

Relay controller (relay_control_httpd)

1. Introduction:

This project is intended to control up to 5 relays either mechanical or electrical with a real-time response. This feature is enabled through WebSocket protocol, that runs over https.

2. Process workflow:

This framework works in two modes. Either as a local sever and relay controller if no Wi-Fi credentials are entered, or as a relay controller only if it already has Wi-Fi gateway information.

2.1 Local server mode:

It enters this mode automatically if the device doesn't have any Wi-Fi credentials saved to its flash memory. You can also enter this mode manually by pulling down GPIO number 32 and pushing the restart button. After that you need to connect your computer or phone to the network of the device named "ANTORIN_SOFTAP". After you are connected you need to open the browser and type this address "172.16.0.0". This address is set in *server_init()* function that can be found in "local_server" component. You will find a page that will show you the Wi-Fi signals that are in the range of the device. Choose your desired network and enter its password. Once the password is received by the device it is saved to its flash memory so you don't need to repeat this procedure with every restart. Then it will switch its mode to the relay controller mode.

2.2 Relay controller mode:

If the device already has Wi-Fi credentials it would directly start in this mode. It connects to the Wi-Fi network and then opens a WebSocket connection with the server by calling *websocket_app_task()* function that also registers an event loop defined as *websocket_event_handler()*. Inside this event handler when it registers a data event received from the server it parses it and defines the action that should be performed, whether it is closing or opening a relay.