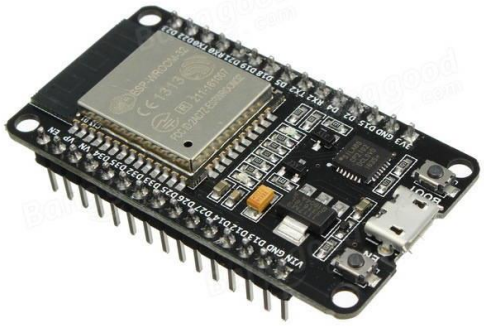
HARDWARE DEVELOPMENT

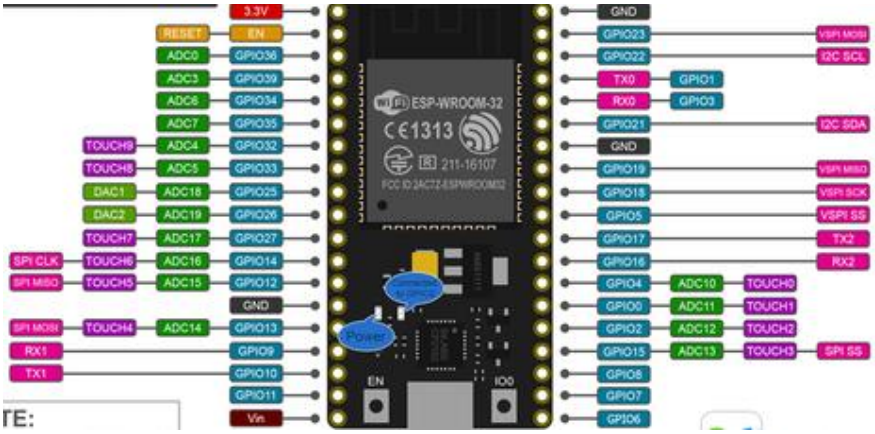
ESP32S:



ESP32S is a particular variant of the ESP32, which is a powerful and versatile microcontroller and Wi-Fi/Bluetooth module developed by Espressif Systems. The "S" in ESP32S stands for "System on a Chip (SoC)," indicating that it is a complete system integrating the microcontroller, Wi-Fi, Bluetooth, and other components on a single chip.

We use ESP32S to control all the sensor.

PIN CONFIGRATION OF ESP32S:

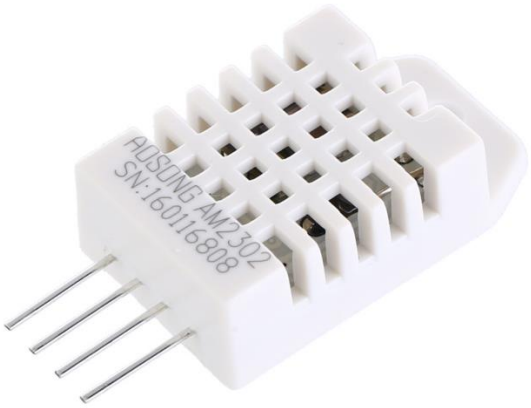


ESP32 GND -> Ground (0V)

ESP32 3.3V -> 3.3V power supply

ESP32 GPIO and Others Pins -> Data pins use for dht22 , buzzer & relay

DHT22:



The DHT22 is a popular and widely used digital temperature and humidity sensor.

The DHT22 is designed to provide accurate temperature and humidity.

PIN CONFIGRATION OF DHT22:

DHT22 have four pins.

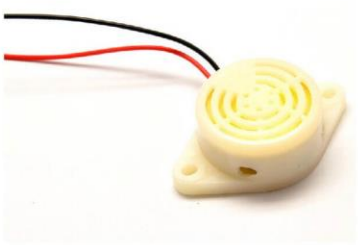
Pin1 -> DHT22 VCC -> ESP32 3.3V

Pin2 -> DHT22 GND -> ESP32 GND

Pin3 -> N/A

Pin4 -> DHT22 OUT -> ESP32 GPIO Pin 32

Buzzer:



A buzzer is an electronic component used to generate sound or simple tones. It is commonly used in various applications to provide audible alerts, notifications, and feedback.

Buzzer Positive (or Signal) -> ESP32 GPIO Pin 23

Buzzer Negative (or GND) -> ESP32 GND

Relay Module:

Two channel Relay Module used for switching and controlling the fan and heater , Relays are electromechanical devices that can be used to control high-power circuits with low-power signals from microcontrollers or other control systems.

Connect the relay module VCC and GND to the ESP32 5V and GND pins, respectively.

Relay 1 (Fan):

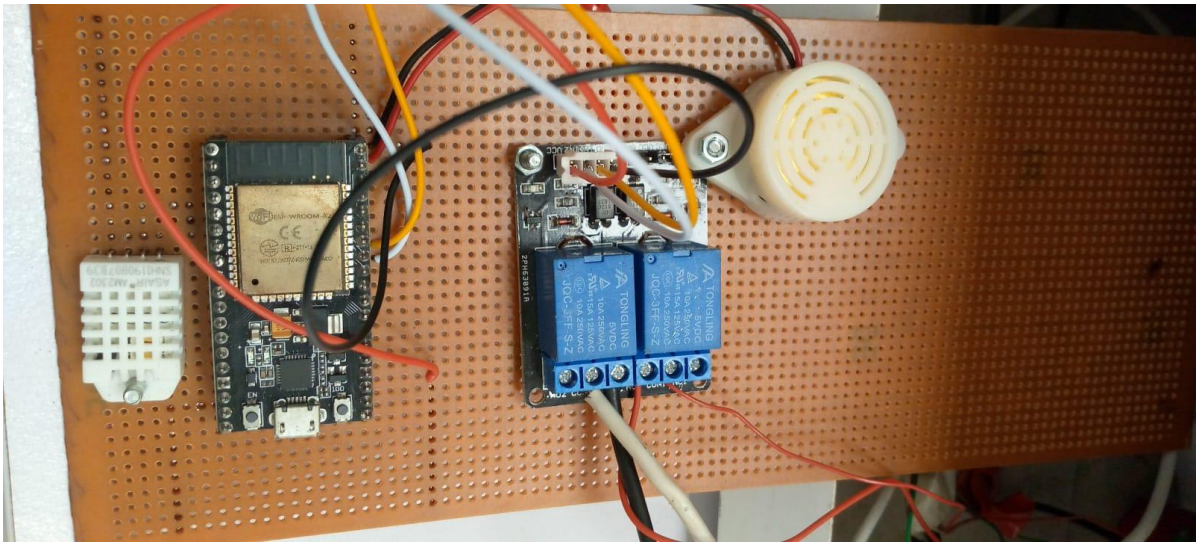
Relay Signal Input -> ESP32 GPIO Pin 19

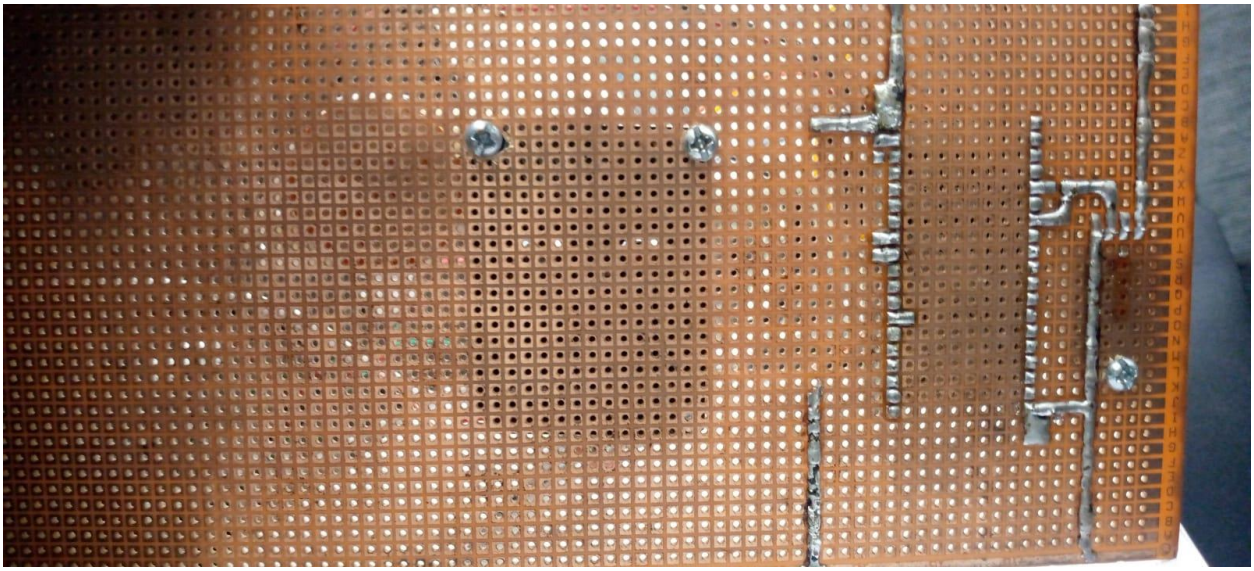
Relay 2 (Heater):

Relay Signal Input -> ESP32 GPIO Pin 18

AC Fan and Heater:

Connect the AC Fan and Heater to the two output terminals of the corresponding relays. The connections are typically as follows:





AC Fan Live Wire -> Relay 1 (Fan) NO (Normally Open) terminal

AC Fan Neutral Wire -> Connect directly to the power source neutral (typically GND/common)

AC Fan Live Wire -> Connect to the power source (typically L or Line)

Heater Live Wire -> Relay 2 (Heater) NO (Normally Open) terminal

Heater Neutral Wire -> Connect directly to the power source neutral (typically GND/common)

Heater Live Wire -> Connect to the power source (typically L or Line)