



Webserver control

Introduction

A web server is a software application responsible for hosting and delivering content over the internet. It receives HTTP requests from clients, such as web browsers, and responds with the requested content, such as HTML pages, images, CSS, and JavaScript files. Web servers play a crucial role in enabling users worldwide to access websites and web services, facilitating the exchange of information between the server and clients.

Mandatory Part

You will be given the following components:

- A microcontroller **ESP8266**
- Breadboard
- Jumper wires
- LED Matrix
- 10KOhm resistor
- Sound sensor

Create a website on the ESP that will control the LED matrix.

Make buttons (one for each LED) to turn the LEDs on and off and then create an animated pattern of your choice.

Safety Instructions:

Please use the electronics components safely:

- Power supply: Always use the correct voltage and current rated power supply for your microcontroller board to avoid damaging the board or causing a fire.
- ESD protection: Electrostatic discharge (ESD) can damage electronic components, including the microcontroller board. Avoid touching the pins and connectors of the board with your bare hands. Use an anti-static wrist strap or touch a grounded metal object before handling the board.
- Overheating: Do not overload the board with too much current, as this can cause the board to overheat and possibly catch fire. Use external power sources and avoid powering high current devices directly from the board.
- Short circuits: Avoid creating short circuits on the board by ensuring that there are no loose wires or connections touching each other. Use proper insulation and avoid exposing the board to moisture.
- Software safety: Always use reliable and tested code when programming the microcontroller board. Do not run code that could potentially cause harm to people or property. Always use the appropriate safety precautions when testing and using your projects.

Bonus Part

Using the light sensor make the LEDs light up with different colors depending on the brightness of the environmental light.

Submission and peer evaluation

To validate this project, you should submit the code in the given repository by the set deadline.

You will get your project evaluated during the next mini-piscine session and you will get to evaluate another team's project.

Make sure all the team members participate in the project and are able to explain everything about the written code and the electronic components. The code for the mandatory part and the bonus part should be uploaded separately.