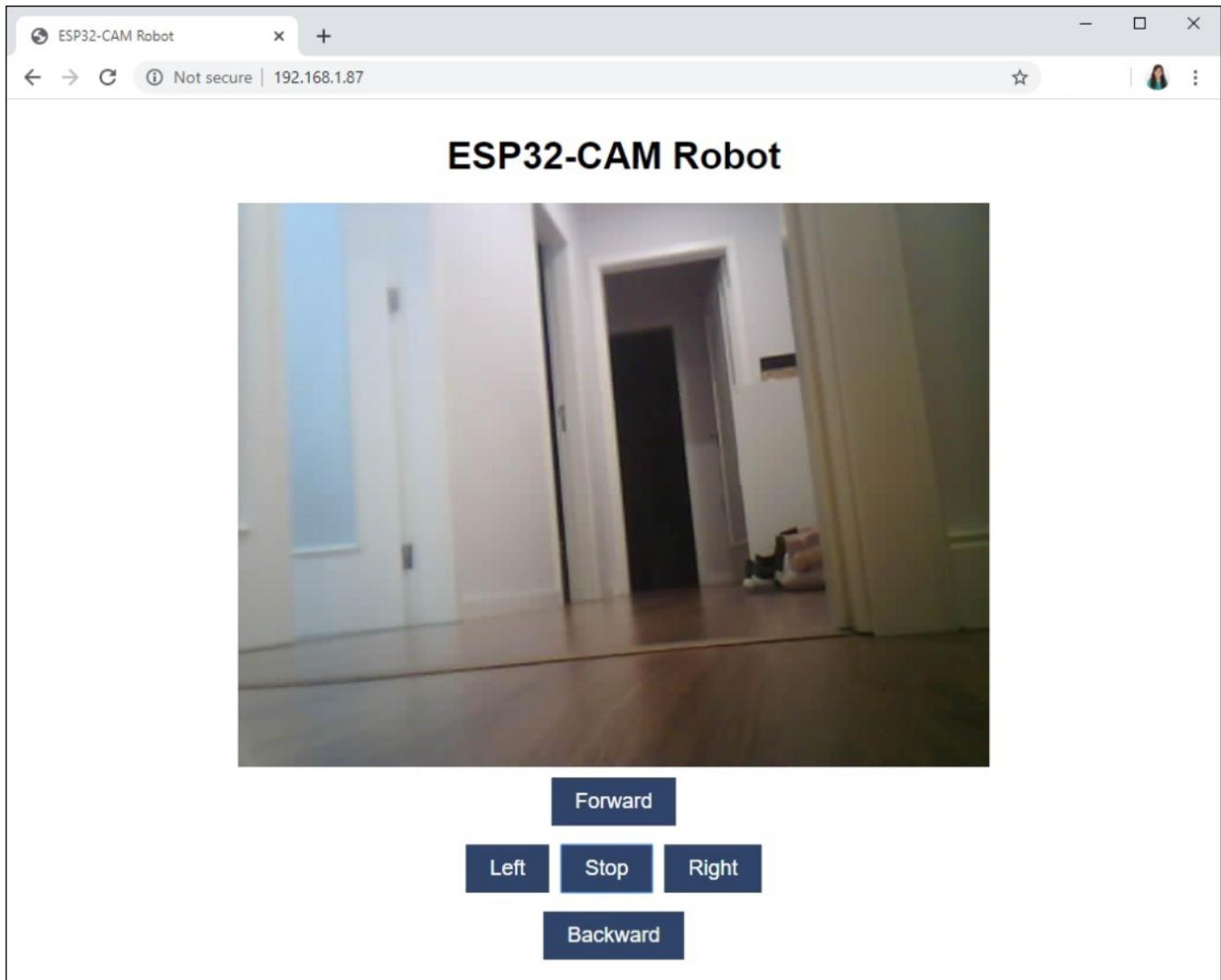


The screenshot shows the Arduino Serial Monitor window titled "COM4". The text output is as follows:

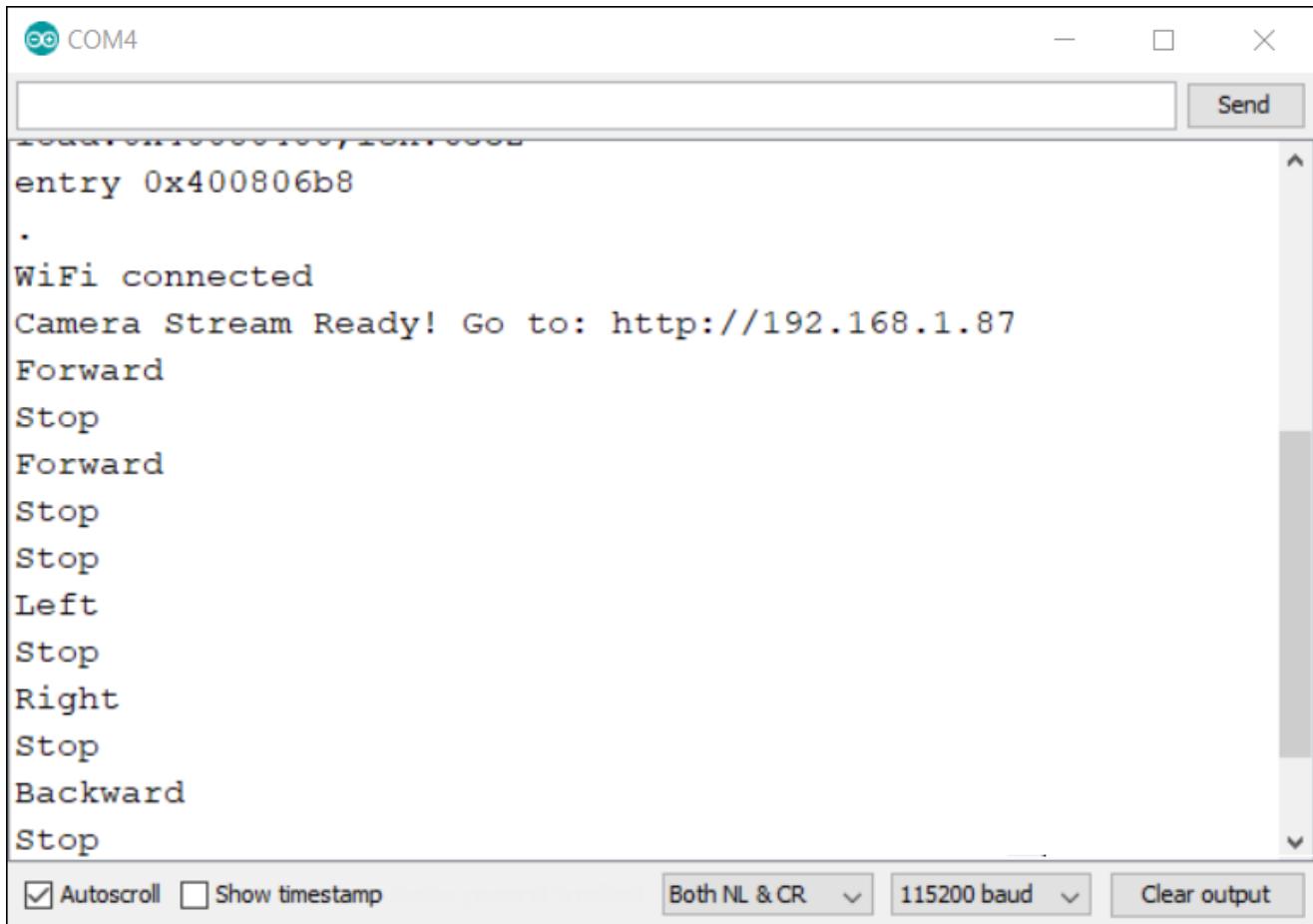
```
rst:0x1 (POWERON_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
configsip: 0, SPIWP:0xee
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x00
mode:DIO, clock div:1
load:0x3fff0018,len:4
load:0x3fff001c,len:1216
ho 0 tail 12 room 4
load:0x40078000,len:9720
ho 0 tail 12 room 4
load:0x40080400,len:6352
entry 0x400806b8
.
WiFi connected
Camera Stream Ready! Go to: http://192.168.1.87
```

At the bottom, there are checkboxes for "Autoscroll" and "Show timestamp", and dropdown menus for "Both NL & CR", "115200 baud", and "Clear output".

Open a browser and type the ESP IP address. A similar web page should load:



Press the buttons and take a look at the Serial Monitor to see if it is streaming without lag and if it is receiving the commands without crashing.



The screenshot shows a serial monitor window titled "COM4". The log output is as follows:

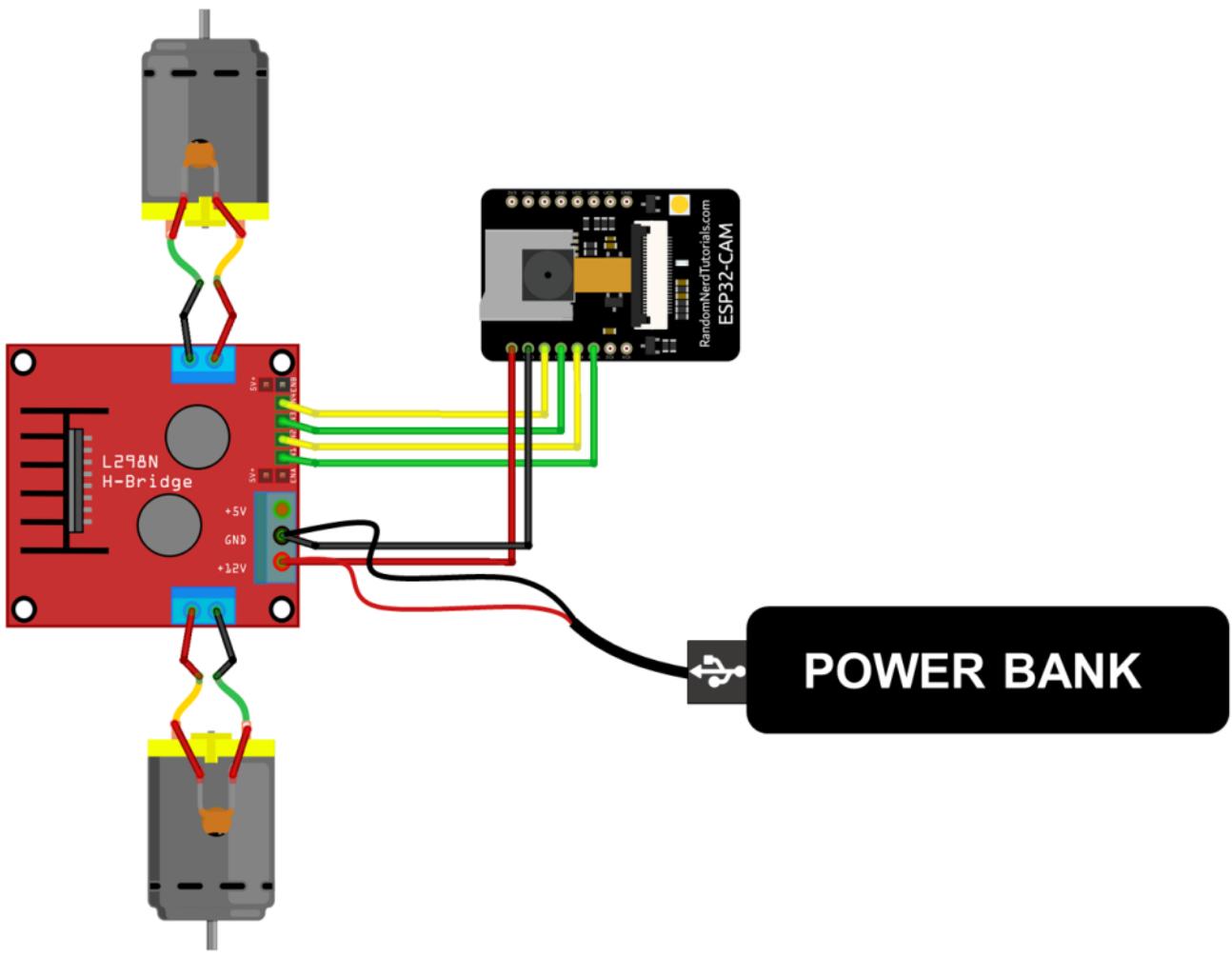
```
entry 0x400806b8
.
WiFi connected
Camera Stream Ready! Go to: http://192.168.1.87
Forward
Stop
Forward
Stop
Stop
Left
Stop
Right
Stop
Backward
Stop
```

At the bottom, there are configuration options: "Autoscroll" (checked), "Show timestamp" (unchecked), "Both NL & CR" (selected), "115200 baud" (selected), and a "Clear output" button.

If everything is working properly, it's time to assemble the circuit.

Circuit

After assembling the robot chassis, you can wire the circuit by following the next schematic diagram.

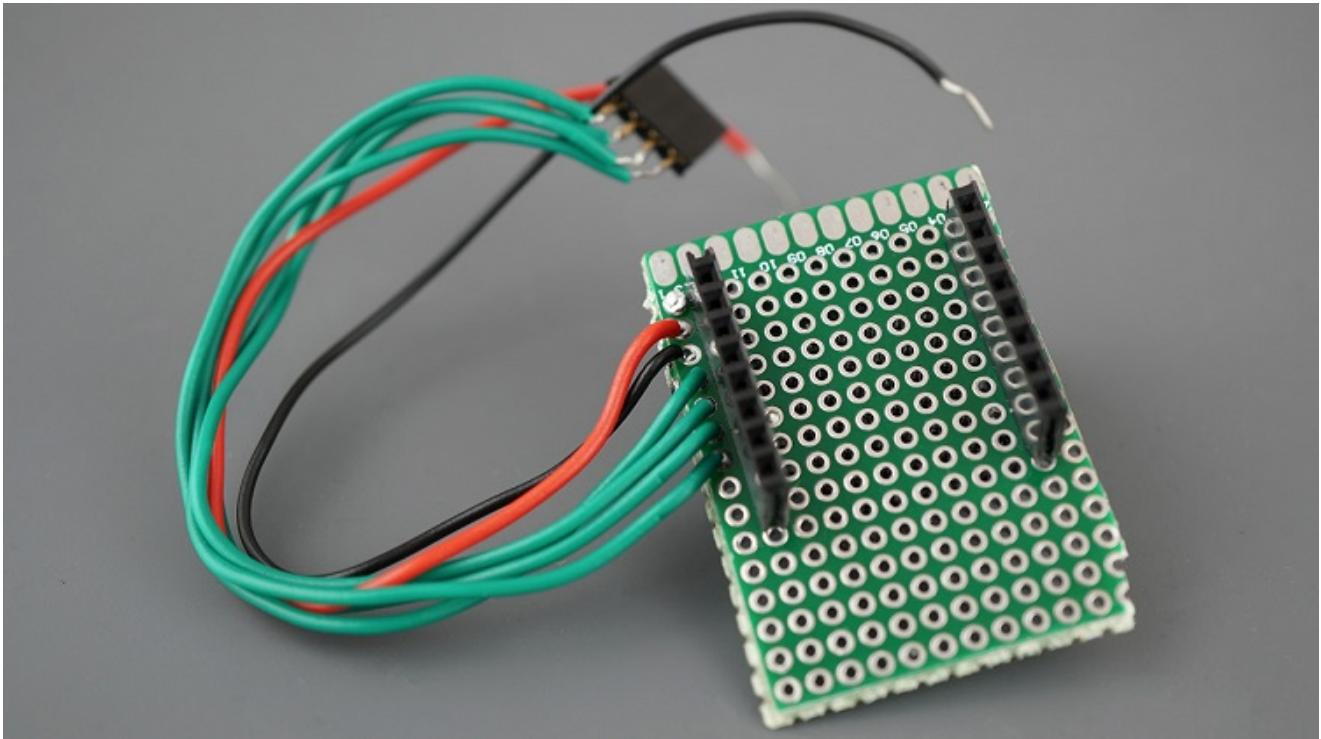


Start by connecting the ESP32-CAM to the motor driver as shown in the schematic diagram. You can either use a mini breadboard or a stripboard to place your ESP32-CAM and build the circuit.

The following table shows the connections between the ESP32-CAM and the L298N Motor Driver.

L298N Motor Driver	ESP32-CAM
IN1	GPIO 14
IN2	GPIO 15
IN3	GPIO 13
IN4	GPIO 12

We assembled all the connections on a mini stripboard as shown below.



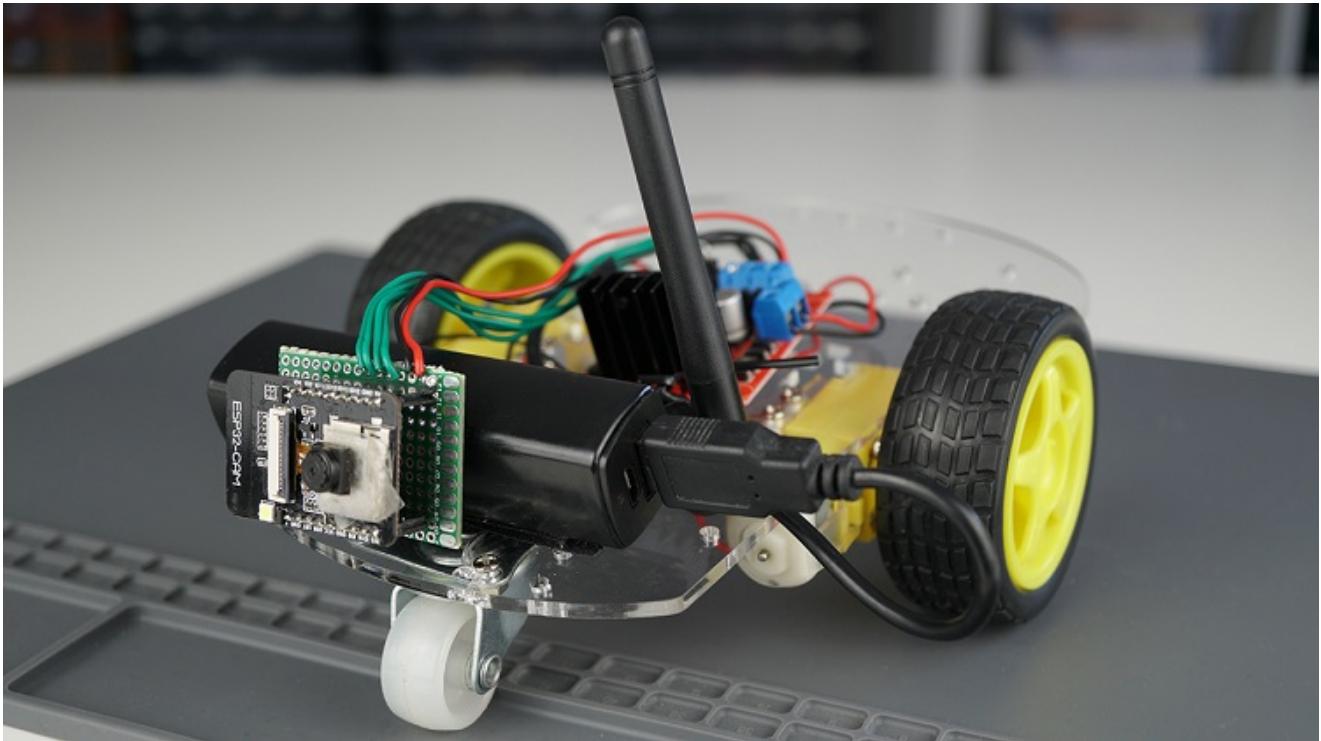
After that, wire each motor to its terminal block.

Note: we suggest soldering a 0.1 uF ceramic capacitor to the positive and negative terminals of each motor, as shown in the diagram to help smooth out any voltage spikes. Additionally, you can solder a slider switch to the red wire that comes from the power bank. This way, you can turn the power on and off.

Finally, apply power with a power bank as shown in the schematic diagram. You need to strip a USB cable. In this example, the ESP32-CAM and the motors are being powered using the same power source and it works well.

Note: the motors draw a lot of current, so if you feel your robot is not moving fast enough, you may need to use an external power supply for the motors. This means you need two different power sources. One to power the DC motors, and the other to power the ESP32. You can use a 4 AA battery pack to power the motors. When you get your robot chassis kit, you usually get a battery holder for 4 AA batteries.

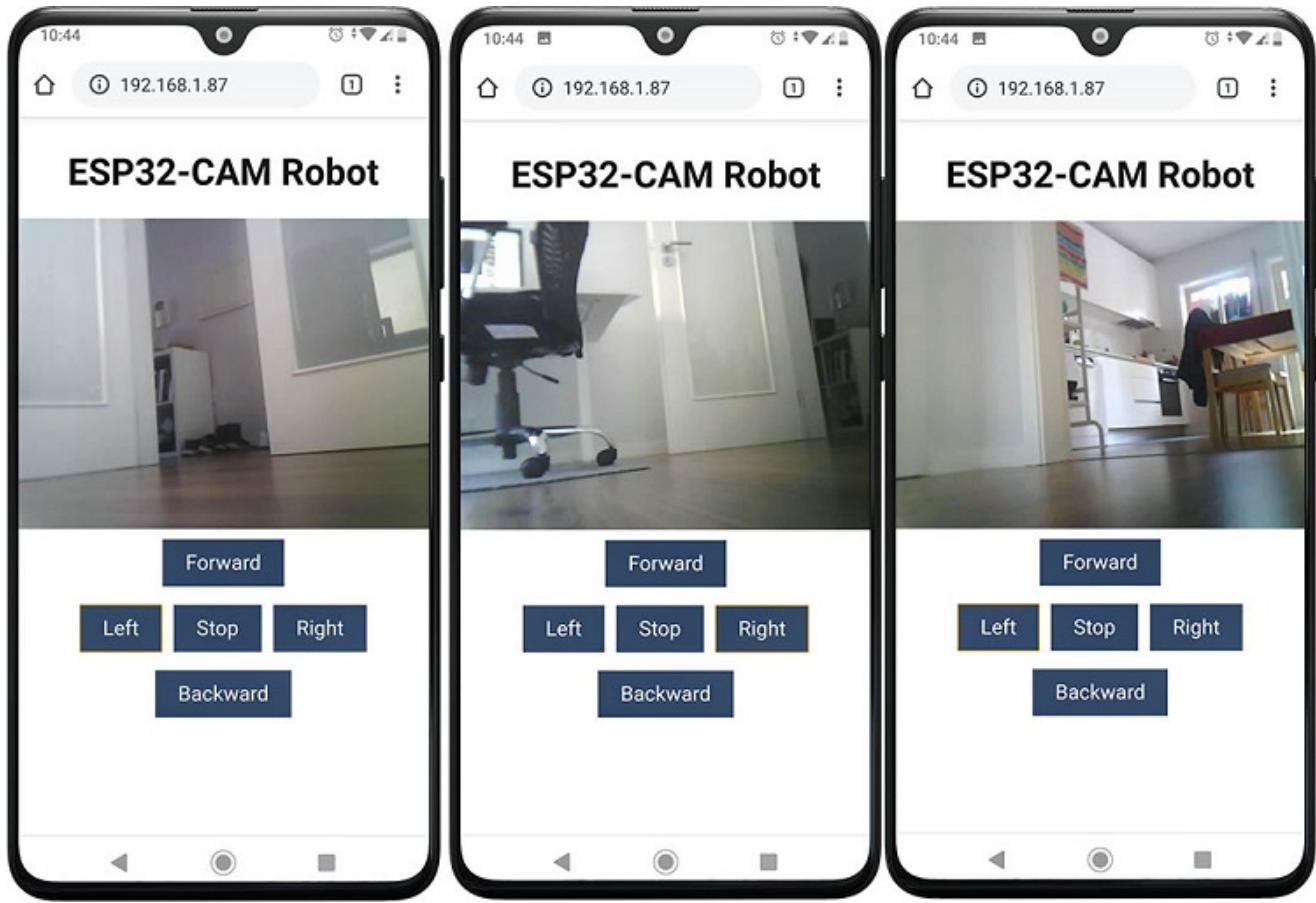
Your robot should look similar to the following figure:



Don't forget that you should use an external antenna with the ESP32-CAM, otherwise the web server might be extremely slow.

Demonstration

Open a browser on the ESP32-CAM IP address, and you should be able to control your robot. The web server works well on a laptop computer or smartphone.



You can only have the web server open in one device/tab at a time.

Wrapping Up

In this tutorial you've learned how to build a remote controlled robot using the ESP32-CAM and how to control it using a web server.

Controlling DC motors with the ESP32-CAM is the same as controlling them using a “regular” ESP32. Read this tutorial to learn more: [ESP32 with DC Motor and L298N Motor Driver – Control Speed and Direction](#).

If you want to control your robot outside the range of your local network, you might consider [setting the ESP32-CAM as an access point](#). This way, the ESP32-CAM doesn't need to connect to your router, it creates its own wi-fi network and nearby wi-fi devices like your smartphone can connect to it.

For more projects and tutorials with the ESP32-CAM:

- [Build ESP32-CAM Projects using Arduino IDE eBook](#)
- [More ESP32-CAM Projects and Tutorials...](#)

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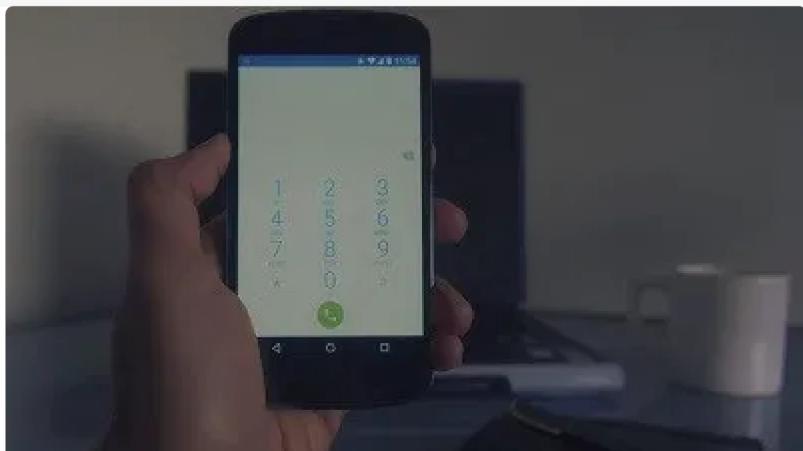
[Order now](#)

[eBook] Build Web Servers with ESP32 and ESP8266 (2nd Edition)

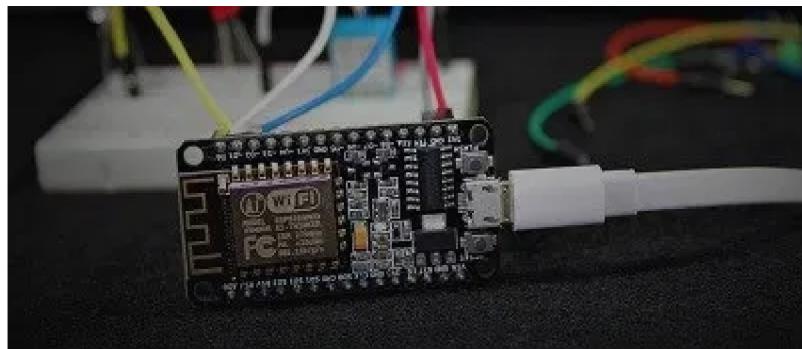


Build Web Server projects with the ESP32 and ESP8266 boards to control outputs and monitor sensors remotely. Learn HTML, CSS, JavaScript and client-server communication protocols [DOWNLOAD »](#)

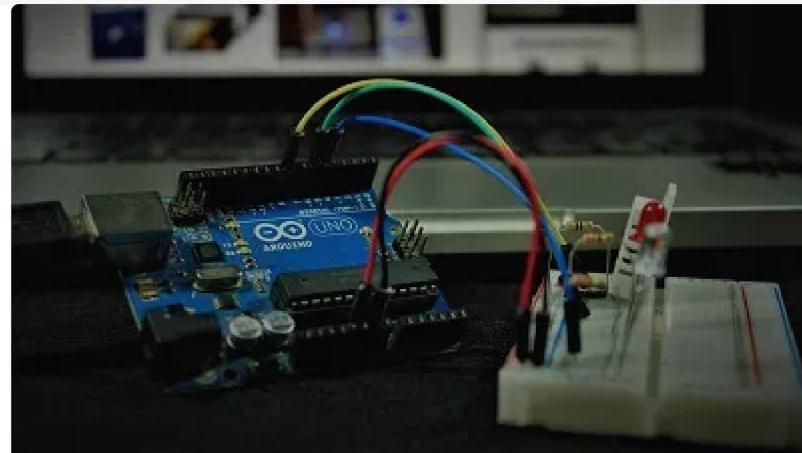
Recommended Resources



[Build a Home Automation System from Scratch » With Raspberry Pi, ESP8266, Arduino, and Node-RED.](#)



[**Home Automation using ESP8266 eBook and video course »**](#) Build IoT and home automation projects.



[**Arduino Step-by-Step Projects »**](#) Build 25 Arduino projects with our course, even with no prior experience!

What to Read Next...

[**Getting Started with ESP-NOW \(ESP32 with Arduino IDE\)**](#)

[ESP32 SPI Communication: Set Pins, Multiple SPI Bus Interfaces, and Peripherals \(Arduino IDE\)](#)

[Better Debugging for Arduino IDE using Software Debugger \(Part 2\)](#)

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Your Email Address

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66 thoughts on “ESP32-CAM Remote Controlled Car Robot Web Server”

**Wijnand**

June 24, 2021 at 11:28 am

I am always surprised by your funny and motivating projects. This project again. A little hint regarding the human interface: There is a nice JS joystick that can be used by the control of mobile robots (see link).
Regards Wijnand...

[Reply](#)**Sara Santos**

June 29, 2021 at 4:44 pm

Hi.

That's an interesting alternative way of controlling the robot.

Thanks for sharing.

Regards,

Sara

[Reply](#)**Aiden**

July 1, 2022 at 12:28 pm

But i cant find a vid (its easier with a vid)

[Reply](#)

**K.B.raj**

June 24, 2021 at 12:50 pm

Thank you for the one more interesting project

[Reply](#)**Sara Santos**

June 29, 2021 at 4:44 pm

You're welcome.

Regards,
Sara

[Reply](#)**Gérard**

June 24, 2021 at 2:45 pm

Hello

Very nice project which can follow, I think, to the excellent tutorial “ESP32-CAM Pan and Tilt video streaming web server (2 axes)”

<https://randomnerdtutorials.com/esp32-cam-pan-and-tilt-2-axis/#comment-630951>

Thanks, that's great

[Reply](#)

**Gianfranco**

June 24, 2021 at 3:24 pm

Hallo...

How could I extend I/O esp32-cam with PCF8574?

Thank and kiss...

[Reply](#)**Sara Santos**

June 29, 2021 at 4:47 pm

Hi.

We don't have any tutorials about that.

Search for a tutorial with that module and the ESP32. It will be similar for the ESP32-CAM.

Regards,

Sara

[Reply](#)**Richard D Marbury**

July 9, 2021 at 3:49 am

have you had any luck with the PCF8574 and the ESP32-CAM . I too need more I/O's from it.

[Reply](#)

**mohd azhar**

July 9, 2021 at 5:33 pm

SIR I AM INTREST FOR FACERECOGNITION DOOR LOCK SYSTEM.

PLEASE SEND ME CODE .

Thank you

[Reply](#)**Jacques Pelletier**

August 20, 2021 at 12:22 pm

“How could I extend I/O esp32-cam with PCF8574?”

I made a project using an I2C interface:

```
#define I2C_SDA 13  
#define I2C_SCL 15
```

You may have to disable any pullups on these lines during programming

```
int SCLpin = I2C_SCL;
```

```
int SDApin = I2C_SDA;
```

```
/* setup /  
Wire.begin(SDApin, SCLpin);  
/code specific to your chip */
```

[Reply](#)

**Sam**

June 24, 2021 at 8:15 pm

Hello

It would be nice to monitor the streamed video on another esp32 (connected to a tft display or likewise). Something like a remote monitor.

Do you have any suggestions? I did not find any tutorial.

Thanks!

[Reply](#)

**Michele**

June 25, 2021 at 5:16 pm

Hi, interesting project from different points of view.

I would be interested in your last suggested solution, and that is to set esp as the access point.

Thank you guys.

[Reply](#)

**Renzo**

July 4, 2021 at 7:38 pm

Where I can find the ESP32-CAM IP address?

[Reply](#)**Sara Santos**

July 5, 2021 at 10:21 am

Hi.

After uploading the code, remove GPIO 0 from GND, open the Serial Monitor and press the RST button.

The IP address will be printed on the Serial Monitor.

Regards,

Sara

[Reply](#)**Renzo**

July 5, 2021 at 1:33 pm

Done but I get only this;

ets Jun 8 2016 00:22:57

```
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:0x3fff0018,len:4
load:0x3fff001c,len:1216
ho 0 tail 12 room 4
load:0x40078000,len:9720
ho 0 tail 12 room 4
load:0x40080400,len:6352
entry 0x400806b8
```

Testing DC Motor...Moving Forward

Motor stopped

Moving Backwards

Motor stopped

Forward with duty cycle: 200

Forward with duty cycle: 205

Forward with duty cycle: 210

[Reply](#)



Renzo

July 5, 2021 at 1:49 pm

Sorry Sara,

I uploaded the wrong sketch, all Ok following your instructions.

Thanks

Renzo

[Reply](#)



Sara Santos

July 5, 2021 at 2:05 pm

Great!

[Reply](#)



mohd azhar

July 8, 2021 at 4:55 pm

Realy very good project.
Iam very happy.
thank you

[Reply](#)



Renzo

August 23, 2021 at 6:33 pm

All runned very well, but now suddenly in my smartphone Android i get only this message:
“header files are too long for server to interpret”.
What happen, what have I to do?

Thanks
Renzo

[Reply](#)



ML12

August 26, 2021 at 3:33 pm

Thanks for a very nice project but may I ask where can I find esp_camera.h.

[Reply](#)

**Renzo**

September 3, 2021 at 1:42 pm

Dear Sara,

as I wrote in my previous post the sketch ran perfectly in my smartphone.

Now I get only this message : "header files are too long for server to interpret".

On the serial monitor I continue to see all command at the imagine. I tried to find the solution on the Web but I didn't get any reply.

There is someone that can help me.

Thanks

Renzo

[Reply](#)

**Sara Santos**

September 4, 2021 at 10:21 am

Hi.

I'm sorry, but I don't know how to solve that issue.

See these suggestions:

- <https://rntlab.com/question/esp32-camera-headers-and-browser/>
- <https://stackoverflow.com/questions/67849381/esp32-htpd-header-fields-are-too-long-for-the-server-to-interpret>

I'm not sure if this works, but I hope it helps.

Regards,

Sara

[Reply](#)

**Renzo**

September 7, 2021 at 9:40 am

Hi Sara,

many thanks, but no success. Smartphon doesn't run but serial monitor do.

You are always great.

Renzo

[Reply](#)

**Robert**

September 10, 2021 at 6:56 pm

Hi Rui and Sara, the ESP32-CAM set Access Point works fine but the Remote Control Car Robot doesn't connect to Wi-Fi – on the Serial Monitor the IP Address never comes up and it shows Flash Read err , 1000.

Any suggestions?

Thanks

[Reply](#)

**Sara Santos**

September 11, 2021 at 9:11 pm

Hi.

Can you tell me the exact error that you get? Do you get it in the Serial Monitor?

Regards,
Sara

[Reply](#)



Robert

September 12, 2021 at 5:47 pm

Hi Sara, the serial monitor reads :
rst:0x1 (POWERON_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
flash read err, 1000
est_main.c 371

rst:0x10 (RICWDI_RTC_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:0x3fff0018,len 4
load:0xffff001c,len1216
ho) tail 12 room 4
load:0x40078000,10944
load:0x40080400,len:6388
entry 0x400806b4

.....
.....

so the err is 1000 and it doesn't give any IP address.
Any idea where I may be going wrong?
Thanks

[Reply](#)

**Sara Santos**

September 14, 2021 at 10:09 am

Hi.

Can you first double-check that you've inserted the right network credentials?

Because you have a lot of dots being printed on the Serial Monitor, and that means that it can't connect to Wi-Fi.

Then, disconnect all circuitry from your ESP32-CAM before uploading the code.

Get your ESP32-CAM IP address.

Then, wire the circuit and restart the ESP32-CAM.

I hope this helps.

Regards,

Sara

[Reply](#)

**Eric Collyer**

September 12, 2021 at 2:19 am

Hello, thanks for all the helpful information, I have a similar project that I am working on, only my project bot requires lots of GPIO pins. I added a second ESP32(not a camera board) to accommodate for GPIO pins. But now i have become curious if the esp32 cam could stream the camera data to the ESP32 via ESPNOW ? My esp32 cam does not have an external antenna for the Wi-Fi connection but the ESP32 can connect an antenna using GPIO pins. My bot has a lot going on, and not sure how to get going properly. Thanks again for all the hard work.

[Reply](#)**Sara Santos**

September 14, 2021 at 9:55 am

Hi.

ESP-NOW only supports sending a small number of bytes. See our ESP-NOW tutorial: <https://randomnerdtutorials.com/esp-now-esp32-arduino-ide/>

So, you can't stream the camera data using that communication protocol.

Regards,

Sara

[Reply](#)**Roberto**

September 14, 2021 at 7:08 pm

Hi Sara, I use the SSID : "ESP32-CAM" and password :"NULL"

I also changed the password to "123456789" that of course didn't make any changes.

in the tools I changed the flash mode from "QIO" to "DIO" and also made no changes.

The fact is that if I load the sketch "Camera Web Server Access Point" every thing works as expected and I get the IP Address.

It sounds to me like there is something wrong in the Wi-Fi connection part of the sketch, maybe a miss print I can't detect?

I hate to be so insistent but I would really like to get this sketch to work as it seems to be working for other people.

Thanks again

[Reply](#)

**Sara Santos**

September 15, 2021 at 8:39 am

Hi.

Did you disconnect all peripherals before uploading the code?

Regards,

Sara

[Reply](#)**Robert**

September 15, 2021 at 6:44 pm

Hi

Yes of course all peripherals were disconnected before uploading the code.

When I upload the Camera Web Server Access IP Address I follow exactly the same steps as when I upload the ESP32-CAM Remote control – the web server access sketch gives me the IP Address while the remote control sketch doesn't connect to Wi-Fi.

I see you both are very busy and my interest in the project is not important it is only for kids toy.

Valeu a tentativa, obrigado por tudo.

Roberto

[Reply](#)**Sara Santos**

September 15, 2021 at 10:26 pm

Hi again.

I really would like to help.

But I'm not sure what might be causing the issue.

Select the AI-Thinker ESP32-CAM board when uploading the code in Tools>Board.

If your Access point is running appropriately, it has the default IP address: 192.168.4.1

Regards,

Sara

[Reply](#)



sriman

October 5, 2021 at 12:46 pm

Hi i need to build truck with 4 motor using 2*I298n driver with esp32 no cam I am searching for internet I cant find any code can one help me...

[Reply](#)



Sara Santos

October 6, 2021 at 9:49 am

Hi.

At the moment, we don't have any web server tutorial with DC motors. I'm planning to create a tutorial about that.

We have this getting started guide for DC motors:

- <https://randomnerdtutorials.com/esp32-dc-motor-l298n-motor-driver-control-speed-direction/>

Because DC motors are controlled with PWM signals, you can try one of our tutorial that control PWM for LEDs and try to adapt to DC motors.

- <https://randomnerdtutorials.com/esp32-web-server-websocket-sliders/>
- <https://randomnerdtutorials.com/esp32-web-server-slider-pwm/>

I hope this helps.

Regards,

Sara

[Reply](#)



sadeem

December 24, 2021 at 12:28 pm

Hello,

Nice project I try to make it but car not going anyway please help me.

Camera work very well

[Reply](#)



Sara Santos

December 27, 2021 at 2:47 pm

Hi.

Double-check the wiring of the motors.

Regards,

Sara

[Reply](#)

**Fabrizio**

January 1, 2022 at 11:26 am

It is an interesting project and I tried to make it happen. The camera works but the motors don't. I have checked the wiring several times. I haven't put the antenna on yet. Could this be the problem? Thanks and congratulations.

[Reply](#)**Ernest**

January 27, 2022 at 11:04 am

Thanks for sharing this great project!

I have lot of cheap servos, there is a very easy mod to run servos in continuous mode, removing a small part inside servo.

Unfortunately I don't have software skills, do you think is lot of coding adding a servo option for motoring this project?

I mean use two servos controlled by PWM outputs instead of smart robot chassis and L298N driver. This will be great and reduce the price of the robot

Thanks in advance

Best regards

Ernest.

[Reply](#)

**FILLASTRE**

January 31, 2022 at 10:17 am

Bonjour,

Joli projet fonctionnel. Téléchargement un peu difficile, mais en suivant les instructions, j'y suis parvenu.

Un petit plus en gadget peut-être? Créer un bouton pour allumer et éteindre la Led de l'ESP32 CAM.

Merci

[Reply](#)**Alexander Wolf**

February 23, 2022 at 8:18 am

Hello and thanks for the great tutorial!

I am still a novice in the field of micro-controller programming and therefore still have a question of understanding:

Don't I need to download libraries before I transfer the code using the Arduino IDE?

Kind regards, Alex

[Reply](#)**Sara Santos**

February 23, 2022 at 11:05 am

Hi.

It depends on the libraries.

There are libraries that are installed by default.

When you need to install external libraries, it is mentioned in our tutorials.

Regards,

Sara

[Reply](#)



Renzo

February 25, 2022 at 12:18 pm

All well, but I haven't solved an old problem. On my Android smartphone I only see this message:

"header files are too long for server to interpret".

What can I do?

Thanks

Renzo

[Reply](#)



Alexander Wolf

February 26, 2022 at 1:58 pm

Thanks again for the instructions,

it all worked out great (although I'm still a beginner).

Now that my video car is driving around the apartment so nicely, however, I notice that the video image is quite dark.

Isn't there also a onboard LED on the ESP32Cam? ... how could I include it in the code?

Kind regards

[Reply](#)



Alex

February 28, 2022 at 9:51 am

Dear All,

As I like to controll this Robotcar Project from the outside world I changed my router settings in port-forwarding to the according ESP32-cam IP-address 192.168.. : myport. and switched my router setting protocol in TCP-UDP and Internal port: 80.

These settings result in just seeing the ESP32 cam- site pushbuttons but no video streaming window....

Can you advise me what to do in the router portforwarding menu to see the complete ESP32-cam site?

Thank you in advance for your reply...!

Alex

[Reply](#)



Miguel A

August 7, 2022 at 1:04 pm

Good afternoon,

I had the same problem, I fixed opening the port 80 and 81, at the same time. It looks like the streaming video goes with other port..

Good luck. Miguel.

[Reply](#)



Negrea Sorin

April 1, 2022 at 5:15 pm

Hello.

nice job , love your tutorials .

please help me with some suggestions .

in the past i have done with your help , webserver for a relay to open my building door from a web page. all my neighbors love it .

now i am at the point where i want to do a webserver for esp32 cam with button for a relay so i can see who is at the building door and open it .

basically it will need to be like the one from this project but with just 1 button and user login .

thanks in advance

[Reply](#)



Kim

April 4, 2022 at 3:17 pm

Hi,

How can I add in a bumper switch sensor to indicate collision and display it in the webpage below the backward button?

Thanks in advance.

[Reply](#)**Walter**

April 17, 2022 at 3:32 pm

Hi,

very good tutorial, thank you.

One question:

how can i display and refresh status messages on the html web screen ?

[Reply](#)**pouria**

April 30, 2022 at 3:28 pm

Hello , thanks for your amazing projects,

i have problem

E (125) cam_hal: cam_dma_config(280): frame buffer malloc failed

E (126) cam_hal: cam_config(364): cam_dma_config failed

E (126) camera: Camera config failed with error 0xffffffff

Camera init failed with error 0xffffffff

shows this message on serial monitor, pls help me

[Reply](#)**james**

May 24, 2022 at 11:30 pm

Hi guys, thanks for posting this, was trying to proxy this out via my router to get access from my phone remotely. When I proxy the ESP32-Cam I get the following error Header fields are too long for server to interpret. (it all works great locally, I think it might be when I add a letsencrypt certificate this error shows up.

I have tried to add

```
config.stack_size = 4096;  
config.max_resp_headers = 8;
```

To no avail, is there any way to get over the header error? Any advice greatly appreciated.

[Reply](#)



DerZschimmer

June 6, 2022 at 12:47 pm

First of all:

Thanks for the great tutorials , thea are awesome, even for me NOOB ,
(you should add a " buy me a Coffee " sponsor link to your page, i would
press it 😊)

Would it be possible to make it a " ESP32-ToyTank" when I combine

"ESP32-CAM Remote Controlled Car Robot Web Server"

and

" Pan and Tilt Stand and Motors"

Could you pick up my idear / or just Comment "should work" or "nonsens"



i cant confirm the function of what i just wrote – i am waiting the Hardware

to arrive- but after all- i get a WIFI connection, a CAM screen, all buttons, and serial output- so it COULD? work ?

=> if i add a Servo for “Barrel/ CAM ” > up/down

I am not “THAAAAAK PROGRAMMING GUY”

I can copy / paste & Hope it works 😊

— i am working on a ESP32Cam – CAMERA_MODEL_AI_THINKER

and when i include & define:

```
#include "esp_http_server.h"

#define SERVO_1 16
#define SERVO_STEP 5
Servo servoN1;
Servo servo1;
int servo1Pos = 0;
```

————— ad to

<

table>

Up

Down

————— and at the end-continue below >

```
else if(!strcmp(variable, "stop")) {
Serial.println("Stop");
digitalWrite(MOTOR_1_PIN_1, 0);
digitalWrite(MOTOR_1_PIN_2, 0);
digitalWrite(MOTOR_2_PIN_1, 0);
digitalWrite(MOTOR_2_PIN_2, 0);
}
```

— if i add there the servo part

```
else if(!strcmp(variable, "up")) {
if(servo1Pos <= 170) {
servo1Pos += 10;
```

```
servo1.write(servo1Pos);
}
Serial.println(servo1Pos);
Serial.println("Up");
}
else if(!strcmp(variable, "down")) {
if(servo1Pos >= 10) {
servo1Pos -= 10;
servo1.write(servo1Pos);
}
Serial.println(servo1Pos);
Serial.println("Down");
}
—————finaly at >void setup() {
servo1.setPeriodHertz(50); // standard 50 hz servo
servoN1.attach(2, 1000, 2000);
servo1.attach(SERVO_1, 1000, 2000);
```

[Reply](#)



Sara Santos

June 7, 2022 at 5:05 pm

Hi.

I think it should work. But in the end, you need to try all the hardware and see if everything actually works together.

Regards,

Sara

[Reply](#)



KKC

June 7, 2022 at 5:45 am

Great Tutorial, I have used couple of codes from here and other sites to have the ESP Work fine, Few troubles I have though.

1. ESP resets itself after first connecting to WiFi if i make use of Battery power, It works fine with USB plugged into Laptop though.
2. How do I send a sensor data for example an Ultrasonic sensor to the webpage (Any hint would be really helpful)

Thanks

[Reply](#)



Sara Santos

June 7, 2022 at 5:13 pm

Hi.

If the ESP is constantly resetting with battery, it probably means that the battery is not supplying enough power to the ESP32-CAM.

We have many web server examples that show how to display sensor data. We don't have a specific web server for ultrasonic sensor, but you may want to try to combine several tutorials:

– Get started with Ultrasonic sensor ESP32:

<https://randomnerdtutorials.com/esp32-hc-sr04-ultrasonic-arduino/>

– Web Server tutorials (choose a simple one):

<https://randomnerdtutorials.com/?s=web+server>

I hope this helps.

Regards,

Sara

[Reply](#)



Tam Thai

August 12, 2022 at 2:12 am

Very Happy and Thanks for the great tutorials.

Please tell me the Code for return status of Robot Car:

```
if(!strcmp(variable, "forward")) {  
    Serial.println("Forward");  
    digitalWrite(MOTOR_1_PIN_1, 1);  
    digitalWrite(MOTOR_1_PIN_2, 0);  
    digitalWrite(MOTOR_2_PIN_1, 1);  
    digitalWrite(MOTOR_2_PIN_2, 0);  
    -> ESP send back ("Forward");  
}
```

Many thanks for your help.

Regards,

Tam Thai

[Reply](#)



Walter

August 12, 2022 at 12:46 pm

I did it this way:

```
char http_response[50] = "\0"; // < add this  
  
if(!strcmp(variable, "forward")) {  
    Serial.println("Forward");  
    digitalWrite(MOTOR_1_PIN_1, 1);  
    digitalWrite(MOTOR_1_PIN_2, 0);  
    digitalWrite(MOTOR_2_PIN_1, 1);  
    digitalWrite(MOTOR_2_PIN_2, 0);  
    strcpy(http_response, "Forward"); // < add this  
}
```

at the bottom of the function you find:

```
return httpd_resp_send(req, NULL, 0);  
replace it by:
```

```
httpd_resp_set_type(req, "text/html");
return httpd_resp_send(req, http_response, strlen(http_response));
```

in the html part you find:

<

```
script>
function toggleCheckbox(x) {
var xhr = new XMLHttpRequest();
xhr.open("GET", "/action?go=" + x, true);
xhr.send();
}
replace it by:
```

```
<script>

function toggleCheckbox(x) {
var xhr = new XMLHttpRequest();
xhr.open("GET", "/action?go=" + x, true);
xhr.addEventListener('load', function(event) {
document.getElementById('txtbox').innerHTML = xhr.responseText;
});
xhr.send();
}
```

[Reply](#)



Walter

August 12, 2022 at 12:58 pm

Sorry the html part was broken.
replace it by:

```
function toggleCheckbox(x) {  
    var xhr = new XMLHttpRequest();  
    xhr.open("GET", "/action?go=" + x, true);  
    xhr.addEventListener('load', function(event) {  
        document.getElementById('txtbox').innerHTML = xhr.responseText;  
    });  
    xhr.send();  
}
```

[Reply](#)



Walter

August 12, 2022 at 1:13 pm

Sorry again, the html does not display correctly.

Try this:

https://drive.google.com/file/d/1LrFolJP9ouR2Twy_XJEa84Kjh1DKN381/view?usp=sharing

[Reply](#)



Tam Thai

August 13, 2022 at 12:38 am

Hi Walter.

I did it:

char http_response[50] = "\0"; // < add this

```
if(!strcmp(variable, "forward")) {  
    Serial.println("Forward");  
    digitalWrite(MOTOR_1_PIN_1, 1);
```

```
digitalWrite(MOTOR_1_PIN_2, 0);
digitalWrite(MOTOR_2_PIN_1, 1);
digitalWrite(MOTOR_2_PIN_2, 0);
strcpy(http_response, "Forward"); // < add this
}
```

But Adruino verify show notification:

```
exit status 1
stray '\342' in program
```

Thanks for your helps.

Regard,

Tam Thai

[Reply](#)



Walter

August 13, 2022 at 8:31 am

Sorry, it was a problem with the character set used in this site.

If you (or me) copy the code of the postings and insert it into Arduino, you get this error message.

I fixed the above file, you should download it again.

Now it should work 😊

Best Regards, Walter



Walter

August 18, 2022 at 7:39 pm

Hi, is it working?

[Reply](#)

**Colm**

August 29, 2022 at 12:14 am

I found an old RC tank track car and used it as a base with a 12v battery bank on board . It works great.I think I'll have to figure a way to slow it down a bit though ,it rockets around the place 😊
Thanks for the tutorial.

[Reply](#)**Sara Santos**

August 29, 2022 at 4:50 pm

That's great!
I'm glad this was useful.
Regards,
Sara

[Reply](#)**Colm**

August 30, 2022 at 8:25 am

I put a buck converter on the input of the L298N and dropped it down to about 8v . I shouldn't get speeding tickets now 😊

Thanks again for the easy to follow tutorial.

[Reply](#)

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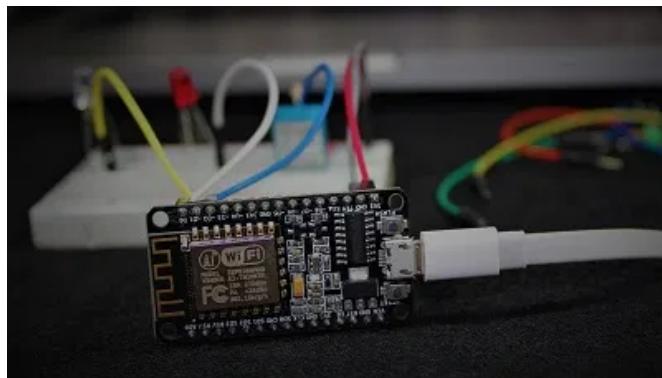
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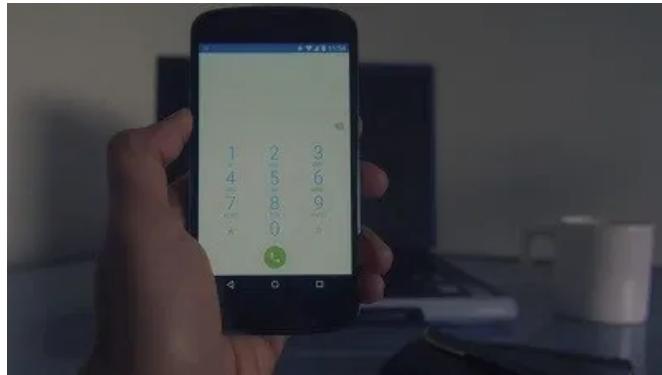


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