Microcontroller ESP32

by Ruben Mercade Prieto

[Weather Station] [PI Controller]

Sensor Logging and Plotting - Simple weather station

by Ruben Mercade Prieto - June 2021

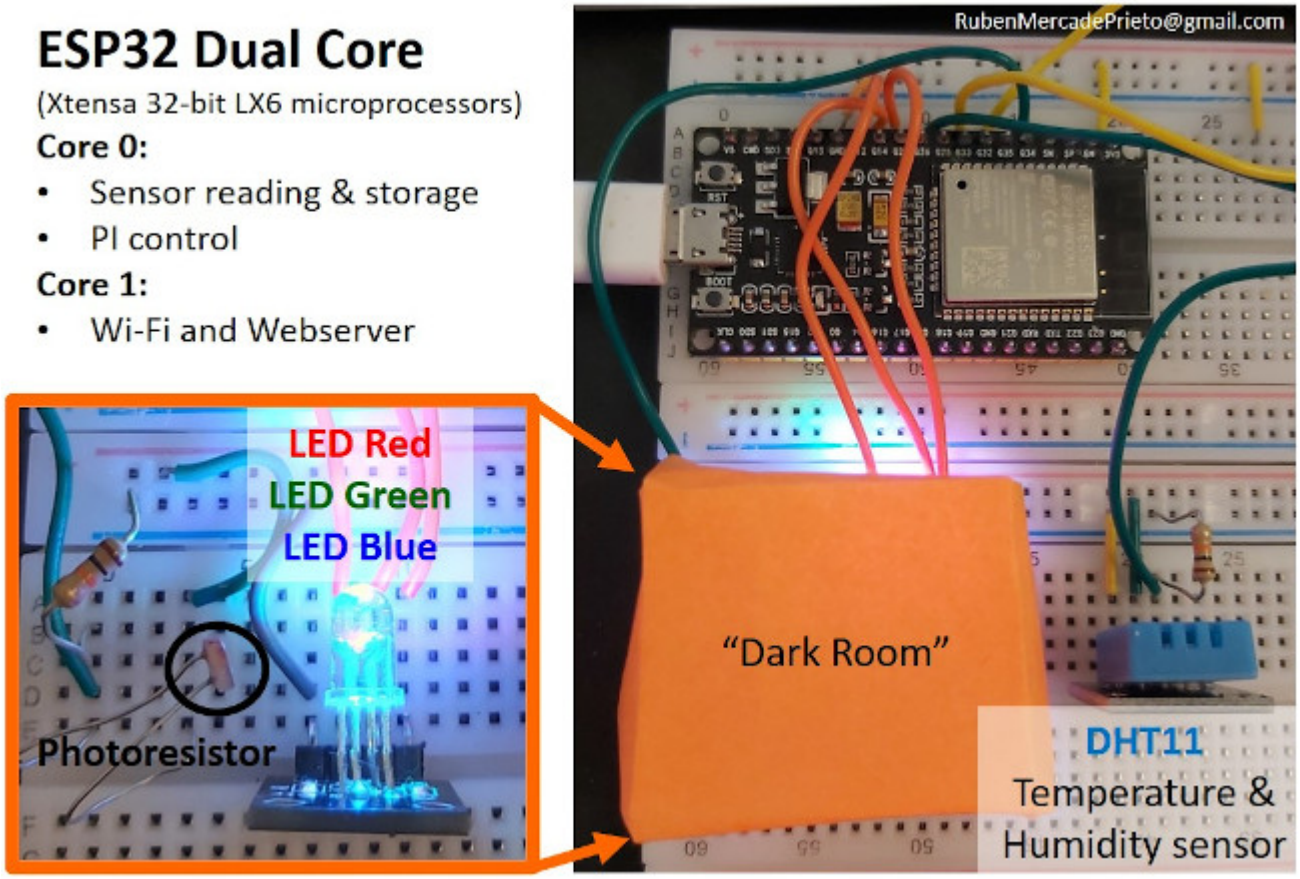
Values in red are automatically generated when the page is loaded, and the one in blue is automatically refreshed.

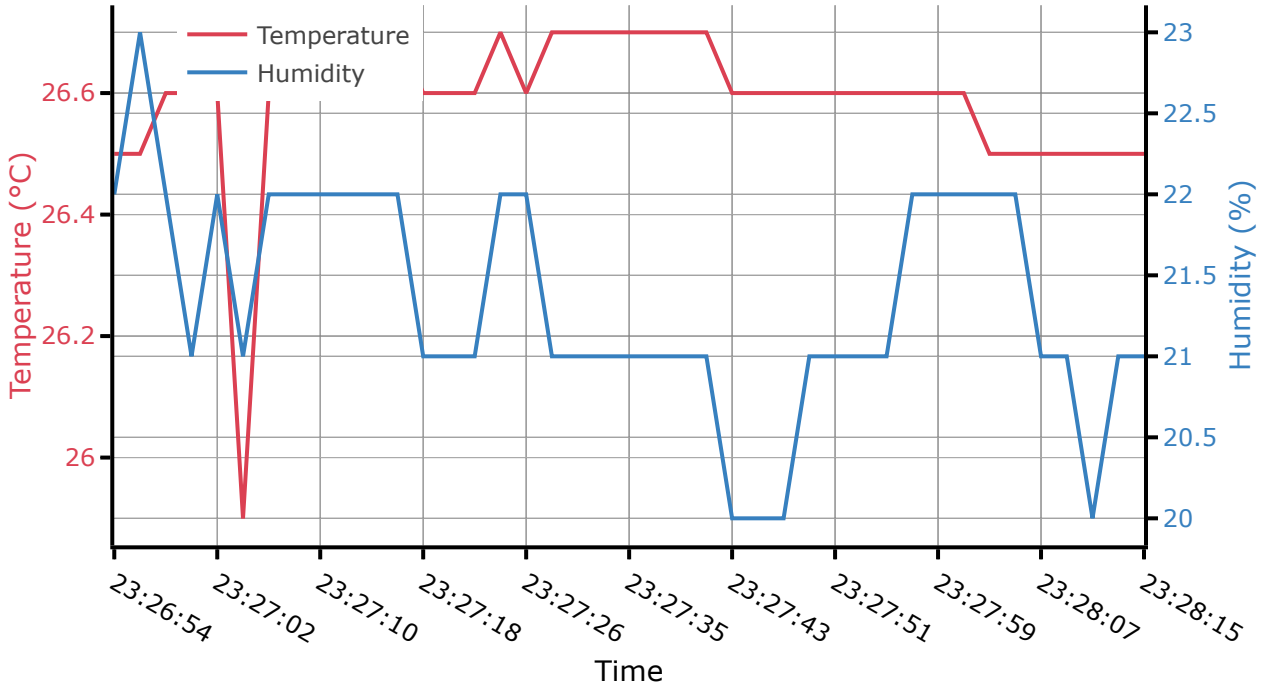
Watch explanation Video.

The ESP32 microcontroller is a product of the Shanghai company Espressiff, released to market in 2016. Despite its low cost, about $10-20, it is very technically capable - using TSMC 40 nm process technology, but it is different from a simpler microcontroller like an Arduino Uno due to its Bluetooth, Wifi and Webserver capabilities: this project is an example of the later two.

According to OpenWeatherMap.org, the weather now in Nur-Sultan is scattered clouds, with an outside temperature of 14.97°C; and a humidity of 44%, you can verify it here.

However, the real conditions inside Ruben's family home are slightly different, as measured with a DHT11 sensor every 2 s. Such logging data is stored internally in the ESP32 flash memory. The file size is currently 888 bytes, and there are about 1351680 bytes left in the LittleFS Flash memory. From such file, a plot is automatically created every 4 s as shown below, and in addition, it can be send elsewhere for furhter processing if desired, like though email.





If you find such data interesting, you can recieved it by email by filling up this form.

Name Ruben Email ruben.mercade@nu.edu.kz Send Data

Email sent succesfully!

The code files, explanations, and references used in this project are given in my GitHub repository at https://github.com/RubenMercadePrieto/ESP32_PIControl_DHT11