

# Control ESP32 and ESP8266 GPIOs from Anywhere in the World

In this project, you'll learn how to control your ESP32 or ESP8266 GPIOs from anywhere in the world. This can be very useful to control a relay, a thermostat, or any other device remotely.



*Updated on 27 March 2023*

This project is also very versatile. Through your cloud dashboard, you can easily control more outputs (without uploading new code to your board) and you can even connect multiple boards to your server.

Previously, we've stored sensor readings into a database and we've used different methods to display sensor readings on a:

- [Table](#)



Now, I've created this new project where you can create buttons in a dashboard and assign them to a Board and GPIO number. Then, you can use the toggle switches to control the ESP32 or ESP8266 outputs from anywhere.

There are many ways of controlling outputs from anywhere, and even though this is a working solution there are other [methods that provide a two-way communication with your devices](#). I also recommend that you take this project further and add more features to fit your own needs.

To build this project, you'll use these technologies:

- ESP32 or ESP8266 programmed with Arduino IDE
- Hosting server and domain name
- PHP scripts to store and retrieve the output states stored in a MySQL database

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This project is divided into the following main sections:

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## Watch the Video Demonstration

To see how the project works, you can watch the following video demonstration:



Control ESP32 and ESP8266 GPIOs from A...



## 0. Download Source Code

For this project, you'll need these files:

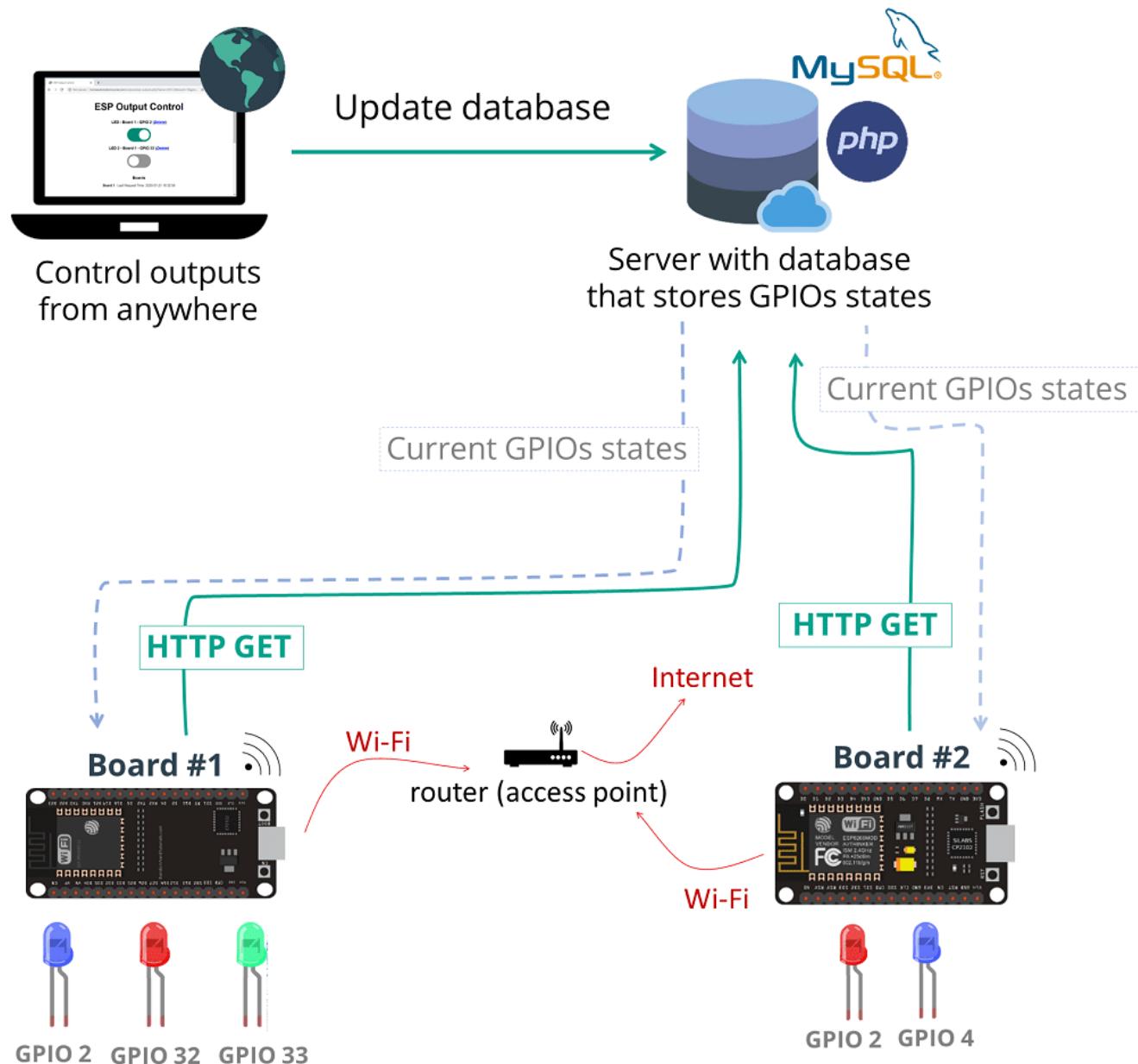
- SQL query to create your table: [Outputs\\_and\\_Boards\\_Table.sql](#)
- Insert and access database: [esp-database.php](#)
- Handle HTTP requests: [esp-outputs-action.php](#)
- CSS file to style your web page: [esp-style.css](#)
- Display your control buttons: [esp-outputs.php](#)
- Arduino Sketch for ESP32 (**with HTTPS**):  
[ESP32\\_HTTPS\\_GET\\_Request\\_JSON.ino](#)
- Arduino Sketch for ESP8266 (**with HTTPS**):  
[ESP8266\\_HTTPS\\_GET\\_Request\\_JSON.ino](#)
- Arduino Sketch for ESP32 (without HTTPS):  
[ESP32\\_HTTP\\_GET\\_Request\\_JSON.ino](#)
- Arduino Sketch for ESP8266 (without HTTPS):  
[ESP8266\\_HTTP\\_GET\\_Request\\_JSON.ino](#)
- [Download all projects files](#)

## 1. Hosting Your PHP Application and MySQL



The goal of this project is to have your own domain name and hosting account that allows you to control your ESP32 or ESP8266 GPIOs from anywhere in the world.

Here's a high-level overview of how the project works:



1. You have a web page running a PHP script with some toggle buttons that allow you to control the outputs on and off;
2. When you press the buttons, it updates the output state and saves it in your database;
3. You can add more buttons or delete them from your dashboard;
4. Then, you can have an ESP32 or ESP8266 or even multiple boards that make HTTP GET requests every X number of seconds to your server;



## Hosting Services

I recommend using one of the following hosting services that can handle all the project requirements:

- [Bluehost \(user-friendly with cPanel\)](#): free domain name when you sign up for the 3-year plan. I recommend choosing the unlimited websites option;
- [Digital Ocean](#): Linux server that you manage through a command line. I only recommended this option for advanced users.

Those two services are the ones that I use and personally recommend, but you can use any other hosting service. Any hosting service that offers PHP and MySQL will work with this tutorial. If you don't have a hosting account, I recommend [signing up for Bluehost](#).

[Get Hosting and Domain Name with Bluehost »](#)

When buying a hosting account, you'll also have to purchase a domain name. This is what makes this project interesting: you'll be able to go to your domain name (<http://example.com>) and control your boards.

If you like our projects, you might consider signing up for one of the recommended hosting services, because you'll be supporting our work.

**Note:** you can also run a LAMP (Linux, Apache, MySQL, PHP) server on a Raspberry Pi to control your boards in your local network. However, the purpose of this tutorial is to control the ESP outputs with your own domain name that you can access from anywhere in the world.

## 2. Preparing Your MySQL Database

After signing up for a [hosting account and setting up a domain name](#), you can login to your cPanel or similar dashboard. After that, follow the next steps to create your database, username, password and SQL table.

### Creating a database and user



The screenshot shows the Bluehost cPanel interface. On the left, there's a sidebar with links: Home, My Sites, Marketplace, Email, Domains, and Advanced. The 'Advanced' link is highlighted with a red box. Below the sidebar, there are two main sections: 'FILES' and 'DATABASES'. The 'FILES' section contains icons for File Manager, Images, Directory Privacy, Disk Usage, Web Disk, FTP Accounts, FTP Connections, and Anonymous FTP. The 'DATABASES' section contains icons for phpMyAdmin, MySQL® Databases, MySQL® Database, and Remote MySQL®. A search bar at the top says 'Find functions quickly by typing here.'

1. Type “database” in the search bar and select “MySQL Database Wizard”.

The screenshot shows the cPanel - Main interface. At the top, there's a search bar with the word 'database'. Below it, there's a 'Databases' section with three items: 'phpMyAdmin', 'MySQL® Databases', and 'MySQL® Database Wizard'. The 'MySQL® Database Wizard' item is highlighted with a red box.

2. Enter your desired Database name. In my case, the database name is `esp_data`. Then, press the “Next Step” button:

The screenshot shows the 'MySQL® Database Wizard' interface in cPanel. On the left, there's a sidebar with icons for databases and users. The main area has a title 'MySQL® Database Wizard' with a magnifying glass icon. Below it, 'Step 1: Create A Database' is displayed. A text input field contains 'esp\_data'. A note below says 'Note: 54 characters max.' A blue 'Next Step' button is at the bottom.

**Note:** later you'll have to use the database name with the prefix that your host gives you (my database prefix in the screenshot above is blurred). I'll refer to it as `example_esp_data` from now on.

3. Type your Database username and set a password. You must save all those details, because you'll need them later to establish a database connection with your PHP code.

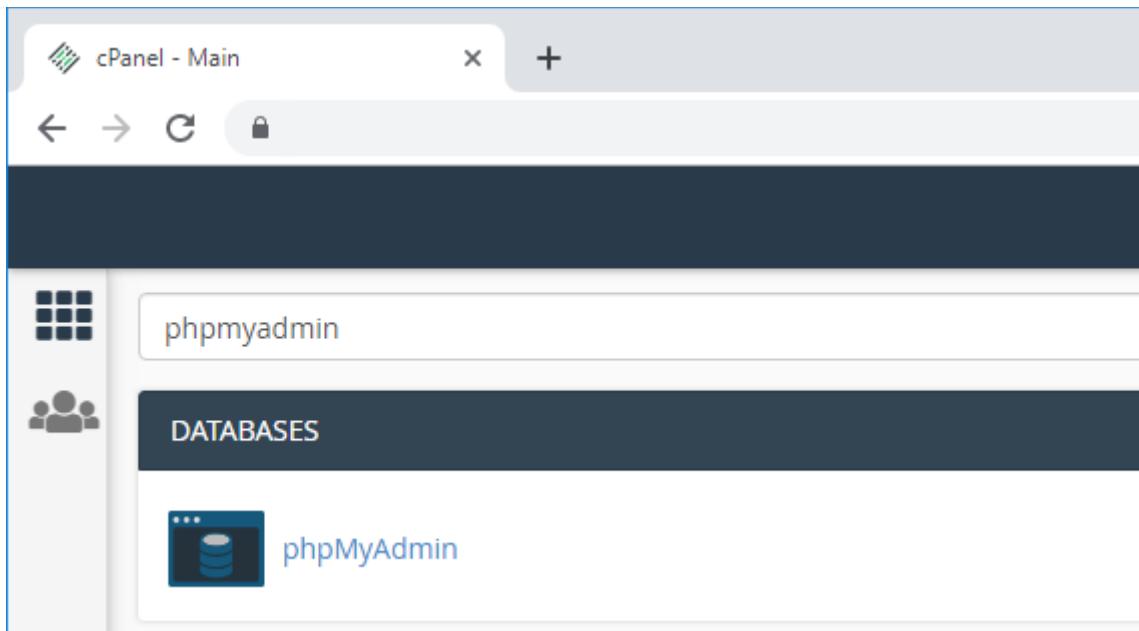
The screenshot shows the 'MySQL® Database Wizard' interface in cPanel. It's titled 'Step 2: Create Database Users:' and features a sidebar with icons for databases and users. The main area has fields for 'Username' (containing 'esp\_board'), 'Password' (redacted), 'Password (Again)' (redacted), and a 'Strength' bar indicating 'Very Strong (100/100)'. A large blue 'Create User' button is at the bottom.

That's it! Your new database and user were created successfully. Now, save all your details because you'll need them later:

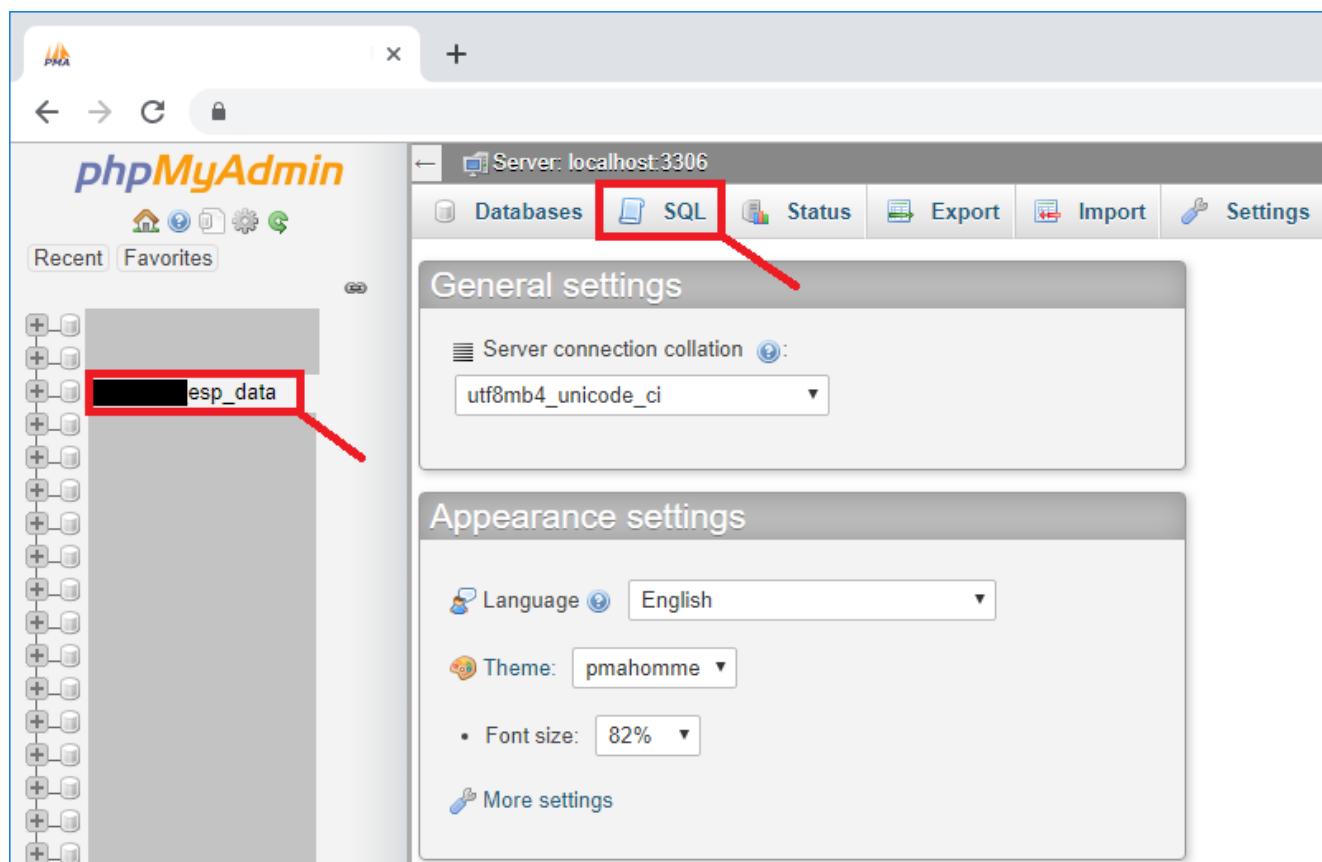
- **Database name:** example\_esp\_data
- **Username:** example\_esp\_board
- **Password:** your password

## Creating a SQL table

After creating your database and user, go back to cPanel dashboard and search for "phpMyAdmin".



In the left sidebar, select your database name `example_esp_data` and open the “SQL” tab.



**Important:** make sure you've opened the `example_esp_data` database. Then, click the SQL tab. If you don't follow these exact steps and run the SQL query, you might create a table in the wrong database.

```

CREATE TABLE Outputs (
    id INT(6) UNSIGNED AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(64),
    board INT(6),
    gpio INT(6),
    state INT(6)
);
INSERT INTO `Outputs`(`name`, `board`, `gpio`, `state`) VALUES (''

CREATE TABLE Boards (
    id INT(6) UNSIGNED AUTO_INCREMENT PRIMARY KEY,
    board INT(6),
    last_request TIMESTAMP DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP
);
INSERT INTO `Boards`(`board`) VALUES (1);

```

[View raw code](#)

Paste it in the SQL query field (highlighted with a red rectangle) and press the “Go” button to create your table:

The screenshot shows the MySQL Workbench interface. A red rectangle highlights the SQL query text area. Below the text area are several buttons: 'Clear', 'Format', 'Get auto-saved query', 'Bind parameters', '[ Delimiter : ]', 'Show this query here again' (checked), 'Retain query box' (unchecked), 'Rollback when finished' (unchecked), 'Enable foreign key checks' (unchecked), and a large 'Go' button which is also highlighted with a red rectangle.

```

Run SQL query/queries on database [REDACTED]_esp_data: ⓘ
1 CREATE TABLE Outputs (
2     id INT(6) UNSIGNED AUTO_INCREMENT PRIMARY KEY,
3     name VARCHAR(64),
4     board INT(6),
5     gpio INT(6),
6     state INT(6)
7 );
8 INSERT INTO `Outputs`(`name`, `board`, `gpio`, `state`) VALUES ("Built-in LED", 1, 2, 0);
9
10 CREATE TABLE Boards (
11     id INT(6) UNSIGNED AUTO_INCREMENT PRIMARY KEY,
12     board INT(6),
13     last_request TIMESTAMP DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP
14 );
15 INSERT INTO `Boards`(`board`) VALUES (1);

```

After that, you should see your newly created tables called `Boards` and `Outputs` in the `example_esp_data` database as shown in the figure below:

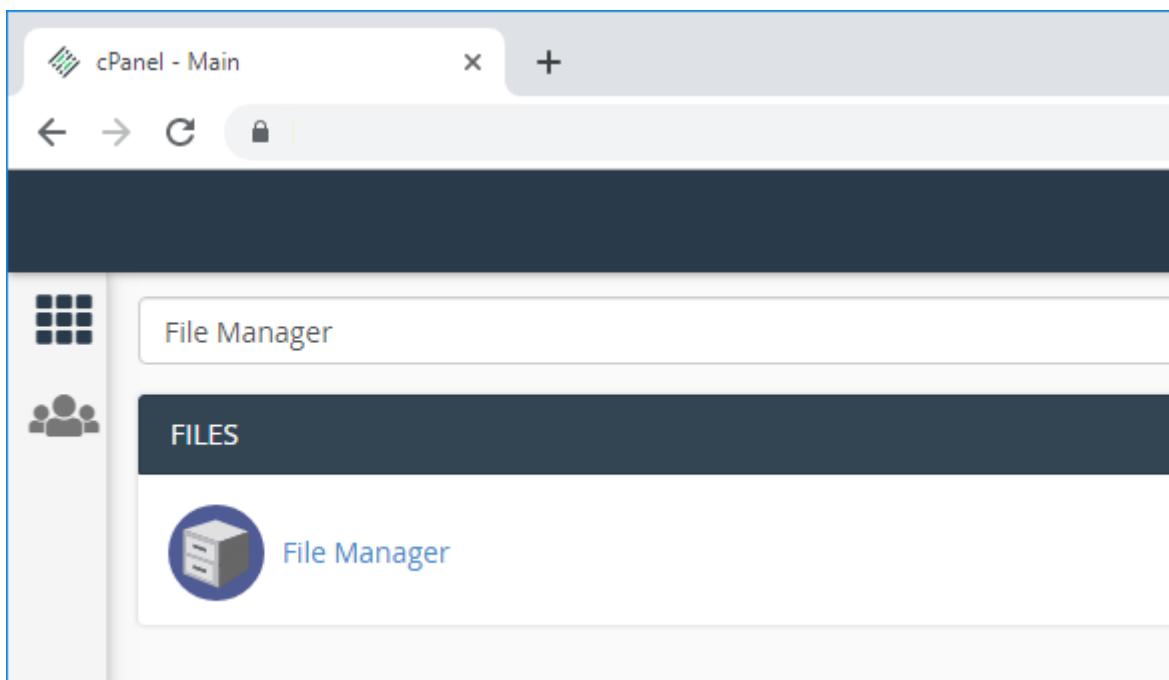
Table	Action	Rows	Type
<input type="checkbox"/> Boards	★ Browse Structure Search Insert Empty Drop	1	InnoDB
<input type="checkbox"/> Outputs	★ Browse Structure Search Insert Empty Drop	1	InnoDB

### 3. Creating Your Dashboard Files

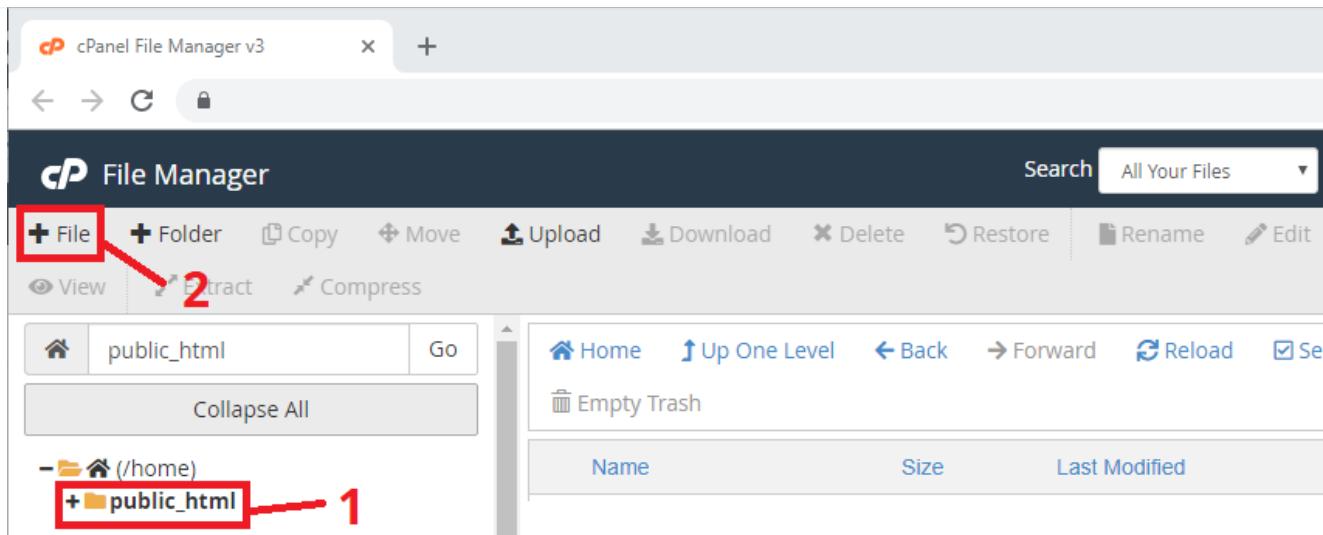
In this section, we're going to create the files that are responsible for creating your Dashboard. Here are the files:

- Insert and access database: [esp-database.php](#)
- Handle HTTP requests: [esp-outputs-action.php](#)
- CSS file to style your web page: [esp-style.css](#)
- Display your control buttons: [esp-outputs.php](#)

If you're using a hosting provider with cPanel, you can search for "File Manager":



Then, select the `public_html` option and press the "+ File" button to create a new file.



**Note:** if you're following this tutorial and you're not familiar with PHP, I recommend creating these exact files.

Create four new files in **/public\_html** with these exact names and extensions:

- **esp-database.php**
- **esp-outputs-action.php**
- **esp-outputs.php**
- **esp-style.css**

Name
esp-database.php
esp-outputs-action.php
esp-outputs.php
esp-style.css

## 4. PHP Script – Update and Retrieve Output States

In this section, we're going to create a PHP script that is responsible for receiving incoming requests and interacting with your MySQL database.

Edit the newly created file (**esp-outputs-action.php**) and copy the following snippet:

```
<?php
```

```
$action = $id = $name = $gpio = $state = "";

if ($_SERVER["REQUEST_METHOD"] == "POST") {
    $action = test_input($_POST["action"]);
    if ($action == "output_create") {
        $name = test_input($_POST["name"]);
        $board = test_input($_POST["board"]);
        $gpio = test_input($_POST["gpio"]);
        $state = test_input($_POST["state"]);
        $result = createOutput($name, $board, $gpio, $state

        $result2 = getBoard($board);
        if (!$result2->fetch_assoc()) {
            createBoard($board);
        }
        echo $result;
    }
    else {
        echo "No data posted with HTTP POST.";
    }
}

if ($_SERVER["REQUEST_METHOD"] == "GET") {
    $action = test_input($_GET["action"]).
```

[View raw code](#)

## 5. PHP Script for Database Functions

Edit your file `esp-database.php` that inserts, deletes, and retrieves data. Copy the next PHP script:

```
<?php
$servername = "localhost";
// Your Database name
$dbname = "REPLACE_WITH_YOUR_DATABASE_NAME";
```



```
// Your Database user password
$password = "REPLACE_WITH_YOUR_PASSWORD";

function createOutput($name, $board, $gpio, $state) {
    global $servername, $username, $password, $dbname;

    // Create connection
    $conn = new mysqli($servername, $username, $password, $dbname);
    // Check connection
    if ($conn->connect_error) {
        die("Connection failed: " . $conn->connect_error);
    }

    $sql = "INSERT INTO Outputs (name, board, gpio, state)
VALUES ('" . $name . "', '" . $board . "', '" . $gpio . '

    if ($conn->query($sql) === TRUE) {
        return "New output created successfully";
    }
    else {
```

[View raw code](#)

Before saving the file, you need to modify the `$dbname`, `$username` and `$password` variables with your unique details:

```
// Your Database name
$dbname = "example_esp_data";
// Your Database user
$username = "example_esp_board";
// Your Database user password
$password = "YOUR_USER_PASSWORD";
```

After adding the database name, username and password, save the file and continue with this tutorial



## 6. PHP Script – Control Buttons

You'll also need to add a CSS file to style your dashboard (*esp-style.css*). Copy that CSS to your file and save it:

```
/**  
 * Rui Santos  
 * Complete project details at https://RandomNerdTutorials.com/c  
  
Permission is hereby granted, free of charge, to any person o  
of this software and associated documentation files.  
  
The above copyright notice and this permission notice shall b  
copies or substantial portions of the Software.  
**/  
  
html {  
    font-family: Arial;  
    display: inline-block;  
    text-align: center;  
}  
  
h2 {  
    font-size: 3.0rem;  
}  
  
body {  
    max-width: 600px;  
    margin: 0px auto;  
    padding-bottom: 25px;  
}
```

[View raw code](#)

Finally, copy the next PHP script to your *esp-outputs.php* files that will display your



&lt;!--

Rui Santos

Complete project details at <https://RandomNerdTutorials.com/c>

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f this software and associated documentation files.

The above copyright notice and this permission notice shall b  
copies or substantial portions of the Software.

--&gt;

&lt;?php

```
include_once('esp-database.php');

$result = getAllOutputs();
$html_buttons = null;
if ($result) {
    while ($row = $result->fetch_assoc()) {
        if ($row["state"] == "1"){
            $button_checked = "checked";
        }
        else {
            $button_checked = "";
        }
        $html_buttons .= '<h3>' . $row["name"] . ' - Board
    }
}
```

[View raw code](#)

If you try to access your domain name in the following URL path, you'll see the following:

<https://example.com/esp-outputs.php>



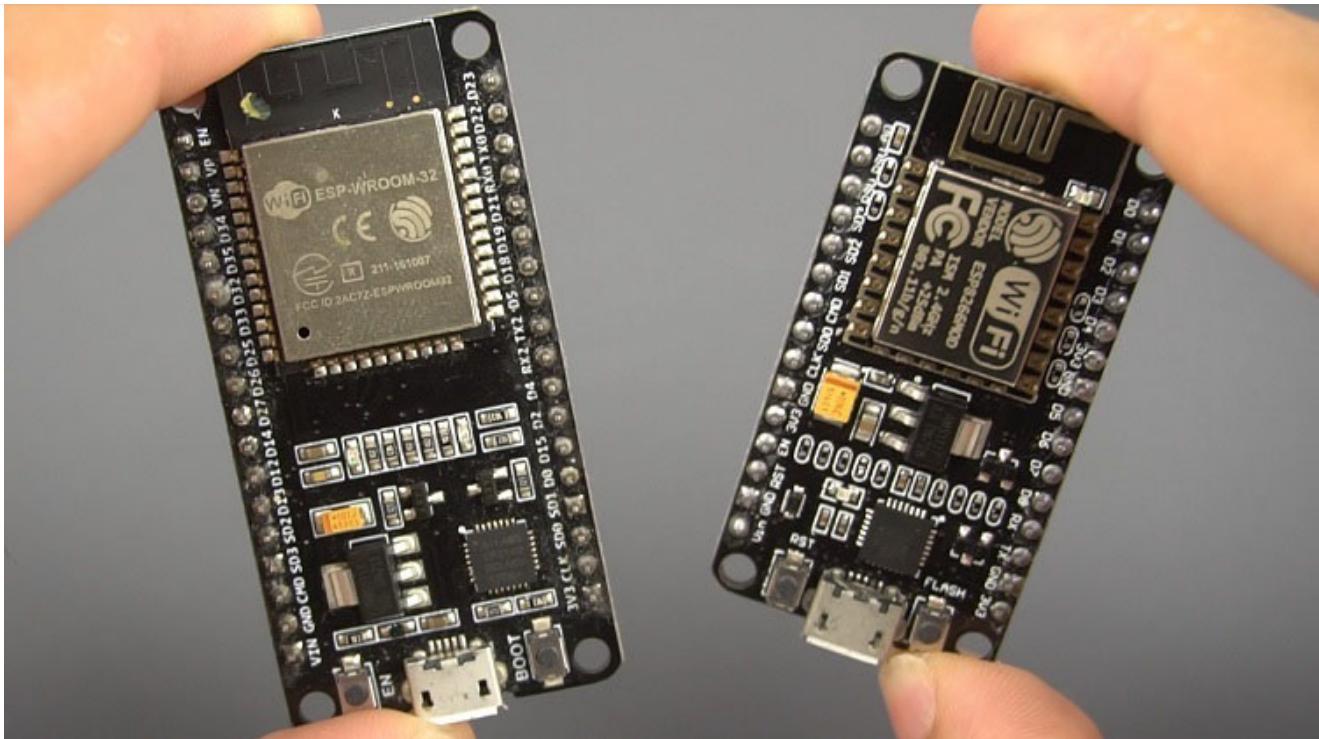
The screenshot shows a web browser window titled "ESP Output Control". The URL in the address bar is "esp-outputs.php". The main content area displays the title "ESP Output Control" in large, bold, black font. Below it, a message says "Built-in LED - Board 1 - GPIO 2 ([Delete](#))". A large green toggle switch is centered below the message. Underneath the switch, the word "Boards" is displayed. Below "Boards", the text "Board 1 - Last Request Time: 2023-03-23 19:26:38" is shown. A modal dialog box titled "Create New Output" is open in the foreground. It contains fields for "Name" (with a red "... more" button), "Board ID", "GPIO Number", and "Initial GPIO State" (set to "0 = OFF"). A large green "Create Output" button is at the bottom of the modal. A note at the bottom of the modal states: "Note: in some devices, you might need to refresh the page to see your newly created buttons or to remove deleted buttons."

That's it! You should see that web page with your default button. The default button is called **Built-in LED**, it's assigned to **Board 1** and controls **GPIO 2**.

## 7. Setting Up the ESP32 or ESP8266

This project is compatible with both the ESP32 and ESP8266 boards. You just





## Parts Required

To test this project, we'll connect some LEDs to the ESP32 and ESP8266 GPIOs. Here's a list of parts you need to build the circuit for this project:

- [ESP32 board](#) (read [Best ESP32 dev boards](#))
- [ESP8266 board](#) (read [Best ESP8266 dev boards](#))
- [5x LEDs](#)
- [5x 220 Ohm resistors](#)
- [Jumper wires](#)
- [Breadboard](#)

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!



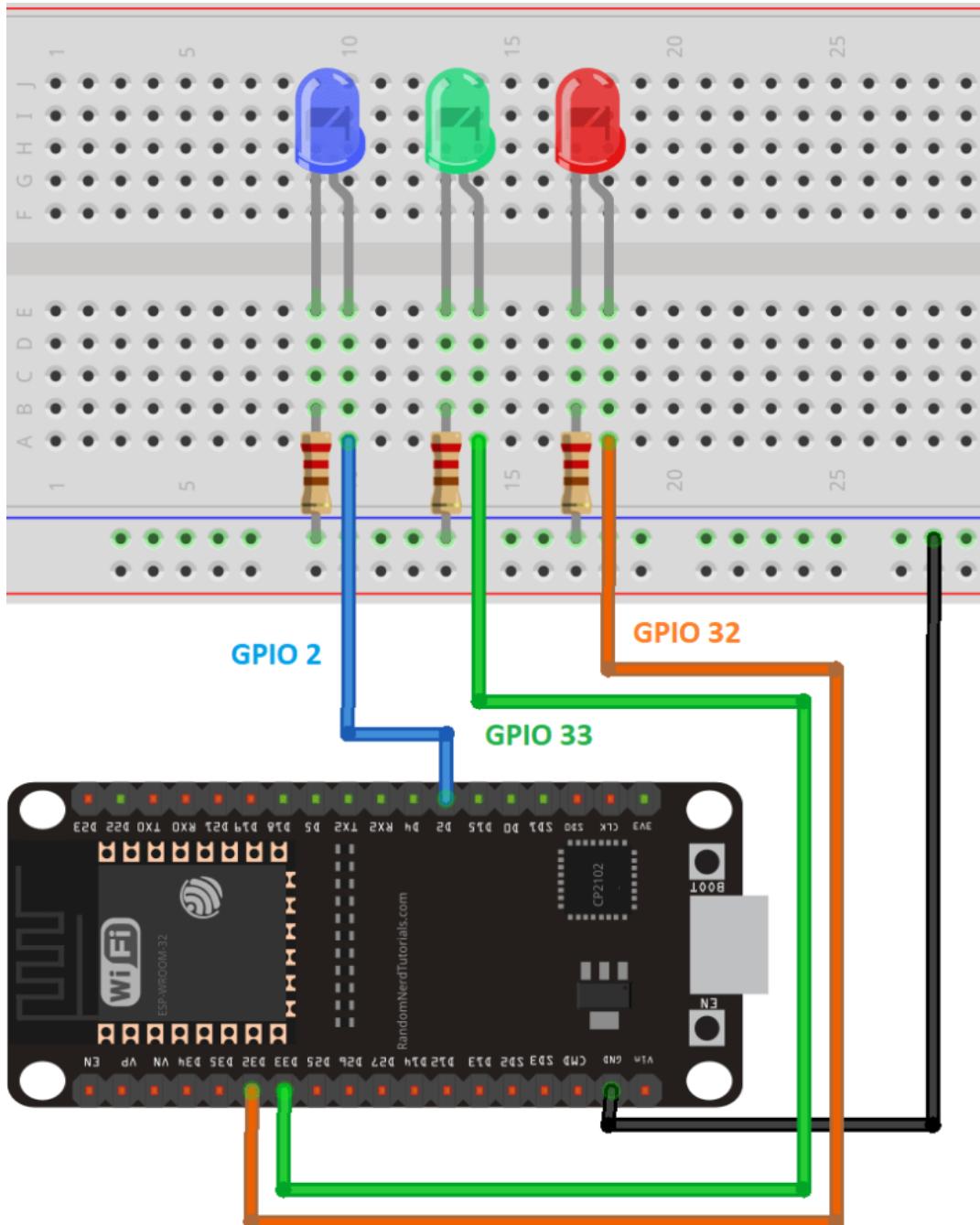
## Schematics

For this example, we'll use an ESP32 board with 3 LEDs and an ESP8266 with 2 LEDs. Instead of LEDs, you can connect a relay module or any other device to the [ESP GPIOs](#).



- Relay module with ESP32
- Relay module with ESP8266

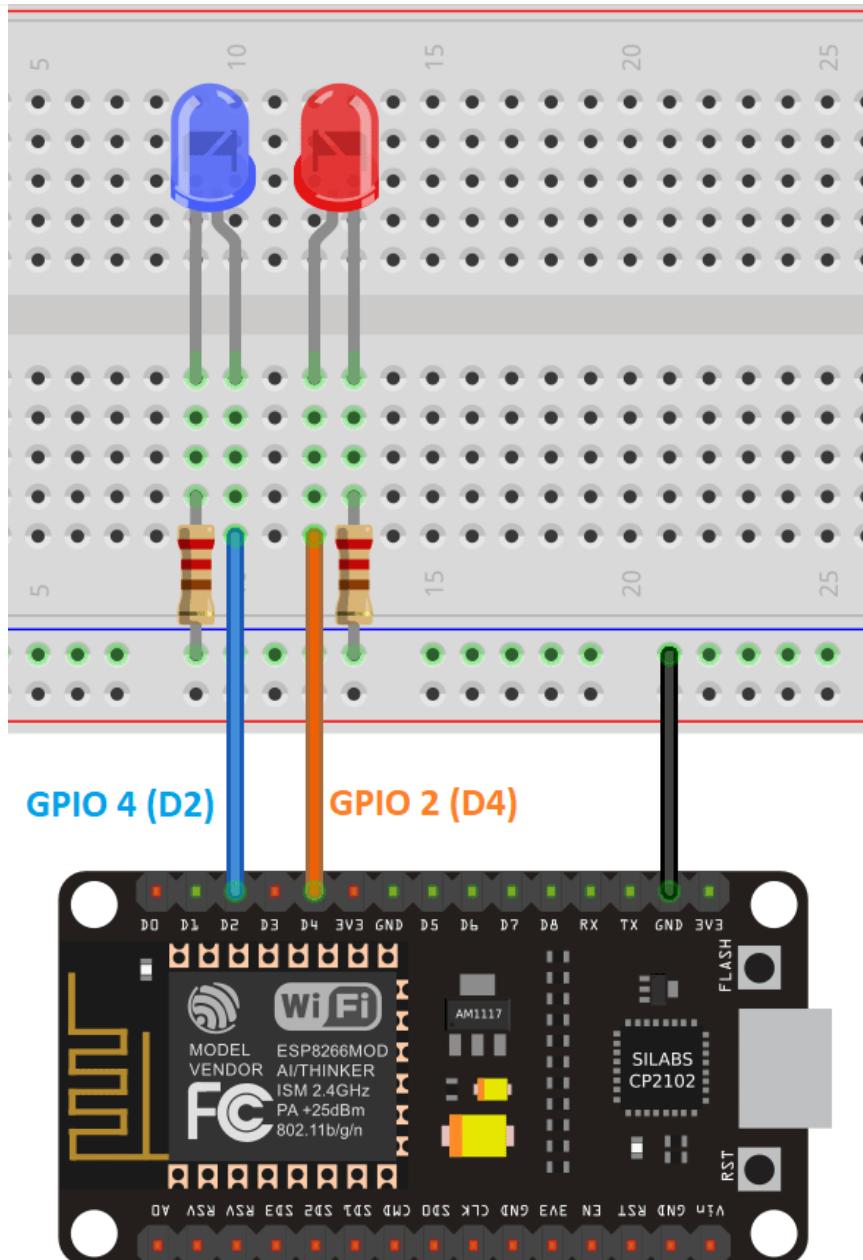
## LEDs wiring to ESP32 – Board #1



Recommended reading: which ESP32 GPIOs should you use.

## LEDs wiring to ESP8266 – Board #2





**Recommended reading:** which ESP8266 GPIOs should you use.

## ESP32 Code – Board #1

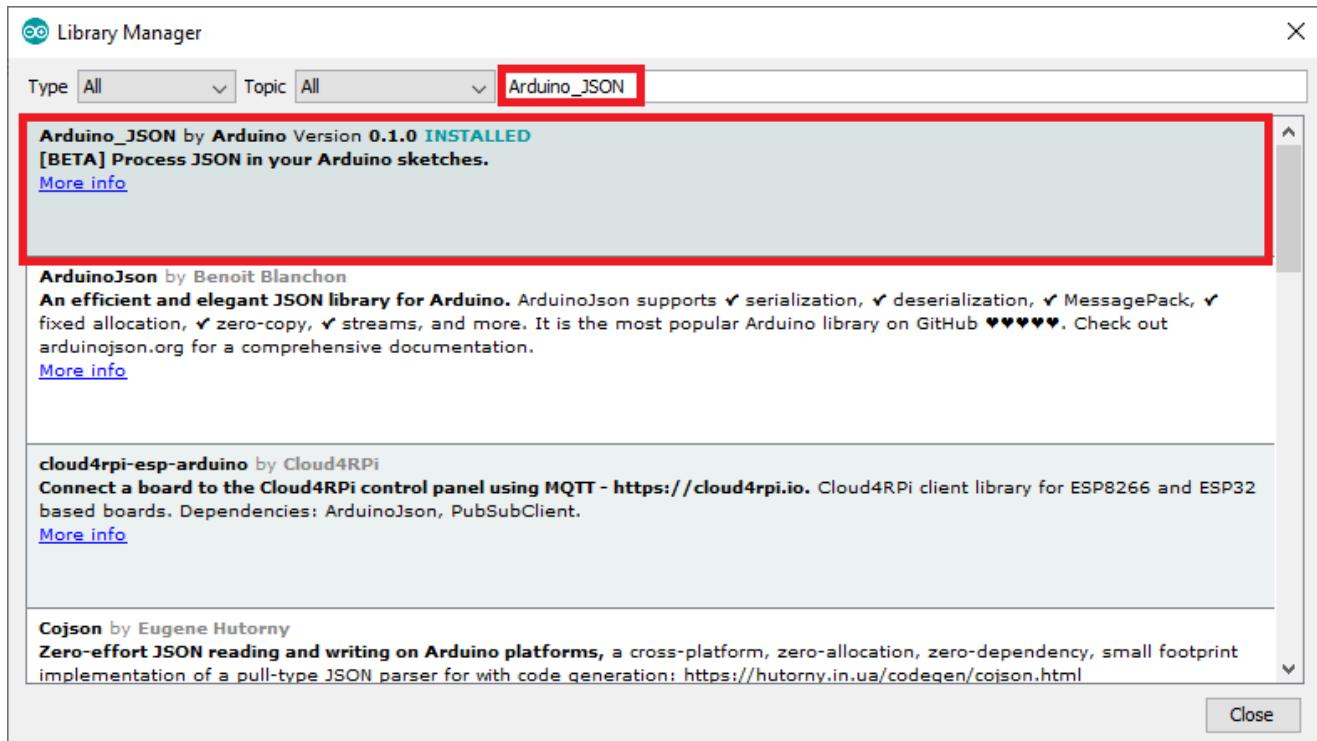
We'll program the ESP32/ESP8266 using Arduino IDE, so you must have the ESP add-on installed in your Arduino IDE.

Follow one of the next tutorials depending on the board you're using:

- [Install the ESP32 Board in Arduino IDE](#)
- [Install the ESP8266 Board in Arduino IDE](#)



**Libraries ... and search for the library name as follows:**



After installing the necessary board add-ons and libraries, copy the following code to your Arduino IDE, but don't upload it yet. You need to make some changes to make it work for you.

```
/*
Rui Santos
Complete project details at https://RandomNerdTutorials.com/c
```

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```
*/
```

```
#include <WiFi.h>
#include <HTTPClient.h>
#include <WiFiClientSecure.h>
#include <Arduino_JSON.h>
```



```
const char* password = "REPLACE_WITH_YOUR_PASSWORD";  
  
//Your IP address or domain name with URL path  
const char* serverName = "https://example.com/esp-outputs-action.  
  
// Update interval time set to 5 seconds  
const long interval = 5000;  
unsigned long previousMillis = 0;
```

[View raw code](#)

**Note:** Most servers require you to make HTTPS requests. The code above makes HTTPS requests to be compliant with the requirements of most cloud servers nowadays.

Your server doesn't support HTTPS? [Use this code instead.](#)

## Setting your network credentials

You need to modify the following lines with your network credentials: SSID and password. The code is well commented on where you should make the changes.

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

## Setting your serverName

You also need to type your domain name, so the ESP makes the HTTP GET request to your own server.

```
const char* serverName = "https://example.com/esp-outputs-action.
```

Notice that on the URL `serverName` we have a parameter `board=1`. This indicates the board ID. If you want to add more boards, you should change that ID. That identifies the board you want to control.

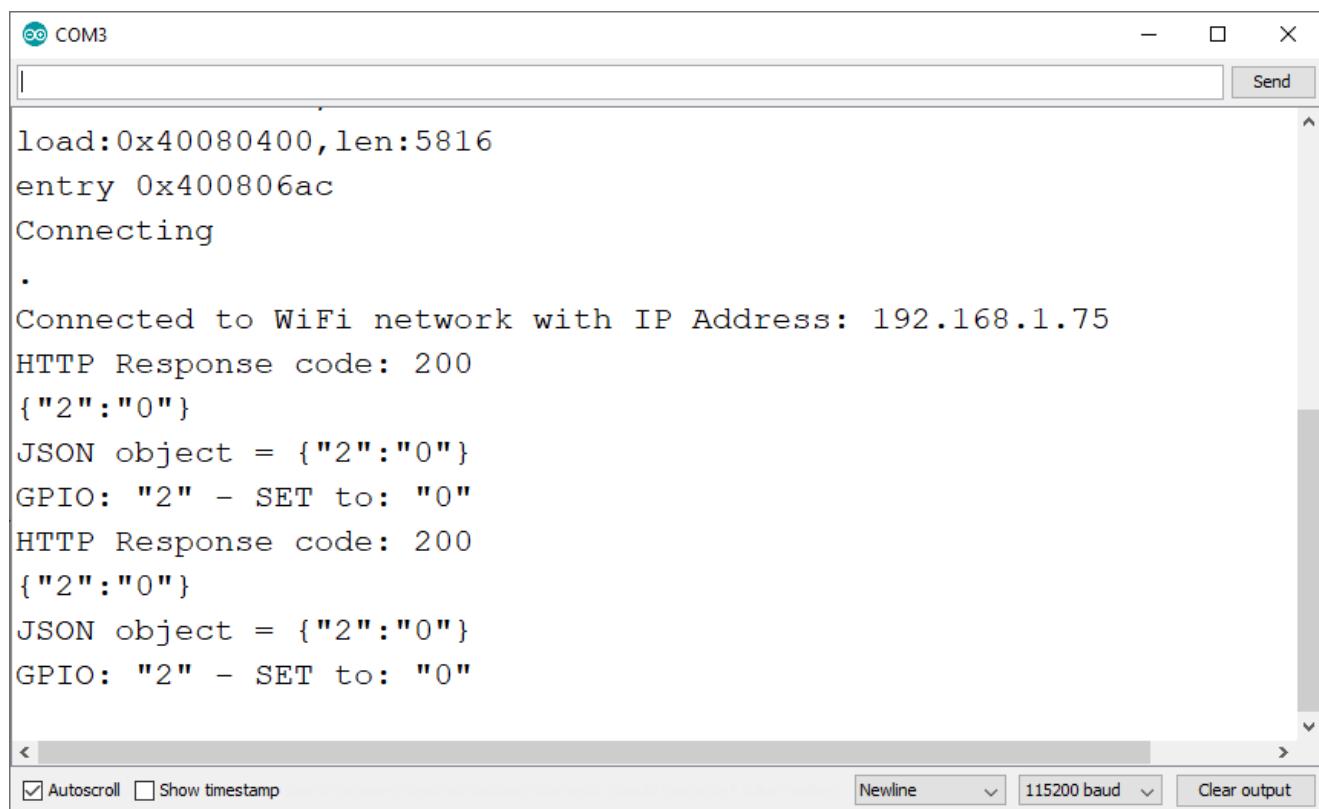
Now, you can upload the code to your board. It should work straight away.

This project is already quite long, so we won't cover how the code works. In summary, your ESP32 makes an HTTP GET request to your server every X number of seconds to update the GPIOs states (by default it's set to 5 seconds).

```
const long interval = 5000;
```

Then, the board will update its outputs accordingly to the request response.

Open your Serial Monitor and you should see something similar:



The screenshot shows a Windows-style Serial Monitor window titled "COM3". The window has a "Send" button in the top right corner. The text area displays the following serial output:

```
load:0x40080400,len:5816
entry 0x400806ac
Connecting
.
Connected to WiFi network with IP Address: 192.168.1.75
HTTP Response code: 200
{"2":"0"}
JSON object = {"2":"0"}
GPIO: "2" - SET to: "0"
HTTP Response code: 200
{"2":"0"}
JSON object = {"2":"0"}
GPIO: "2" - SET to: "0"
```

At the bottom, there are checkboxes for "Autoscroll" and "Show timestamp", and dropdowns for "Newline", "115200 baud", and "Clear output".

The request retrieves a JSON object that contains the GPIO number and its state. In this case, it tells us that GPIO 2 should be LOW `{"2":"0"}`.

## ESP8266 Code – Board #2

For this example, we're controlling the outputs from two boards simultaneously.

You can use next code for your ESP8266 board:

```
/*
Rui Santos
Complete project details at https://RandomNerdTutorials.com/c

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copies or substantial portions of the Software.

*/
#include <ESP8266WiFi.h>
#include <ESP8266HTTPClient.h>
#include <WiFiClientSecureBearSSL.h>
#include <Arduino_JSON.h>

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

//Your IP address or domain name with URL path
//const char* serverName = "https://example.com/esp-outputs-act

// Update interval time set to 5 seconds
const long interval = 5000;
unsigned long previousMillis = 0;

String outputsState:
```

[View raw code](#)

To prepare the code for your ESP8266, just enter the SSID, password, domain name, and board ID (in this case, it's board ID number 2).

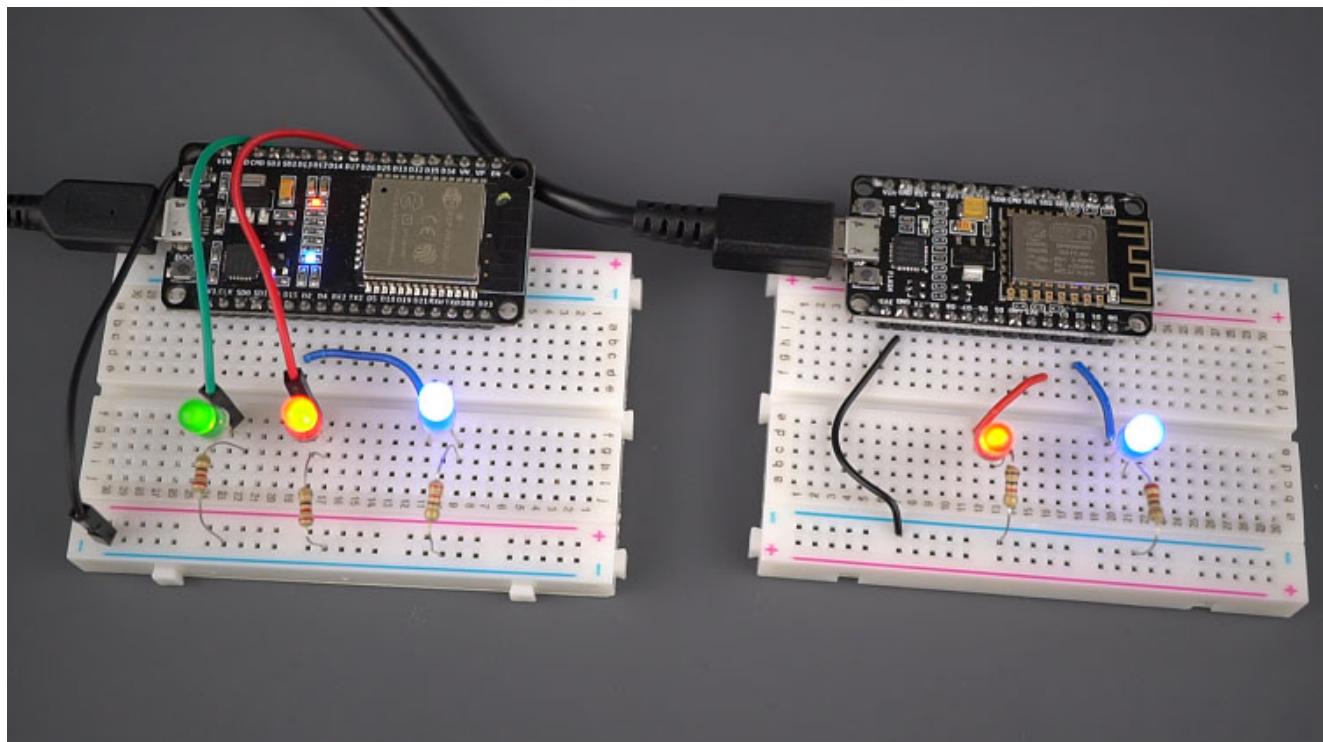


nowadays.

Your server doesn't support HTTPS? [Use this code instead.](#)

## Demonstration

After completing all the steps, power both your ESP boards.



If you open your domain name in this URL path:

`https://example.com/esp-outputs.php`

You should see the default button in your Dashboard:



The screenshot shows a web browser window titled "ESP Output Control". The URL in the address bar is "esp-outputs.php". The main content area displays a large button labeled "Built-in LED - Board 1 - GPIO 2" with a "(Delete)" link next to it. Below this is a teal-colored toggle switch. The word "Boards" is centered above the board information. Under "Board 1", the text "Last Request Time: 2023-03-23 19:26:38" is shown. A modal dialog box titled "Create New Output" is open in the foreground. It contains fields for "Name", "Board ID", "GPIO Number", and "Initial GPIO State" (set to "0 = OFF"). A large green "Create Output" button is at the bottom. A note at the bottom of the modal says: "Note: in some devices, you might need to refresh the page to see your newly created buttons or to remove deleted buttons."

# ESP Output Control

Built-in LED - Board 1 - GPIO 2 ([Delete](#))

Boards

Board 1 - Last Request Time: 2023-03-23 19:26:38

### Create New Output

Name

Board ID

GPIO Number

Initial GPIO State

0 = OFF

Create Output

**Note:** in some devices, you might need to refresh the page to see your newly created buttons or to remove deleted buttons.

If you press that button on and off, you should be able to control GPIO 2 from your ESP32 – Board #1.

You can add more buttons to your project, type a name (**LED 2**), set board the id to number **1**, then type the desired GPIO that you want to control (**33**).

## Create New Output

Name

Board ID

GPIO Number

Initial GPIO State

**Create Output**

**Note:** in some devices, you might need to refresh the page to see your newly created buttons or to remove deleted buttons.

Create another button for **Board 1** to control **GPIO 32**. Then, add two buttons for **Board 2 (GPIO 2 and GPIO 4)**.



The screenshot shows a web browser window titled "ESP Output Control". The page displays three toggle switches, each labeled with its name, board, GPIO number, and a "Delete" link. Below this is a "Boards" section listing two boards with their last request times.

- Built-in LED - Board 1 - GPIO 2 ([Delete](#))**: A green toggle switch.
- LED 2 - Board 1 - GPIO 33 ([Delete](#))**: A grey toggle switch.
- LED 1 - Board 2 - GPIO 2 ([Delete](#))**: A green toggle switch.

**Boards**

- Board 1** - Last Request Time: 2023-03-23 19:29:38
- Board 2** - Last Request Time: 2023-03-23 19:29:39

At any point in time, you can use the delete link to remove buttons from your Dashboard or use the form at the bottom to create more.

**Note:** in some devices, you might need to refresh the page to see your newly created buttons or to remove deleted buttons.

Finally, there's a section that shows the last time a board made a request and updated its outputs.

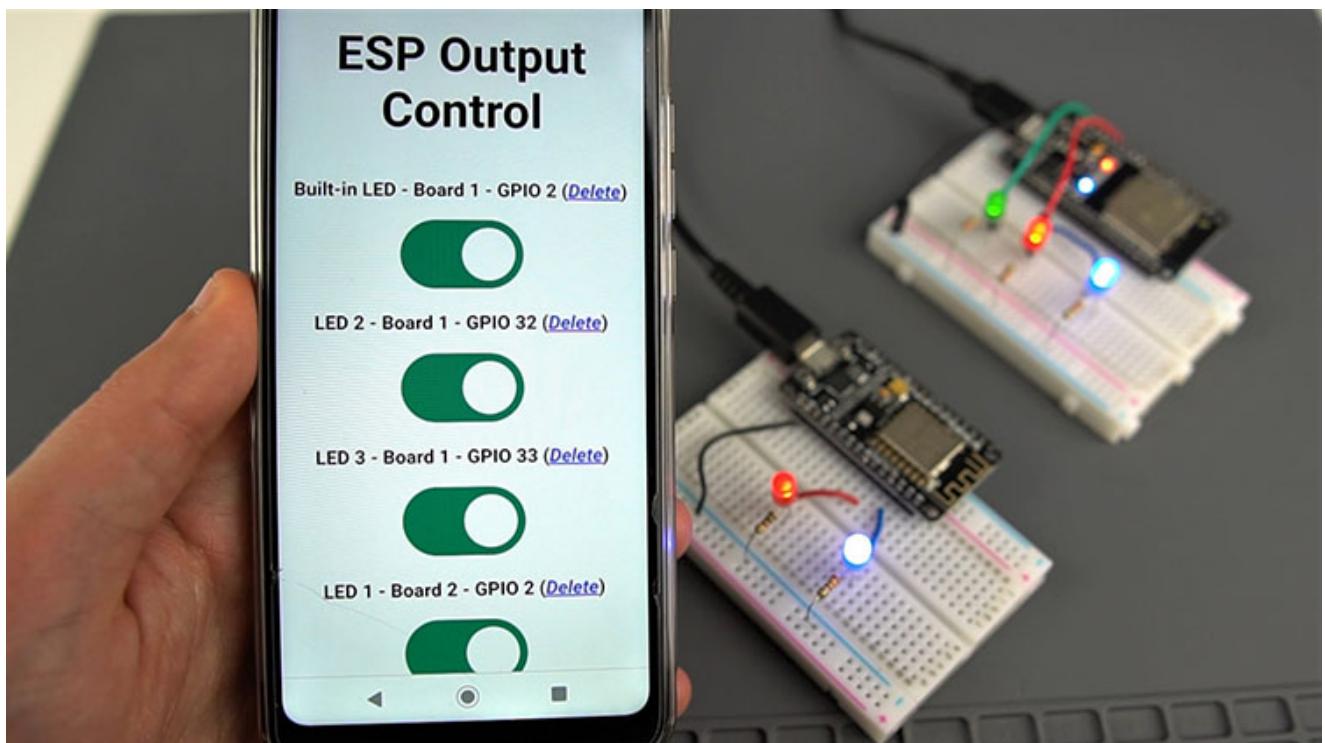
## Boards

**Board 1** - Last Request Time: 2023-03-23 19:29:38

**Board 2** - Last Request Time: 2023-03-23 19:29:39

Since this is not a two-way communication, when you press the buttons to control your outputs, your board doesn't update the outputs instantly. It will take a few seconds for your ESP board to make a new HTTP GET request and update its output states. With the **Last Request Time** section, you can see when that happened. Just refresh the page to see the updated values.

The web page is also mobile responsive, so you can use any device to access your server.



## Wrapping Up

In this tutorial you've learned how to control your ESP32 and ESP8266 outputs from anywhere in the world. This requires that you have your own [server and domain name](#) (alternatively, you can use a [Raspberry Pi LAMP Server for local access](#)).



boards to run simultaneously and define other outputs to control.

I encourage you to change the web page appearance, add more features like [email notifications](#), publish data from different sensors, use multiple ESP boards, and much more.

### You might also like reading:

- [DIY Cloud Weather Station with ESP32/ESP8266 \(MySQL Database and PHP\)](#)
- [ESP32/ESP8266 Send Email Notification using PHP Script](#)
- [Visualize Your Sensor Readings from Anywhere in the World \(ESP32/ESP8266 + MySQL + PHP\) using Charts](#)
- [Firebase: Control ESP32 GPIOs from Anywhere](#)

Learn more about the ESP32 and ESP8266 with our resources:

- [Learn ESP32 with Arduino IDE](#)
- [Home Automation using ESP8266](#)
- [Build Web Servers with ESP32 and ESP8266](#)
- [Firebase Web App with ESP32 and ESP8266](#)
- [SMART HOME with Raspberry Pi, ESP32, and ESP8266](#)
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Thank you for reading.

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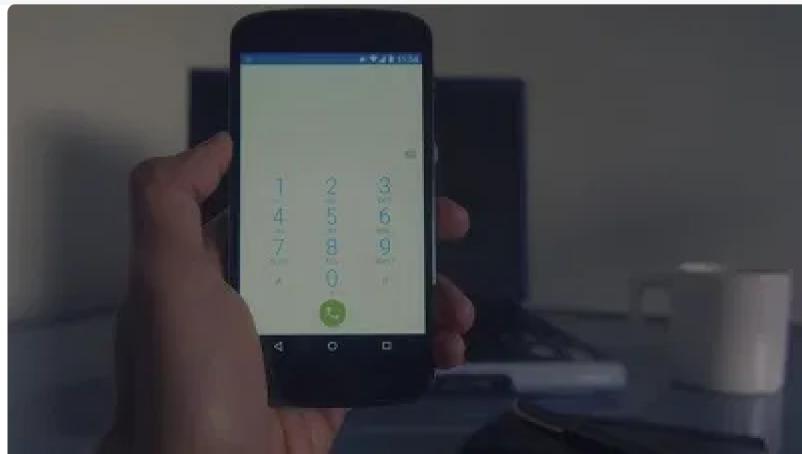




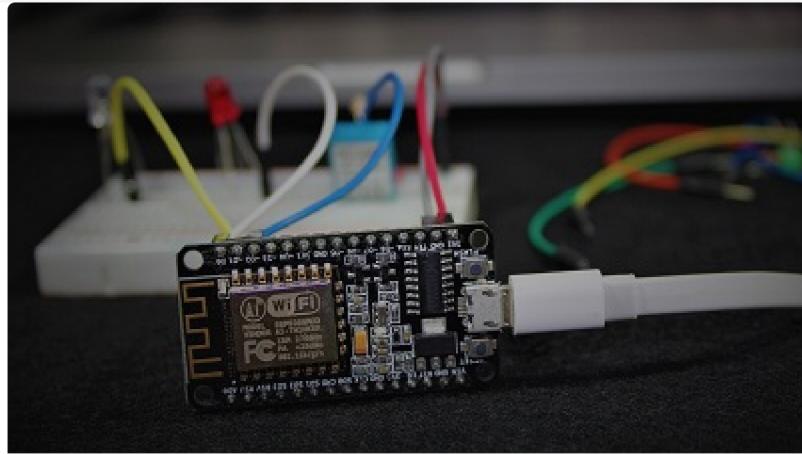
## [eBook] Build Web Servers with ESP32 and ESP8266 (2nd Edition)

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

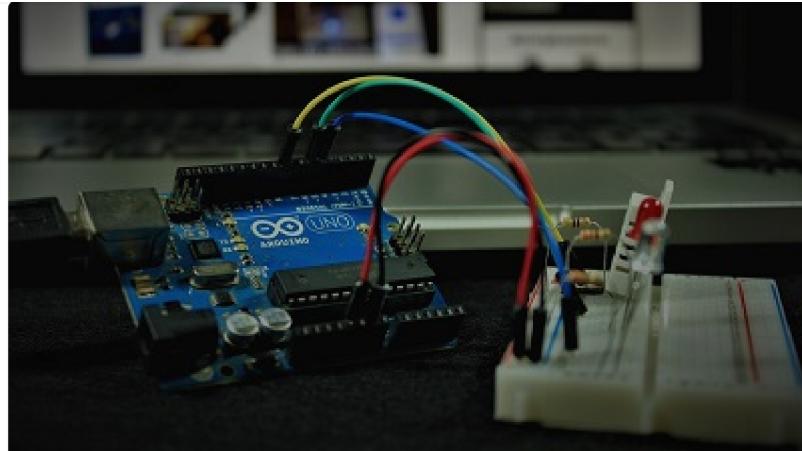


[Build a Home Automation System from Scratch »](#) With Raspberry Pi, ESP8266, Arduino, and Node-RED.



[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...

[LILYGO T-SIM7000G ESP32: Get GPS Data \(Latitude, Longitude, Altitude, and more\)](#)



## ESP32 Troubleshooting Guide

[ESP8266 NodeMCU OTA \(Over-the-Air\) Updates – AsyncElegantOTA using Arduino IDE](#)

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**215 thoughts on “Control ESP32 and ESP8266 GPIOs from Anywhere in the World”**



4c3T



Fascinating and all that, but how is the security?

That was the first thing that I thought of when I saw it using a domain name and cloud services.

I also thought about what would happen if the server goes down.

Sure, you can do some smart programming with backup servers, but personally I don't trust running stuff remotely (unless it's secure and redundant).

Especially if you're running something vital, like burglar alarm (Controlling on/off for sections, sensors, alarms etc).

Sure, it's one in a million that someone would both find your tech, hack it and then burglarize you, but it can happen.

But, it's something less vital which doesn't affect anything, sure. As long as it's something that doesn't attract too much attention.

Otherwise, it has to be secured.

Also seem to be dependent on many factors, PHP-scripts, db-server, webserver and the connection between these servers and softwares. I'm sure a home-server can be set up too, in case you feel that's any better.

But, still, it can malfunction with all these components.

It would be awesome if there were some db-engine which could be incorporated in the ESP module directly, without having it need to read/write into the flash (Don't even know if it has a writable area, just spitballing here) or so, and thereby eliminating any third-party provider.

The fewer services required, the better IMHO.

[Reply](#)



**Rui Santos**

January 24, 2020 at 10:00 am



However if you search online for PHP login script, you can add it to your page protect the control Dashboard with a login system and that's going to be very secure (that's going to be one of my next projects).

I've been personally running a similar server since 2014 (it's been 6 years now) and I've only encountered a issue once while updating the server (it has daily backups, so you can always go back).

[Reply](#)



**Khalil**

December 31, 2022 at 7:38 pm

I want make it with GPRS not WiFi by using ttgo t call esp32 sim 800I could you make example like that or show me how is .ino code . thanks

[Reply](#)



**Sara Santos**

January 1, 2023 at 7:59 pm

Hi.

Take a look at this tutorial: <https://randomnerdtutorials.com/esp32-sim800l-publish-data-to-cloud/>

I hope this helps.

Regards,

Sara

[Reply](#)



**Alejandro**



Hello, do you have any good tutorial on WebSockets?  
I'm trying to establish a WebSocket with a Nano board in order to make a similar control like the one you show as here but instead of using the GET method after a delay I want it to be more responsive.  
Also I need your advice in this subject...

I'm using Nano + SIM800L(GPRS)+GPS(UBLOX 7) and will add LoRa (if the first part works), I use SoftwareSerial(can go up to 4) to connect the devices. I've been told that's a bad idea because,besides being small data packets, the system can crash, and I should use Hardware interrupts, for example I can move to a ATMEGA which has 4 (hardware serial ports). What do you think?> Thank you,  
Alejandro.

**Sara Santos**

April 27, 2023 at 8:46 am

Hi.

We have the following tutorials about websocket protocol (not sure exactly if this is the kind of tutorials you're looking for):

<https://randomnerdtutorials.com/?s=websocket>

Regards,  
Sara

**Dan**

April 2, 2023 at 4:10 pm

Hello, project is great, i have made it and working about 3 years but please, please tell me how to secure it to not access it without



[Reply](#)**Alejandro**

April 26, 2023 at 3:09 am

Do you think you can use WebSockets in order to make it more responsive, I mean with less delay?

Is it possible to use a Nano board instead of a ESP32?

Can you explain the PHP and MySQL part, the way you configure it?

Thank you for your tutorials, they are of great help.

[Reply](#)**Rafael**

May 8, 2023 at 3:15 pm

Good afternoon!

This project would be perfect if it had a physical button on the arduino and updated on the website as the button was pressed. Could anyone help me with this issue?

[Reply](#)**Carl Hage**

January 25, 2020 at 2:32 am



While authentication is important and maybe a good topic for a separate tutorial, it would be good to illustrate some defensive programming practices. For example, assume the json packet retrieved could be malicious. It doesn't take much to check for invalid input, not just for hacking defense, but software bugs. Rather than blindly setting pinMode and digitalWrite, first verify the pin numbers as being ones suitable for writing, and maybe check the value for "0" or "1". The atoi returns 0 on an invalid number, but supposedly sets the errno global which could be checked.

Only a few extra lines of code are required to set a mask of allowable output pins and then check the json values are OK.

Rui, Thanks for a nice tutorial. Maybe for this application there are simpler ways but it's a good illustration of using these software packages. There are tradeoffs using a remote server for control vs ESP-embedded server with portal in a router. The latter could make a different tutorial.

I can see how some security gets complex, and makes a pretty detailed tutorial longer. Setting up https can be complex, but Bluehost supposedly includes an SSL certificate. Httpd login, cookies, OATH, etc. can be complex, so maybe good to isolate these in a separate IoT security tutorial.

[Reply](#)



**Emilio**

January 25, 2020 at 8:55 am

Carl,

You mean something like this?



```
Serial.print("GPIO: ");
Serial.print(keys[i]);
Serial.print(" – SET to: ");
Serial.println(value);
pinMode(atoi(keys[i]), OUTPUT);
digitalWrite(atoi(keys[i]), atoi(value));
}
else Serial.println("GPIO or status in not an integer");
```

[Reply](#)**Mark**

January 23, 2020 at 6:49 pm

Thanks Rui, excellent how-to as usual! I've been waiting for this one to see how you'd save the IO state on the server and if you'd use web sockets or get requests. I've been thinking of how to implement this sort of thing without using an mqtt server as I already have a hosting plan, (no mqtt and I don't think they allow one to be installed). A quick question, do you think if multiple devices, say 50-75, are making get requests to the server I may need to alter the time delay? Or would another type of connection/protocol be better for that situation?

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

January 24, 2020 at 10:03 am

Hello Mark, I haven't tested this project with so many devices, but for such application I would run an MQTT server. The idea behind this



advantage and control the outputs from anywhere. For more than 10 devices I would definitely go with MQTT.

[Reply](#)



**Andre**

January 23, 2020 at 7:47 pm

This looks great; thanks for sharing.

Just a quick question. How secure is this i.e. how easy would it be for some to hack this and gain access to your system?

[Reply](#)



**Rui Santos**

January 24, 2020 at 9:57 am

I didn't want to make this project much longer, yes it's currently available for anyone to guess your URL. However if you search online for PHP login script, you can add it to your page protect the control Dashboard with a login system (that's going to be one of my next projects).

[Reply](#)



**Onder Yilmaz**

January 23, 2020 at 8:05 pm



Dear Rui,

Thank you so much for “Control ESP32 and ESP8266 GPIOs from Anywhere in the World”. This is exactly what i want. Thank you so so much.

Best Regards.

[Reply](#)



**Rui Santos**

January 24, 2020 at 10:04 am

Thanks for reading!

[Reply](#)



**Manuel Castillo**

January 23, 2020 at 9:29 pm

WOW

Excelente tutorial, se entiende facil y rápido. Muy bien, dejarnos la tarea de agregar la lectura de sensores y cosas así.

Pronto espero poder mostrarte mi proyecto mas avanzado.

Muchas gracias por compartir tu conocimiento.

“Excellent tutorial, it is easy and fast. All right, leave us the task of adding sensor reading and things like that.

Soon I have to show you my most advanced project



Thank you very much for sharing your knowledge."

[Reply](#)



**Duane**

January 23, 2020 at 11:34 pm

I'm guessing nobody will probably accidentally go to my ESP webpage but what if someone does? Can they control the off and on buttons from their browser?

[Reply](#)



**Rui Santos**

January 24, 2020 at 9:58 am

I didn't want to make this project much longer, yes it's currently available for anyone to guess your URL. However if you search online for PHP login script, you can add it to your page protect the control Dashboard with a login system (that's going to be one of my next projects).

[Reply](#)



**Mudassar Adrees**

January 24, 2020 at 10:22 am

A login script or page can be drafted and you will be able to secure it by



Otherwise it is not secure.

[Reply](#)



**RayB**

January 24, 2020 at 3:15 am

excellent tutorial... Has anyone successfully got this working using 000webhost

[Reply](#)



**Peeta**

January 24, 2020 at 8:06 am

Yes I was using 000wehost and its working.

[Reply](#)



**Rui Santos**

January 24, 2020 at 10:05 am

Hello Ray! Yes, it should work with that host.

[Reply](#)



**Mudassar Adrees**

January 24, 2020 at 3:50 am

Can one 1 guide me when any GPIO already high or ON, while getting http response and change its state again to High or On, will GPIO or relay will off for a second?

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

January 24, 2020 at 10:01 am

It will always remain on (it won't blink/change the state).

[Reply](#)**WCT**

January 24, 2020 at 4:53 am

Hi Sir,

For the project posted yesterday “Control ESP32 and ESP8266 GPIOs from Anywhere in the World”.

The URI to be set to ESP8266 is: “[http://example.com/esp-outputs-action.php?action=outputs\\_state&board=2](http://example.com/esp-outputs-action.php?action=outputs_state&board=2)”.

As you are using the domain bluehost, I wonder if the URL is in detail?



**Rui Santos**

January 24, 2020 at 9:56 am

That's just a sample domain name, you must replace "example" with your own actual domain name that you register with your domain provider (or hosting account).

[Reply](#)**Mudassar Adrees**

January 24, 2020 at 10:19 am

The concat of Gpio and board value should be unique, so that a specific board with specific GPIO can be registered once, overall you did great, very nicely I have completed my all project, which has 2 pzem004 for two supplies and which send voltage, current, power to mysql, then after a specified consumption or manually switch to another supply.

Thankyou so much for your projects.

[Reply](#)**Soma**

January 24, 2020 at 4:03 pm

Hello and thanks for this amazing work

i done the job but i get this message in serial monitor:



Error code: -11

{}

JSON object = {}

what is the reason and how can fix it?

[Reply](#)



Klaus-Juergen Eich

January 24, 2020 at 4:09 pm

Dear Rui,

this is a project which I was waiting for for a long time.

Thank you.

I'm owning a domain already and php is running.

I followed the steps of the project and it seemed to work.

But there are 2 things which don't:

1. In the "ESP Output Control" dashboard no additional outputs can be created. But outputs can be deleted.

2. The ESP32 sketch shows in the serial monitor:

....

{"2":"0"}

Parsing input failed!

HTTP Response code: 200

....

But it acts when I toggle the button in the dashboard and shows

.....

{"2":"1"}

Parsing input failed!

HTTP Response code: 200

....

Any idea?



**Rui Santos**

January 25, 2020 at 3:38 pm

Please update your files or download them again here:

<https://github.com/RuiSantosdotme/control-esp32-esp8266-gpios-from-anywhere/archive/master.zip>

I had to delete one copyright notice and it should be working now.

Thanks for letting me know!

Regards,

Rui

[Reply](#)

**Klaus-Juergen Eich**

January 26, 2020 at 11:21 am

Thanks. Now everything is working fine !!!

Regards

Klaus-Juergen

[Reply](#)

**Klaus-Juergen Eich**

January 28, 2020 at 12:31 pm

Dear Rui,

please take into account that all this works with the extra cheap



Is there any chance to realize a sort of back channel? I.e. a feedback if the garage door is really closed or open?

Regards

Klaus-Juergen Eich

[Reply](#)



**Emilio**

January 28, 2020 at 10:01 pm

Take a look at this project:

<https://randomnerdtutorials.com/cloud-weather-station-esp32-esp8266/>



**Rui Santos**

January 28, 2020 at 6:56 pm

I'm glad it worked!

[Reply](#)



**Joy Kumar Sen**

February 12, 2021 at 12:41 pm

Actually i don't know about PHP. So i followed all the steps and instructions mentioned in the site to make it work.



Can your help me to resolve this issue. Kindly guide me. I am trying to make it work since last week.

Error :

Parsing input failed.

Http response post code 302.

[Reply](#)



**kid\_wonder**

February 28, 2021 at 6:29 pm

I'm on the same boat here as Joy Kumar Sen.

I went back into my website made sure that all the code was updated and re uploaded the code to my esp8266M0D.

However I am getting this error when I look at the serial connection

Parsing input failed!

HTTP Response code: 200

Please advise



**Uthum Perera**

March 21, 2023 at 6:09 am

This is mainly because of SSL. go to your host, disable SSL redirect under your domain or create a subdomain and disable SSL redirect. I had the same issue. Now everything is working fine



**Joy Kumar Sen**

February 13, 2021 at 4:50 am

Hi Rui,

I updated the existing code with the code provided in the .zip file.  
Still i am facing the same issue “Parsing input failed”.

Can you please suggest me how to debug and solve the issue. I really need your help and guidance.

If possible please reply me as early as possible.

Thanks.

[Reply](#)

**Joy Kumar Sen**

February 13, 2021 at 5:33 am

Dear Klaus,

I was also waiting for this feature from long time.

I am facing an error. ESP32 sketch showing the below error in the serial monitor.

Parsing input failed

HTTP response code : 302.

I am trying to make it work since one week. If you can guide, that would be a great help for me.



As he suggested to download the code provided in the zip file and update with the existing code, i did the same but still the issue is not resolved.

I will be waiting for your reply....!!!

Thanks in advance.

[Reply](#)



**Emilio**

January 24, 2020 at 5:53 pm

Good job as usual, thank you for sharing!

Just a question: All the functions work except the createOutput(element).

For it to work, I had to add a line before the last one.

Would you know why? It's driving me nuts. Thank you

```
alert(xhr.send(httpRequestData)); <----  
xhr.send(httpRequestData);
```

[Reply](#)



**Steven**

September 14, 2021 at 4:51 pm

Thanks. Works for me too. Why I do not know...

[Reply](#)



**Soma**

January 24, 2020 at 6:36 pm

hi again

i modify server name and now i get this message in serial monitor:

HTTP Response code: 200

outputsState:?

Parsing input failed!

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

January 25, 2020 at 3:37 pm

I had to remove one copyright notice. Please update your files or download them again here: <https://github.com/RuiSantosdotme/control-esp32-esp8266-gpios-from-anywhere/archive/master.zip>

Thanks for letting me know and it should be fixed now!

Regards,

Rui

[Reply](#)**Jon Cherba**

January 25, 2020 at 1:46 am



I'm getting an error when trying to upload sketch to esp32

HTTPClient.h: No such file or directory

Not sure what's going on there, I've been following the tutorial closely.  
Thanks.

[Reply](#)



**Rui Santos**

January 25, 2020 at 3:39 pm

Hello Jon,

Are you using the latest version of the ESP32 board installed in your Arduino IDE?

Regards,

Rui

[Reply](#)



**Alejandro**

January 25, 2020 at 3:11 pm

Excellent and very practical tutorial to learn PHP techniques and use and communications with ESP devices!

I have connected the two types of modules and receive constantly, in  
ESP32 (

the same happens to me in ESP8266)



HTTP Response code: 200

{"26": "1", "27": "0", "25": "1"}

Parsing input failed!

And I can't activate any output. In neither of the two programs.

Where can I have the error?

Where does all the comment type text appear after the code:

HTTP Response 200?

Because the Parsing input failed !?

Any problem with the ArduinoJson?

Could you adapt to the ArduinoJson de Benoit Blanchon from the Arduino library?

I hope this helps other followers if the same thing has happened to them.  
Go ahead Rui and congratulations.

[Reply](#)



Rui Santos

January 25, 2020 at 3:36 pm

Is it solved now? Please update your files or download them again here:

<https://github.com/RuiSantosdotme/control-esp32-esp8266-gpios-from-anywhere/archive/master.zip>

Thanks for letting me know and it should be fixed now!

Regards,

Rui

[Reply](#)



**Alejandro**

January 28, 2020 at 11:05 pm

Hi Rui.

I still marvel at your tutorials but in this one I still can't make it work for me.

Although I reloaded all the PHP files and the Wi-Fi module files, I still can't "advance" in the JSON part:

```
JSONVar myObject = JSON.parse (outputsState);

if (JSON.typeof (myObject) == "undefined") {Serial.println ("Parsing input
failed!");
return;
}
Serial.print ("JSON object ="); Serial.println (myObject);
```

Always run "return" because the response to JSON.typeof (myObject) is null or empty.

And I can't keep going.

To the other members of the forum this has not happened?

It's amazing that it happens to me alone!

Will I have library problems?

There is only one version of Arduino\_JSON.

If someone can give me a hand with this it would be spectacular!

One more issue but it is from PWM.

Where should I write about a question I have on the subject?

On Facebook ?

I am already part of the forum or in the PWM tutorial that is already on your page for led control?



But it refers to generating a very low PWM frequency and it only works up to 1 Hz and I need 0.44 Hz.

Thanks for your attention.

And I will continue learning from all your new tutorials.

Alejandro  
Buenos Aires

[Reply](#)



Alejandro

January 25, 2020 at 3:23 pm

I must add this since it was not sent in my previous post and it is the “comment” that appears after the reply:

HTTP Response code: 200

>

Rui Santos

Complete project details at <https://RandomNerdTutorials.com/control-esp32-esp8266-gpios-from-anywhere/>

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copies or substantial portions of the Software.

->

is always



Parsing input failed!

Thank you.

[Reply](#)



**Rui Santos**

January 25, 2020 at 3:36 pm

Is it solved now? Please update your files or download them again here:  
<https://github.com/RuiSantosdotme/control-esp32-esp8266-gpios-from-anywhere/archive/master.zip>

Thanks for letting me know and it should be fixed now!

Regards,

Rui

[Reply](#)



**walid**

January 25, 2020 at 9:20 pm

Hi, thank you for the tuto,

I followed all what you wrote but got this message “Connection failed: No such file or directory” in the web page.

What to do? thank you...

[Reply](#)



**Rui Santos**



It looks like you've moved the files to the wrong folder in your server...  
Did you also add your database details?

[Reply](#)



**Jim H**

January 26, 2020 at 5:37 pm

Great project!! I thought this was possible but didn't know how to approach it.

I had one problem. The string that was retrieved by httpGETRequest started with the comments in the esp-outputs.php file, then the JSON info. I stripped out the comment portion and was able to get it working. I don't know php (something new to learn) so I couldn't figure out why the comment got included.

[Reply](#)



**Chisomo**

January 27, 2020 at 11:50 am

Since i don't have ESP's, i want to use Ethernet shield to turn on/off the arduino pins.

Does this work with Ethernet ? If not ,

Could you adapt to the ArduinoJson de Benoit Blanchon from the Arduino library?

Thanks in advance !



**espinosa**

January 28, 2020 at 12:01 am

Hello !! It's working fine, but the message displays in the browser: Notice:  
Undefined variable: html\_buttons in  
`/storage/ssd5/988/11371988/public_html/esp-outputs.php` on line 24  
and Undefined variable: html\_board ... on line 31.  
Can you help me ? Thanks

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

January 29, 2020 at 3:32 pm

Can you please modify those lines to the following?

```
$html_buttons = null;  
$html_boards = null;
```

Does adding = null; remove that error?

Thanks!

[Reply](#)**Tim Hood**

January 29, 2020 at 1:53 am



cool project. i had to mess around with schematics a bit but eventually got it figured out. I cant figure out why but im assuming the 5 minute delay is server side? Im hosting with bluehost is there somewhere in cpanel i can adjust database update schedule?

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

January 30, 2020 at 10:08 am

Hello Tim, it should only have a 5 second delay between each outputs state request update.. Are you experiencing 5 minutes delay?

Thanks,

Rui

[Reply](#)**Tim Hood**

February 5, 2020 at 2:09 pm

well kind of, the board updates every 5 minutes. so i can press the button at anytime during the 5 minute interval, depending when the button is pushed within the interval is how long it takes to activate. i dont believe it has anything to do with the code because everything is working fine, except the 5 minute intervals.

[Reply](#)

**Louis Jay**

January 29, 2020 at 2:12 am

Notice: Undefined variable: html\_buttons in  
/home/luijay60/public\_html/esp-outputs.php on line 24

Notice: Undefined variable: html\_boards in  
/home/luijay60/public\_html/esp-  
outputs.php on line 31

is what i get tried both scripts and i dont remember much of php last i saw  
it was over 20 years ago it mostly working i think Santos is a genious!

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

January 30, 2020 at 10:07 am

Can you please modify those lines to the following?

```
$html_buttons = null;  
$html_boards = null;
```

Does adding = null; remove that error?

Thanks!

[Reply](#)**Juergen B.**

January 29, 2020 at 3:56 pm



Two buttons (GPIO2, GPIO13) are now displayed.

I have the button with:

```
INSERT INTO `Outputs` (`name`, `board`, `gpio`, `state`) VALUES ("LED_RED", 1, 13, 0);
```

added to the database.

The board page now shows:

JSON object = "1 1"

HTTP response code: 200

"1 1"

Nothing else is displayed (GPIO?)

The corresponding GPIO is also not controlled.

[Reply](#)



**Rui Santos**

January 30, 2020 at 10:11 am

Hello Juergen,

Which browser are you using? Can you try using Google Chrome (in order to create/delete buttons)?

What do you see when you open your URL:

```
http://www.your-domain-name.com/esp-outputs-action.php?  
action=outputs_state&board=1
```

Does the server name variable in your Arduino sketch is the same as the preceding working URL?

[Reply](#)



**Juergen B.**

January 30, 2020 at 12:49 pm



My browser: Firefox 72.0.2 (64-bit).

With Google Chrome I can create / delete buttons.

Edition of:

<http://www.your-domain-name.com/esp-outputs-action.php?>

`action=outputs_state&board=1` -> "0 0 1" (with three buttons).

The server name in my Arduino Sketch is OK.

But no GPIO is controlled.

[Reply](#)



**Emilio Lausell**

January 29, 2020 at 10:03 pm

Hi Rui, congratulations for an excellent website and work. I purchased your training but found this free tutorial which i'm interested in learning. I employ exactly the same components you do (ESP32 DOIT Dev Kit and ESP8266). I verified that the output from the Http request is {"2": "0"} but the Arduino IDE serial com window shows the following:

{"2": "0"}

Parsing input failed!

Evidently this is turning TRUE:

if (JSON.typeof(myObject) == "undefined")

but I don't know why since the typeof should be an object, or am I wrong. I am fairly new to PHP, JAVA, so please explain as if you were talking to a moron.

Thanks

[Reply](#)



**Rui Santos**

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Did you modify the URL in the code that you uploaded your board?

Is your URL set as follows: `http://www.your-domain-name.com/esp-outputs-action.php?action=outputs_state&board=1`

?

[Reply](#)



**Khalil**

December 31, 2022 at 7:32 pm

Thanks rui could you help us make your example but with ttgo t call esp32 sim800l

Used GPRS not WiFi can you make it ?

[Reply](#)



**Karloz**

January 30, 2020 at 1:47 am

HTTP Response code: 200

This site requires Javascript to work, please enable Javascript in your browser or use a browser with Javascript support.

Parsing input failed!

[Reply](#)



**Rui Santos**

January 30, 2020 at 10:04 am

Hello Karloz, what do you see when you access your URL?

`http://www.your-domain-name.com/esp-outputs-action.php?  
action=outputs_state&board=1`

[Reply](#)**Onder Yilmaz**

February 3, 2020 at 5:52 am

Hi Rui,

I found another reason for “Parsing input failed!”. If you are using plesk panel or similar and if you set SSL, this problem happening. Also if you just installed plesk, SSL option comes as active. So you need to go to the domain settings and remove the checkbox “SSL/TLS support”.

Hey Rui, is there a way for SSL support?

Best Regards.

[Reply](#)**Emilioano**

January 30, 2020 at 3:53 am



have is that the slides buttons state do not have any effect on the LEDs (I only tried one LED on the ESP32 (COM3) and one in the ESP8266 (COM8)). If I change the state manually for LED GPIO2 for ESP32 in the database using pHpMyAdmin to "1" and then enter this in the URL: esp-outputs-action.php?action=outputs\_state&board=1, I will have this result in the web page result: {"2":"1"}, but it doesn't turn on the LED in GPIO2 of board 1 and COM3 keeps displaying the object as {"2":"0"}. While writing this I noticed that sometimes the LEDs on both boards come on and off randomly. That's weird. Before I start from scratch again (even dumping the MySQL Database) do you recommend anything?. Thanks.

[Reply](#)



**Rui Santos**

January 30, 2020 at 10:07 am

Hello Emiliano,

Note: it takes up to 5 seconds for your boards to update the outputs states (so, if you press the buttons very quickly, you won't see them change in real time).

Does your ESP8266 board is set to board=2 in the server variable?

For example for board #2:

```
http://www.your-domain-name.com/esp-outputs-action.php?  
action=outputs_state&board=2
```

Then, in your Dashboard you should create buttons and assign them to Board 2.

[Reply](#)



**mahdar fajari**

June 6, 2020 at 4:53 am



hi rui thanks for the tutorial, I want to ask, on my serial monitor I have an error JSON Object = {}  
Error Code = -11  
help me please

[Reply](#)



**Anonymous Pumpkin**

January 18, 2021 at 8:28 pm

I get this error too and found this forum  
<https://forum.arduino.cc/index.php?topic=539146.0>

I identified it's actually HTTP Error code 411.  
Then, I found out it's actually because of the bad implementation of the content-length and close connection... something like that... (I'm not a pro).

So I got through this  
[tools.ietf.org/html/rfc7230#section-3.3.2](http://tools.ietf.org/html/rfc7230#section-3.3.2)

and then, I found this  
[kodlogs.com/blog/183/http-error-411-the-request-must-chunked-have-content-length](http://kodlogs.com/blog/183/http-error-411-the-request-must-chunked-have-content-length)

and Finally, I found this  
[stackoverflow.com/questions/2623963/webkit-refused-to-set-unsafe-header-content-length](http://stackoverflow.com/questions/2623963/webkit-refused-to-set-unsafe-header-content-length)

I fixed this error by adding the following code

```
xhr.setRequestHeader("Content-Length", data.length);  
xhr.setRequestHeader("Connection", "close");
```



[Reply](#)**Tanju Gurler**

February 2, 2020 at 4:26 pm

Hello Rui Santos,

Thank you for sharing this cool project. Congratulations!..

I need your help. I configured my database and php files like above but I didn't reach mywebpage.com/esp-outputs.php file on my web page. I get this error "Connection failed: Access denied for user

'myweb\_esp'@'localhost' to database 'myweb\_esp\_data' "

And also, I checked error.log in my web page. I get this error "PHP

Warning: mysqli::mysqli(): (HY000/1044): Access denied for user

'myweb\_esp'@'localhost' to database 'myweb\_esp\_data' in

/home/myweb/public\_html/esp-database.php on line 78

Do you have an idea for this error.

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

February 6, 2020 at 12:12 pm

It looks like your database user doesn't have full permissions to access the database or you didn't include the right credentials in your esp-database.php file. Double-check that you've replaced those lines with your exact credentials:

```
// Your Database name  
$dbname = "REPLACE_WITH_YOUR_DATABASE_NAME";  
// Your Database user  
$username = "REPLACE_WITH_YOUR_USERNAME";
```



[Reply](#)**Marlot**

August 20, 2020 at 1:29 pm

Hey, I had a similar project and I fixed this by resetting the password of my cPanel account. Maybe this isn't the same, but maybe it is!  
Good Luck

[Reply](#)**ross**

February 17, 2023 at 4:41 pm

**FIXED!**

Same exact issue on my website being hosted on SiteGround. The new username / password was not being recognized, and I needed to clear the website's cache.

If you are hosting on SiteGround, search google how to manually clear cache (<https://www.siteground.com/kb/clear-site-cache/>)

If for any reason your website's cache is still not cleared, see if you have a pre-existing user that you can use:

siteground → website → site tools → site → MySQL → users

Username (will be listed under name)

Password (press 3 dots, and you have option to change password)



Hope this helps.

[Reply](#)



**Onder Yilmaz**

February 3, 2020 at 8:19 am

Hi Rui,

Again thank you so much for this project.

I want to use DHT11 or DHT22 with this project. So i need set a degree, then the DHT sensor will check current degree and stop or start a GPIO port. How can i implement it to this project?

Best Regards.

[Reply](#)



**Sara Santos**

February 3, 2020 at 10:53 am

Hi.

I think you want to set a threshold and then, make something happen when the temperature goes above or below a certain threshold.

You can add a input field to your web server and then compare the current readings with that input field to make something happen.

Here's a project that shows how to add an input field to your project:

<https://randomnerdtutorials.com/esp32-esp8266-input-data-html-form/>

Project that uses DHT: <https://randomnerdtutorials.com/esp32-dht11-dht22-temperature-humidity-web-server-arduino-ide/>



<https://randomnerdtutorials.com/esp32-esp8266-mysql-database-php/>

Regards,  
Sara

[Reply](#)



**Onder Yilmaz**

February 3, 2020 at 12:35 pm

Hi Sara,

Thank you so much. Okay, i will check them and inform you.

Best Regards.

[Reply](#)



**Sijared**

April 13, 2020 at 6:51 pm

Thank you Rui for the project! It work like a charm. 😊

[Reply](#)



**Sara Santos**

April 14, 2020 at 2:44 pm

Great!



**Juergen**

May 2, 2020 at 12:25 pm

Good day,

I would like to use the program code for other projects (e.g. smart home system).

I have the following question:

Which program code is used to transmit the data (e.g. {"2": "0", "13": "0"}) for controlling the selected GPIOs?

Could you please tell me.

Many thanks in advance.

Kind Regards

Juergen B.

[Reply](#)

**Panji Prasetyo**

May 3, 2020 at 3:44 pm

Hello Rui Santos and Sara Santos,

good evening,

thank you very much for your sketch on this project.

really helpful, i modify the script to work with raspberry.



thank you,  
Panji P

[Reply](#)



Rajiv

June 17, 2020 at 3:58 am

Hell Rui

The Connection failed issue was resolved after discussion with technical team of Blue Host.in. The problem was due to corruption of data base.

Thanks

[Reply](#)



dan

June 20, 2020 at 10:04 pm

Hello,

I have made your project and it works perfect. Can you help me to modify it and the buttons to be monostable? I need it when i push the button to give me output 1 second and then off until next push. So no slide button.

Thank you

[Reply](#)



Sara Santos



Hi.

You can follow this tutorial: <https://randomnerdtutorials.com/esp32-esp8266-web-server-timer-pulse/>

Regards,

Sara

[Reply](#)



**Roberto Markus**

July 10, 2020 at 1:52 am

Thanks for the great tutorial! I've much to learn from you.

But there is something I'm still curious about.

Can you provide a tutorial about controlling the PWM/analog signal to adjust the brightness of LED or speed/rotation of motor dc?

I hope you grant my request, once more Thanks a lot!

[Reply](#)



**Roberto Markus**

July 10, 2020 at 1:57 am

controlled by local web and integrated with MySQL

[Reply](#)



**Rui Santos**

July 25, 2020 at 10:20 am

Yes, we have that project in our to-do list! Thanks for letting me know your interest. We already have many projects lined up, so we don't know when we will post it.

Thanks again!

[Reply](#)**Marlot**

August 20, 2020 at 1:34 pm

Thanks for the amazing tutorial! I followed everything exactly, and also updated the codes from the latest github release. The webpage works perfect, except in serial monitor of my esp I get the following error:

```
"15:31:38.880 -> Parsing input failed!
15:31:38.917 -> HTTP Response code: 301
15:31:38.917 ->
15:31:38.917 ->
15:31:38.917 -> 301 Moved Permanently
15:31:38.917 ->
15:31:38.917 ->
```

Moved Permanently

15:31:38.917 ->

The document has moved [here](#).



Do you know what this means? Let me know and thank you!

[Reply](#)



**Marlot**

August 20, 2020 at 1:47 pm

Ok so update, I realise that the link its sending me to, is changing from (2:0) to (2:1) when I toggle the led switch on the other page. So somehow instead of talking to my ESP, its sending the data to a different page..

Do you know how I can continue?

[Reply](#)



**Majid**

September 14, 2020 at 5:32 pm

Hello everyone,

I have a problem with Arduino\_json.h in my node\_mcu project.

when i compile it, i face with a problem as follow,

C:\Users\Majid\AppData\Local\Temp\arduino\_build\_48742\libraries\Arduino\_JSON\ cJSON\cJSON.c.o: In function print\_string\_ptr':

C:\Users\Majid\Documents\Arduino\libraries\Arduino\_JSON\src\cJSON\cJSON.c:81: undefined reference to ctype\_ptr'

C:\Users\Majid\AppData\Local\Temp\arduino\_build\_48742\libraries\Arduino\_JSON\ cJSON\cJSON.c.o:(.text.print\_value+0x24): undefined reference to sscanf'

C:\Users\Majid\AppData\Local\Temp\arduino\_build\_48742\libraries\Arduino\_JSON\ cJSON\cJSON.c.o: In function print\_value':



collect2.exe: error: ld returned 1 exit status  
Using library ESP8266WiFi at version 1.0 in folder:  
C:\Users\Majid\AppData\Local\Arduino15\packages\esp8266\hardware\esp8266\2.3.0\libraries\ESP8266WiFi  
Using library ESP8266HTTPClient at version 1.1 in folder:  
C:\Users\Majid\AppData\Local\Arduino15\packages\esp8266\hardware\esp8266\2.3.0\libraries\ESP8266HTTPClient  
Using library Arduino\_JSON at version 0.1.0 in folder:  
C:\Users\Majid\Documents\Arduino\libraries\Arduino\_JSON  
exit status 1  
Error compiling for board NodeMCU 1.0 (ESP-12E Module).

I delete Arduino\_json.h from  
C:\Users\Majid\Documents\Arduino\libraries\Arduino\_JSON\ and then I  
install it again.  
But, unfortunately, I have this error in the project.  
Please guide me what happen by such error.  
Thanks

[Reply](#)



**Mudassar Adrees**

September 15, 2020 at 1:07 pm

Change version of json, install 5.

[Reply](#)



**Majid**

September 16, 2020 at 3:52 am

Thanks Mudassar for the reply



above files.

Do you mean i should change Arduino\_JSON at version 0.1.0 to ArduinoJson version 5 or not?

[Reply](#)



**Mudassar Adrees**

September 16, 2020 at 9:42 am

You have not installed arduinoJson, install any version.

[Reply](#)



**Majid**

September 26, 2020 at 12:01 pm

Hi everyone,

At first, thanks for amazing and practical tutorials.

I am going to implement this project with access point mode simultaneously. I mean that I sometimes want to control objects without any internet or modem. how can i change esp32 program for this aim?

[Reply](#)



**Juergen**

September 26, 2020 at 1:04 pm



Good Afternoon,

I get the following message when I call up the “esp-outputs-action.php” website:

Notice: Undefined index: action in  
/storage/ssd2/816/14960816/public\_html/esp-outputs-action.php on line  
27  
Invalid HTTP request.

Browser: Firefox 81.0 (64 Bit)

With the ESP32 I get the following output:

HTTP response code: 200

{“2”: “0”, “12”: “0”, “13”: “0”, “14”: “0”}

JSON object = {“2”: “0”, “12”: “0”, “13”: “0”, “14”: “0”}

GPIO: “2” – SET to: “0”

GPIO: “12” – SET to: “0”

GPIO: “13” – SET to: “0”

GPIO: “14” – SET to: “0”

Unfortunately I don’t know where the problem is.

Kind Regards

Juergen B.

[Reply](#)



Juergen

September 28, 2020 at 1:47 pm

Hello,

Issued by:

[http://my-webaddress/esp-outputs-action.php? action = outputs\\_state &](http://my-webaddress/esp-outputs-action.php? action = outputs_state &)



```
"2": "0", "12": "0", "13": "0", "14": "0"  
}
```

It all looks good.

But why do I get: "Invalid HTTP request"?

Kind Regards

Juergen B.

[Reply](#)



**Juergen**

September 29, 2020 at 2:28 pm

Hello,

Wrong mistake

With: "http://my-webaddress/esp-outputs.php" I get the right website to control the GPIO's.

Create New Output doesn't work with Firefox but only with Google Chrome.

Is there a solution for Firefox?

Kind Regards

Juergen B.

[Reply](#)



**Steven**

August 8, 2022 at 11:11 am

I found the fix to this, although I'm not sure why it works... I had the same problem regarding the Create Outputs button not working in the



Solution: In the file esp-outputs.php, inside its createOutput() function, add alert("your message here"); to the very last line of the function. E.g. after the line xhr.send(httpRequestData); and it should work.

[Reply](#)



**Majid**

October 3, 2020 at 12:21 pm

Hi Rui,  
thank you so much for this toturial.  
I have a problem with parsing in nodemcu. It executes terms of “Parsing input failed!”  
when i visit address .../esp-outputs-action.php?  
action=outputs\_state&board=1” it returns correct terms {"4":"0","5":"1"} but myObject in [JSONVar myObject = JSON.parse(input);] dosn’t return correct result. how can I improve that?  
Thanks alot.

[Reply](#)



**Majid**

October 3, 2020 at 3:08 pm

Hi again,  
excuse me, I understand that my problem is not related to parsing process but it is related to payload in payload = http.getString(); that returns nonsense terms.  
what is my problem in your opinion?



**Jorge**

October 9, 2020 at 6:09 am

Hellow, awsome tutorial, but i have a problem, when i run my esp32 it gives me this message  
Parsing input failed!  
sendRequest code=200  
HTTP Response code: 200  
i dont undestand why, i replaced evrything as needed

[Reply](#)**Amir**

October 25, 2020 at 8:07 pm

Hello and thank you for the wonderful tutorial.  
Is it possible tp append files under this tutorial to your weather station tutorial to establish a two way communication with the esp board.

[Reply](#)**Colin**

October 31, 2020 at 6:02 pm

This is a great project, thanks for posting it! Mine seems to be working



else having that issue?

[Reply](#)



**CHRIS KIOLBASSA**

November 11, 2020 at 7:44 pm

Hi!

When I try to access `http:// mydomain.net/esp-outputs.php` all I get is :  
Connection failed: No such file or directory. I copied the php to all the files  
exactly.

[Reply](#)



**CHRIS KIOLBASSA**

November 11, 2020 at 8:47 pm

update.

Had to change servername from “localhost” to the servername that my  
host gave me.  
works now.

[Reply](#)



**sarah**

February 3, 2023 at 10:44 am

hello,



[Reply](#)**Sabil**

April 2, 2023 at 11:19 am

Same problem here. Did you find the solution?

[Reply](#)**Sabil**

April 2, 2023 at 12:33 pm

NVM it works

**Mike Hopeman**

November 15, 2020 at 7:45 pm

Hi Rui Santos and others contributing. This is super tutorial learning esp8266 and controlling it over internet. Thank you so much. I already managed almost complete my current project.

One thing I'm having a hard time to figure out. What would be the best way to toggle relays or leds over internet for only certain time? My plan is to toggle relay for 2 seconds. I'm trying different options and don't know if I should do it in Arduino side or should I do the timer on website. I can do it in simpler code in Arduino easily, but with this complicate code I don't have the skills to tweak it right. I'm just learning to code, so all tutorials about this are super welcome.



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

November 17, 2020 at 3:53 pm

Hi Mike.

Take a look at this tutorial that might help:

<https://randomnerdtutorials.com/esp32-esp8266-web-server-timer-pulse/>

Regards,

Sara

[Reply](#)**Mike Hopeman**

November 17, 2020 at 7:28 pm

Hey Sara!

Thank you so much. Exactly what I was looking for. These tutorials are so good!

Cheers,

Mikko

[Reply](#)**Colin O'Callaghan**

December 4, 2020 at 1:36 am

I attempted this project and everything seems to work except that when I



They update every two hours (exactly two hours), regardless of when I push the buttons. So, for example, if I push a button right after the LED's have updated it will take two hours to turn on or off. I can't see where in the Arduino ESP32/ESP8266 code or the web server code has this two hour time. Is there something I am missing or is it maybe the settings in my hosting account. I have already asked this question and no one responded so I am posting again with more details in the hopes someone can help me with the added detail. Thanks!

[Reply](#)**Marco Calzolari**

January 8, 2021 at 11:30 am

Hey Colin did you manage to resolve the issue? I have the same problem but that 2 hours time to me is 5 min (fortunately, even though is still too much)

Cheers 😊

[Reply](#)**Colin**

January 15, 2021 at 3:27 am

Hi Marco, I never did. I think I am just going to delete everything and start from scratch. I am not sure when I will have time to do it but I will let you know if/when I figure it out.

[Reply](#)

**Colin**

May 12, 2021 at 2:26 pm

Hi Marco, I finally figured it out. I was on the most basic hosting plan with my hosting service. I upgraded to the next plan after the basic option and it works great now. I assume it has something to do with how often the basic plan lets you update your web page information, which is probably based on the amount of data you can transfer. Anyway I don't know if this will help fix your issue but it worked for me.

[Reply](#)**Yash Sharma**

December 10, 2020 at 8:15 am

```
13:29:50.789 -> HTTP Response code: 200
```

```
13:29:50.789 -> {"1"
```

[Reply](#)**Yash Sharma**

December 10, 2020 at 8:17 am

Incomple response in serial monitor.Any Help?

[Reply](#)

**PhilipTheArab**

December 28, 2020 at 2:27 pm

great

I joined blue host and implemented the example successfully

Glad I did. Now I have a site for the first time

Thanks Sara and Rui for the added value

[Reply](#)

**Sara Santos**

December 29, 2020 at 11:48 am

That's great!

Thanks for sharing your feedback.

Regards,

Sara

[Reply](#)

**Marco Calzolari**

January 8, 2021 at 11:36 am

Hi Sara and Rui, thank you for the tutorial! I think everything is working fine but the fact that regardless the value I set for “update interval time” the



Any clue?

Thank you.

[Reply](#)



**Maurer Karl**

January 12, 2021 at 7:31 pm

Hello Rui,

thank you for this nice example.

after several hours i think now ist everything running.

ESP8266 sketch and the php-files on my own domain.

Now i have still a problem:

When i toggle the gpio's in my chrome browser i can switch each gpio once to "on" and once to "off". After switching all Gpio's once on/off they dont react anymore. If i change the chrome browser into the desktop-mode i can make the the same procedure again with the same result. Switching back to mobile-mode in the browser i can switch immediatly again.

What is the reason ?? The php-files and the esp-sketch and the databank-connectivity are always the same.

Please ,can you help me !!

Thanks Karl

[Reply](#)



**Jimmy**

January 14, 2021 at 6:33 am



Project work only for 2 times then everytime i have to restart my browser to get Gpio switch working again...

i have mentioned the website whete i used your project code



Any tipe how do i fix it

[Reply](#)



**Jimmy**

January 14, 2021 at 6:39 am

<http://all4more.com/esp-outputs.php?name=G&board=1&gpio=2&state=1>

here i used this project code but its working for 2 times.. when everytime i restart browser  
please help...

If we able to fix it.. I will let everyone use my website and server for IOT project based on this project

[Reply](#)



**Sara Santos**

January 14, 2021 at 6:13 pm

Hi.

What is the hosting service that you are using?

Eros hosting services don't work properly with this tutorial



Sara

[Reply](#)



jimmy

January 20, 2021 at 5:27 pm

dear mam

im using hosatinger

[Reply](#)



Ivan

January 19, 2021 at 10:19 am

Hello Rui, Hello Sara.

I am writing this comment again since my first one disappeared.

I am using impulse bistable relay instead of LEDs. And using this script it causes my relay to latch every few seconds. I believe the cause is that ESP32 is checking the database every few seconds and switching the GPIOs correspondingly.

I would like to know if it is possible to have the database (or the server) to send the data to ESP every time the data inside the DB changes? This way I would have my relay respond only to changes, and not continuously. I am still a newbie at this IoT and PHP.

Maybe you could put this in one of your books so it would be available for purchase?

DD



[Reply](#)**Kobus Steenkamp**

February 3, 2021 at 4:58 pm

Hello Rui and Sara,

Your tutorials are some of the most comprehensive i have seen on the internet.

I can see you has put a lot of effort in this, Thank you so much.

Kind regards,

Kobus from South Africa.

[Reply](#)**Josef Bernhardt**

February 10, 2021 at 4:01 pm

Hello Rui,

first of all I would like to congratulate you on your great books.

I have seen the great article of you unfortunately too late and built my own project that sends the data via HTTP POST to my Strato server !

But I will test your project with my ESP8266 I/O board.

<https://www.linkedin.com/pulse/hmi-web-control-esp8266-io-board-josef-bernhardt/>



Greetings

Josef Bernhardt Bad Abbach Germany

[Reply](#)



Joy Kumar Sen

February 10, 2021 at 7:16 pm

First of all i would like to thank you for giving such a beautiful concept.

I am facing the error mentioned below with this code. Can you please help me to resolve the issue.

Parsing input failed!

HTTP Response code: 302

302 Found

Found

The document has moved <a href="https://smartlyf.net/esp-outputs-action.php?action=outputs\_stat..."

[Reply](#)



Joy Kumar Sen

February 12, 2021 at 2:29 pm

Can anyone please help me to resolve this issue.



**Joy Kumar Sen**

February 11, 2021 at 3:01 am

First of all i would like to thank you for this amazing concept and tutorial.

Actually i don't know about PHP. So i followed all the steps and instructions mentioned in the site to make it work.  
But still i am facing an error(mentioned below).  
I need your help to resolve this help. Kindly guide me.

Error :

Parsing input failed.  
Http response post code 302.

[Reply](#)

**Joy Kumar Sen**

February 11, 2021 at 9:12 am

Hi,

First of all i would like to thank for this amazing concept.

I followed all the steps and instructions mentioned in the site. Still i am getting an error in serial monitor saying " Parsing input failed".

Can you please help me to resolve the issue.

Thanks.



**Demy**

April 3, 2021 at 7:57 pm

Thanks Rui and Sara.

[Reply](#)**Demy**

April 11, 2021 at 4:38 am

Hello Rui and Sara,

I would like to extend my great appreciation and gratefulness for your work on this project here. I also gladly like to share with everyone how I recently managed to make this project a password-protected one. At least no one can access it as easily as before.

I successfully incorporate today the entire project's contents including the modification I made to it into my own humble personal website "<https://sc-tronix.tech>". If interested to see it's working, one can find it under the right column topic "esp8266 basic home IoT".

Thankfully yours,

Demy

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

Thanks for sharing.

Regards,

Sara

[Reply](#)



**Demy**

April 15, 2021 at 10:42 am

You're welcome, Sara. Just keep up the good work!

Regards,

Demy

[Reply](#)



**Muhammad Jeeh**

April 14, 2021 at 2:28 pm

Hi! I did everything right. My code compile successfully and i can access the webpage successfully too. Also, in the serial monitor i'm having a response code of 200. The problem i'm facing is that The GPIO pins i set on the webpage never work (turn ON or OFF) when i toggle the button. I don't know what is happening or what i did wrong ? Help please

[Reply](#)



**Demy**

April 15, 2021 at 10:48 am



It is possible that your hardware (esp module) might have a problem. Or consider checking every connection on it.

Regards,  
Demy

[Reply](#)



**Xavier**

April 20, 2021 at 4:58 pm

Hi ! Super work as always ! I'm wondering why you use php in this one, and you work with java when the server is set directly in the esp32 ? Is there a good reason ? I would host the sever already existing in my esp32 (using java) to Bluehost, but I'm scared I'll have to rewrite most of it :/

Huge thank you !

Xavier

[Reply](#)



**Goku**

April 23, 2021 at 4:27 am

I have tried matching with storing sensor readings into a database and using line chart to display sensor readings. But my esp can send once time to database and can't control GPIOs



**rweng009**

April 23, 2021 at 12:32 pm

Dear Rui, Sarah,

Thank you for the customary sound tutorial – a base to build from.

Is there a mechanism for the Server to poll the Client “on demand” for a change of state of the switch rather than the continuous 5 second (or other) interval checking by the client? The overhead of this is significant and very inefficient for a switch that may be turned on/off once a day or at irregular intervals.

Just theory/principle into pragmatism.

Kind Regards

[Reply](#)**Goku**

April 25, 2021 at 2:32 am

How to with only esp 32. Can You help me, please?

[Reply](#)**suliman makkawi**

Connecting

.....

Connected to WiFi network with IP Address: 192.168.1.5

Error code: -1

{}

JSON object = {}

[Reply](#)



**Maxbrax**

May 4, 2021 at 1:03 pm

Great project, I am very interested in it, congratulations for the realization. I have implemented the circuit and the sketch and everything works fine, I just wanted help on how to get feedback if the esp32 is connected to the network.

Let me explain better: if the esp32 is not connected to the internet when I access the web page (<http://example.com/esp-outputs.php>) for the GPIO control I would like that it is impossible to activate the GPIO switching. Is it possible to implement a control in the sketch and in the php script?

Thanks in advance for your help and sorry for my incorrect English.

Massimo

[Reply](#)



**MaxBrax**

May 26, 2021 at 8:15 am



Greetings to all

[Reply](#)



**Terry**

May 13, 2021 at 7:18 pm

Hi guys,

I really am interested in this project. I have a question about posting this project to my domain. Can I still have my main Index.html page displayed with its various links after creating this project? Can I access the project through a direct link as you describe. Such as myexample.com shows my published web stuff and your myexample.com/esp-outputs doesn't interfere with my main site. It's been a while since I've messed with domains, so I hope this isn't a dumb question. Hope that makes sense and thanks for your help.

Terry

[Reply](#)



**Mudassar**

May 15, 2021 at 7:13 am

I set GPIO5 on esp8266 nodemcu, but when I on any device it got off after a while itself, what the problem may be?

[Reply](#)



**John Chintall**

May 21, 2021 at 5:18 pm

What could be incorrect? After the setups the websites shows the initial screen as in your video. The initial board can be deleted but no other boards can be selected. The attempt to create another input fails; no entry into database tables occurs.

Any help would be appreciated!

[Reply](#)**madan**

May 27, 2021 at 11:20 am

thanks for this wonderful project.i have made this and it works fine with esp32 but i only get ..... connecting status with esp8266 can anyone help with this problem. the esp8266 bard runs perfect with other code from the examples and only gives this problem in this esp2866 code. while uploading theres no problem uploads smoothly and restarts also then in serial monotor “.....” it goes like this forever

[Reply](#)**madan**

May 27, 2021 at 11:30 am

instead of while i used if and it worked perfectly  
“if ((WiFiMulti.run() == WL\_CONNECTED))”



[Reply](#)**Chris**

June 30, 2021 at 12:31 am

Hi I have a couple of questions.

1)Can I run this project with an esp8266 only (one board)?  
2)Can you please provide links to the necessary libraries. I have tried many times but am unable to find ESP8266HTTPClient.h  
When I run the ESP8266 , (ESP8266\_HTTP\_GET\_Request\_JSON.ino) I never seem to get past the setup – just constant ..... yet my credentials are fine  
Any help greatly appreciated

```
WiFi.mode(WIFI_STA);
WiFiMulti.addAP(ssid, password);
while((WiFiMulti.run() == WL_CONNECTED)) {
delay(500);
Serial.print(".");
}
Serial.println("");
Serial.println("Connected to WiFi");
}
```

[Reply](#)**chris**

June 30, 2021 at 2:38 am



connect – no problem. Unfortunately, I'm now getting the error 302 problem. I am able to ping the esp-outputs-action.php file and get the expected response using a browser or POSTMAN client – so I think that end is working. Could it be in the JSON library?  
This is a great project – I'd love to get it working

[Reply](#)



**Sail**

July 8, 2021 at 5:12 am

Can we also implement a Esp32 Cam for video surveillance in this project?

[Reply](#)



**SY**

July 9, 2021 at 3:10 am

Hello, I was wondering if it might be possible to use a momentary switch instead of a toggle switch?

[Reply](#)



**Sara Santos**

July 9, 2021 at 9:50 am



Hi.

Check this tutorial that might help:

<https://randomnerdtutorials.com/esp32-esp8266-web-server-outputs-momentary-switch/>

Regards,

Sara

[Reply](#)



Pietro

July 9, 2021 at 1:42 pm

Thank you Rui Santos,

You are the everlasting hero of ESP32. You are the best. This tutorial is so good and useful.

I just want to say that in my case I was connecting to my website with https.

So my server url was:

```
const char* serverName = "https://example.com/esp-outputs-action.php?  
action=outputs_state&board=2";
```

If I uploaded your code without any change I got an error from the page:

Parsing Input failed!

HTTP Response code: 400

400 the plain HTTP request was sent to HTTPS port

I corrected this making the modification below in the code:

```
http.begin(client, serverName); //WRONG  
http.begin(serverName); //IT WORKS
```



**Jens**

July 22, 2021 at 4:45 pm

Hello Pietro,

I tried your program change “`http.begin(serverName);` //IT WORKS” but it didnt works. I get this message:

```
Documents\Arduino\ESP8266_Relais\ESP8266_Relais.ino: In function
‘String httpGETRequest(const char*)’:
ESP8266_Relais:92:14: error: call to ‘HTTPClient::begin’ declared with
attribute error: obsolete API, use ::begin(WiFiClient, url)
92 | http.begin(serverName);
| ~~~~~^~~~~~
exit status 1
call to ‘HTTPClient::begin’ declared with attribute error: obsolete API, use
::begin(WiFiClient, url)
```

Can you help me please?

Greetings, Jens

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

July 22, 2021 at 5:06 pm

Hi.

Use our code with the latest installation of the ESP8266 board.

Regards,

Sara



**Jens**

July 24, 2021 at 7:08 am

Hi Sara,

thank you very much for your answer. I change all programs.

I use the versions from 02.07.2021. But the result ist the same:

09:05:49.994 -> Parsing input failed!

09:05:50.040 -> HTTP Response code: 400

09:05:50.040 ->

09:05:50.040 -> 400 The plain HTTP request was sent to HTTPS port

09:05:50.040 ->

09:05:50.040 ->

400 Bad Request

09:05:50.040 -> The plain HTTP request was sent to HTTPS port

09:05:50.040 ->

nginx

09:05:50.040 ->

09:05:50.040 ->

Greetings Jens

[Reply](#)

**Sara Santos**

July 24, 2021 at 2:03 pm



Hi.

Please check that your servername is HTTP and not HTTPS.

Regards,

Sara



**ross**

February 21, 2023 at 8:44 am

Hi Pietro, this fixed my issue thank you! Only issue is now there is no error, but the GPIO state does not update. Did you have the same issue after? Thank you!

[Reply](#)



**rob**

July 13, 2021 at 6:43 am

Thank you Rui Santos,

This is amazing work. How would you send a int value in the json message as well.

for example; if I wanted to turn on the cooling mode and set a target temperture remotely.

what is the easiest way to send the int valve to the mySQL and use the ESP32 HTTP get request to set it on the ESP32. thanks in advance



**Izam Niyas**

September 20, 2021 at 7:57 am

Dear Rui and Sara,

Thank you both for the excellent project, I posted a question some weeks ago about creating this project for each customer separately as I'm a sensor products maker, but you didn't approve it yet. Anyways, I have made this project successfully on my own hosting, please allow me to introduce the dashboard to try out with others interested on it. And it would be useful to add some code to get live feedback from switches operated. try on [iotserver.fixmation.com](http://iotserver.fixmation.com)

[Reply](#)**Terry**

February 1, 2022 at 3:00 pm

Izam, according to your site [iotserver.fixmation.com](http://iotserver.fixmation.com). it looks like your account has been suspended.

[Reply](#)**PK**

October 25, 2021 at 5:31 am



Your article is so useful and I really appreciate that so much :).

One thing I would like to ask you if you could help me is do you know which way I can send email notification whenever user create, delete, switch on and off.

Regard

[Reply](#)



**Sara Santos**

October 25, 2021 at 10:27 am

Hi.

Maybe this project might help: <https://randomnerdtutorials.com/esp32-esp8266-send-email-notification/>

Regards,  
Sara

[Reply](#)



**Humberto Andrade Dominguez**

November 5, 2021 at 4:05 am

Hi Sara and Rui, i guess if i can read the input status instead the outputs (Analog and digital) and then, show them just like this example? could you explain that? thanks for your support.

[Reply](#)



**Sara Santos**

November 5, 2021 at 11:44 am

Hi.

Here is an example for sensor readings:

<https://randomnerdtutorials.com/visualize-esp32-esp8266-sensor-readings-from-anywhere/>

Regards,

Sara

[Reply](#)

**Humberto Andrade Dominguez**

November 5, 2021 at 6:02 pm

Thank you Sara

[Reply](#)

**Jake**

November 24, 2021 at 7:33 pm

Hello!

Has anyone figure out how to solve this problem in serial monitor?

I'm trying to host my website using XAMPP on local machine.

error code: -1

{}



Thank you, Jake

[Reply](#)



**Jake**

November 26, 2021 at 5:10 pm

Hi!

What can i do, if the get request returns the entire HTML code in serial monitor?

Sincerely, Diego

[Reply](#)



**sztamblewski**

November 28, 2021 at 8:36 pm

```
for use GPIO 0 then must change file esp-outputs-action.php  
echo json_encode($rows);  
to  
echo json_encode($rows, JSON_FORCE_OBJECT);
```

[Reply](#)



**Manuel Lourenço**



Hi,

Can you explain me how to make this example work with phttps?  
(sp32)

```
const char* serverName = "https://example.com/ ...
```

Thank you,

Manuel

[Reply](#)



**Ulhas Rane**

January 4, 2022 at 3:36 am

Please post tutorial on esp32 as server sent events receiver or client which receives events from custom own web server like bluehost etc

[Reply](#)



**Antonio Bruno**

January 31, 2022 at 10:50 pm

Rui, parabéns pelo projeto, também parabéns ao autor...  
Encontrei um problema que ainda não consegui resolver... o script exclui e muda o valor do GPIO, porém, ao preencher o formulário, o registro não é inserido. Não sei pq, mas tentarei localizar. Caso tenha alguma ideia e puder me ajudar....agradeço !



[Reply](#)**Antonio Bruno**

February 6, 2022 at 10:02 pm

Rui, congratulations on the project, congratulations also to the author... I found a problem that I still couldn't solve... the script deletes and changes the GPIO value, however, when entering the data in the form, the record is not added to the database. I don't know why, but I'll try to find it. If you have any ideas and can help me....thank you!

Regards, Bruno.

[Reply](#)**osman**

February 10, 2022 at 8:35 am

Hi,  
I add to new column at Outpust table. I want to this column's value read at Arduino.  
How can I do it. What changes need to be made in the codes? Thanks.

[Reply](#)**Nathan**

April 13, 2022 at 6:48 am



love it works perfectly. However is there any way to remove the quotation marks “” from the mysql query. Instead of “8” just 8 it appears to be coming through on the esp32

[Reply](#)



**Neel**

June 2, 2022 at 5:21 am

You are calling server(PHP) in loop.

Don't you think it's bad practice ?

Also, Can you create Rest resource on ESP32 /ESP8266, so that PHP can consume that api whenever there is any change from Web.

i.e

```
server.on('/on',turnOnLed);  
server.on('/off',turnOffLed);
```

[Reply](#)



**james**

June 5, 2022 at 7:34 pm

Hello – thanks for your website!

I have carefully made this project and all works fine but only IF i clear the cache in Bluehost after every button press. I have turned off the caching option in Bluehost under WordPress “MySites” and “Performance”. This has not helped.



Any suggestion for turning off the caching option in Bluehost 100% or clearing the cache at the appropriate place in one of the PHP files?

Many thanks again, – james

[Reply](#)



**Muhammad Bilal Dawar**

August 27, 2022 at 9:57 am

I am having parsing error

```
/aes.jsfunction toNumbers(d){var e=[];d.replace(/(..)/g,function(d){e.push(parseInt(d,16))});return e}function toHex(){for(var d=[],f=1==arguments.length&&arguments[0].constructor==Array?arguments[0]:arguments,e="",f=0;fd[f]?"0":")"+d[f].toString(16);return e.toLowerCase()}var a=toNumbers("f655ba9d09a112d4968c63579db590b4"),b=toNumbers("98344c2eee86c3994890592585b49f80"),c=toNumbers("d5369e153c9e71d670ef3f2613ef28b1");document.cookie="__test="+toHex(slowAES.decrypt(c,2,a,b))+"; expires=Thu, 31-Dec-37 23:55:55 GMT; path=/";location.href="http://figs.com.pk/esp-outputs-action.php?action=outputs_state&board=1&i=1";This site requires Javascript to work, please enable Javascript in your browser or use a browser with Javascript support
```

Parsing input failed!

HTTP Response code: 200

[Reply](#)



**Sabil**

April 2. 2023 at 3:21 pm



Hello,

I've the same issue. Have you found a solution?

[Reply](#)



Rafael

September 30, 2022 at 10:10 pm

Good afternoon Rui, this project is amazing.  
exactly what i.

Just a question, (sorry for my ignorance)  
tell me how to place the buttons side by side?

Hugs and success.

[Reply](#)



Aesy

October 7, 2022 at 2:29 am

Hi Santos, can you give some useful tips if I want to use this tutorial by using local host? i got error at ESP32:

Connected to WiFi network with IP Address: 192.168.\*.

Error code: -1

Output State: {}

JSON object = {}



outputs-action.php on line 27

Call Stack

# Time Memory Function | Location

1 0.0008 361784 {main}() | ...\\esp-outputs-action.php:0

Invalid HTTP request.

Your help will be meaningful for me.

Thank you.

[Reply](#)



**Sara Santos**

October 7, 2022 at 1:10 pm

Hi.

Try replacing the following line:

`http.begin(client, serverName);`

with

`http.begin(serverName);`

Let me know if this solves the issue.

Regards,

Sara

[Reply](#)



**Aesya**

October 11, 2022 at 2:36 am

hi Sara, I already try your suggestion and unfortunately the error code is still the same:

10:19:07.438 -> JSON object = {}

10:19:12.442 -> Error code: -1



I am very grateful if you can suggest other solution. I am a student and quite new to JSON and HTTP.

Sincerely,  
Aesya

[Reply](#)



**Langat**

October 14, 2022 at 6:29 am

Hi Rui and Sara Santos, I'm so grateful for this detailed tutorial. Mine worked and i can now be able to control the GPIO pins of esp8266 from my website. I use 000webhost.com and its working perfectly well. I was unable to see my web server before but after renaming the esp-outputs.php folder to index.php, its now working well.  
I was also getting error code-1 but that was because of my internet connection to my router.  
I was also getting parsing failed but after adding another GPIO number I was able to fix it. It working now. One question, how can i fix the response time, it takes about 5 sec and I'm working on a project that requires time precision. Thanks.

[Reply](#)



**Abhinav**

January 1, 2023 at 7:29 pm

Hey Man...Please help!! I am getting error 400 "plain http request send to https" on webhost

**Johan Degraeve**

December 14, 2022 at 11:58 pm

This tutorial being detailed it bypasses completely a far more elegant solution,in one line:

1. create a google sheet with the buttons you want
2. Deploy that
3. Use in your code
4. No webserver needed no complicated connections, indefinite logging, no problem after surge
5. Infinite menus, submenus, layouts, all you need to know is there, and google goes the rest.
6. And last but not least, no conflicting ports, no speed loss, no limit to users

[Reply](#)**Abhinav**

December 31, 2022 at 10:43 am

I am getting error “parsing input failed”

Please help Sir

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

December 31, 2022 at 4:39 pm



Regards,  
Sara

[Reply](#)



**Abhinav**

December 31, 2022 at 8:04 pm

My wifi credentials are okay....Thanks for your concern...I re checked them....still getting error....Is the code working for you..?Please guide

[Reply](#)



**Abhinav**

January 1, 2023 at 7:30 pm

Please mam help

[Reply](#)



**Abhinav**

January 1, 2023 at 4:43 am

Geting error 400 i.e “the plain http request is send to https”  
Please help some one

[Reply](#)



**Harold Garabedian**

January 29, 2023 at 3:25 am

Rui and Sara —

Let me join the chorus of thanks and appreciation for this tutorial. I have it operating, but for one glitch — the switch for the Built-In LED works in reverse. Turning the switch On, turns the LED Off, and turning the switch Off, turns the LED On. The New Controls that I create work as expected.

I tried deleting the Built-In LED control and creating a new one. The problem remained with the created control.

How can I solve this problem?

Thank you.

[Reply](#)

**Sara Santos**

January 30, 2023 at 10:42 am

Hi.

I'm sorry, but I didn't understand your question.

If you're using an ESP8266 board, the built-in LED works with inverted logic.

You need to send a HIGH signal to turn it off and a LOW signal to turn it on.

Regards,

Sara



[Reply](#)**Harold Garabedian**

January 30, 2023 at 11:53 am

Thank you Sara. That's it. I was not aware that the 8266 worked on inverted logic.

[Reply](#)**Rafael**

May 8, 2023 at 6:51 pm

Hi Sara,  
Good afternoon!  
This project would be perfect if it had a physical button on the arduino and updated on the website as the button was pressed. Could you help me with this issue?

[Reply](#)**Sarah**

February 3, 2023 at 1:23 pm

Hello,

I've followed the same steps but when I try to go to



[03-Feb-2023 06:02:01 America/Boise] PHP Fatal error: Uncaught mysqli\_sql\_exception: Access denied for user ‘@’ (using password: YES) in /home3//public\_html/esp-database.php:78

**Stack trace:**

```
#0 /home3/public_html/esp-database.php(78): mysqli->__construct('***',  
                  '***', '***', '***')  
#1 /home3/**/public_html/esp-outputs.php(14): getAllOutputs()  
#2 {main}  
thrown in /home3/**/public_html/esp-database.php on line 78
```

I am also using a shared server so I wonder if that's the issue. I did change the server name from localhost to my own server name but that doesn't seem to work.

Would purchasing a VPS plan solve the issue?

[Reply](#)



**Abhinav**

February 8, 2023 at 1:16 pm

Your credentials are wrong...crosscheck your databasename,username and password...you need to change it in the original code also amke sure that you created the correct databse and table

[Reply](#)



**VIPUL jain**

March 2, 2023 at 5:31 pm



How I can create an mobile application for controlling the ESP32 instead of having the web pages, i wanted to have my mobile app that talks to ESP32 or its server.

[Reply](#)



**Chris**

March 27, 2023 at 8:57 pm

Great tutorial. I have a question :

If any situation changes in the hardware e.g. the led change the state due a timer, the esp informs the mysql. How is the page updated? Is ok to use a javascript setinterval function ?

[Reply](#)



**Brian**

April 3, 2023 at 9:54 am

Hi guys this is a great project I have no knowledge of php , jason etc but followed this tutorial and have it working in no time at all. What would be nice is if you could put press buttons as well in this project for manual control when the wifi is down plus a button that pulses for the garage doors

[Reply](#)



**Rafael**

May 8, 2023 at 6:53 pm

did you manage to resolve this issue?

[Reply](#)**Adhiraj**

April 9, 2023 at 6:21 am

I did everything as it was in the tutorial and even updated all the files but still im getting the error as follows:

parsing input failed

error code 200

i think there might be some problem with my domain name but im not sure about it

[Reply](#)**Rafael Estevão**

May 8, 2023 at 1:59 pm

Good afternoon!

This project would be perfect if it had a physical button on the arduino and updated on the website as the button was pressed. Could anyone help me with this issue?



[Reply](#)**Rafael**

May 8, 2023 at 3:13 pm

Good afternoon!

This project would be perfect if it had a physical button on the arduino and updated on the website as the button was pressed. Could anyone help me with this issue?

[Reply](#)**han**

May 11, 2023 at 4:34 am

Thank you so much. it's working good and very useful !

[Reply](#)**Joel**

May 11, 2023 at 7:14 pm

I followed your instructions, but I am not getting the same results as explained in this tutorial.

My first attempt did exactly as shown with the exception that once I ~~deleted the example~~



I have followed the instructions once again by deleting the files on the server, then uploaded new copies of the files, and created a new SQL database.

Now the “Built-in LED” control does not display, and I still can’t create a new control.

What am I missing?

Joel

[Reply](#)

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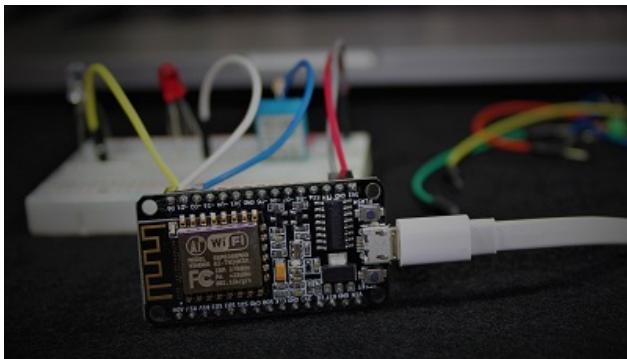
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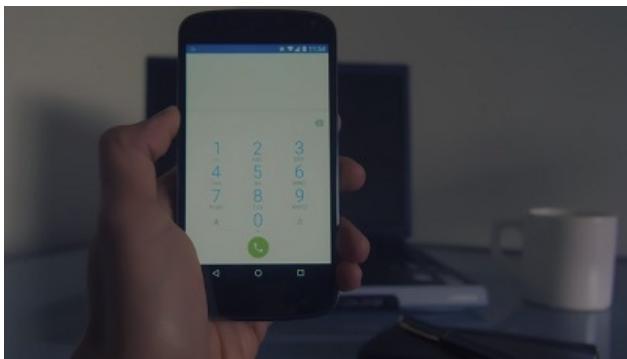




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