🏆 A.3.3 Learning Activity

Temperature measurement circuit through a NodeMCU ESP32

✏️ Development

1. Use the following list of materials to prepare the activity

| Cantidad	Descripción	Source
1	DHT11 temperature and humidity sensor or DHT22	rslicing3d
1	RGB led diode	Promotec
1	Resistance 4.7 kohms	mvelectronica
3	1 kohm resistors	mvelectronica
1	5V voltage source	uelectronic
1	NodeMCU ESP32	Naylamp Mechatronics
1	BreadBoard	Learn Sparkfun
1	Jumpers M/M	Lozurytech

2. Based on the images shown in **Figure 1**, assemble the circuit into a single electronic circuit, in such a way that a system capable of complying with the instructions previously requested for this activity can be obtained.

Figura 1 Circuito ESP32 y Sensor DHT
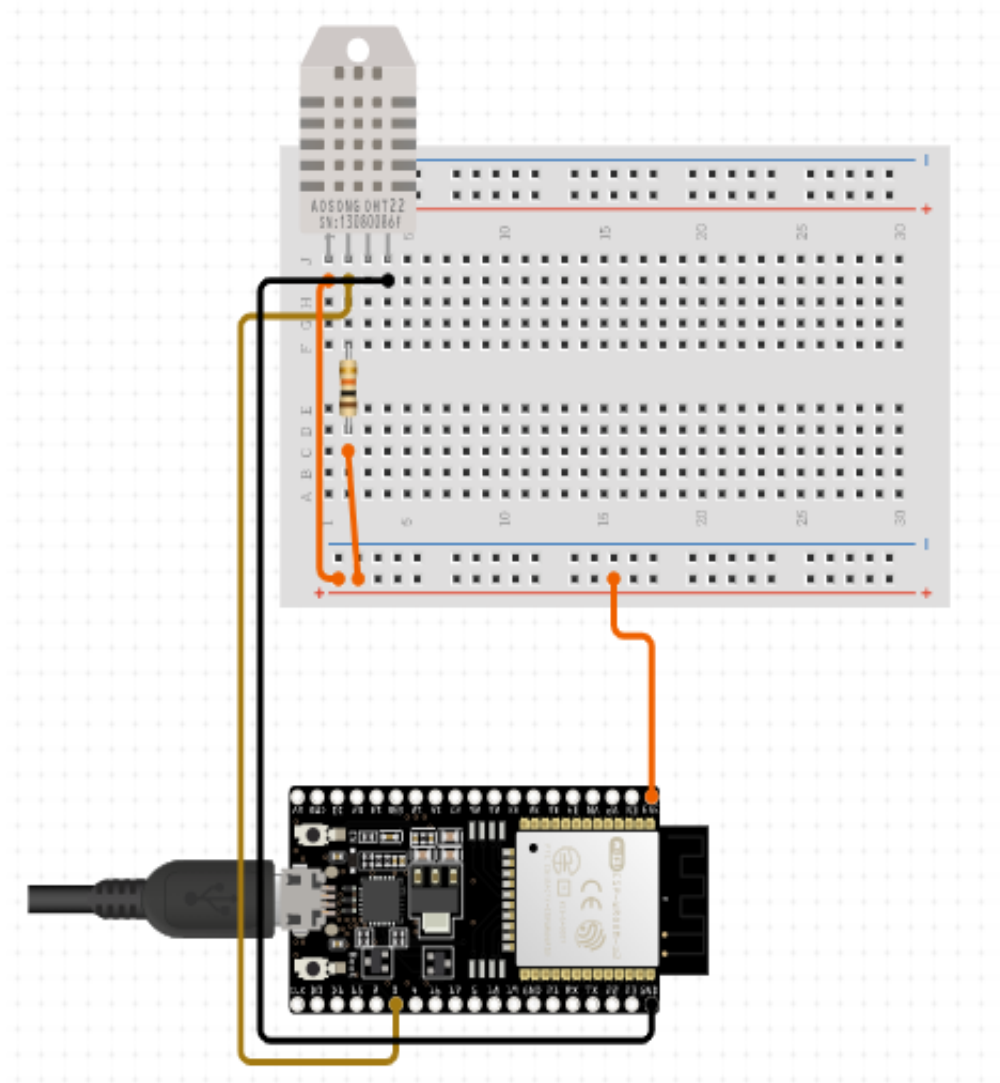
3. Once the above circuit is assembled, add an RGB LED and create the program that allows the RGB LED to function as an indicator for the following conditions:

   ○ The temperature sensor will be sensing at all times, sending the value registered by the serial terminal, for example "Ambient temperature: 25 degrees" and the **RGB LED** will be lit green.
   ○ When the temperature sensor registers a value of ~ 20% above the ambient temperature, it should display the message "High temperature:? Degrees" and the **RGB LED** will turn red.
   ○ When the temperature sensor registers a value of ~ 20% below the ambient temperature, it should display the message "Low temperature:? Degrees" and the **RGB LED** will turn blue.

4. Place here evidence that you consider important during the development of the activity.
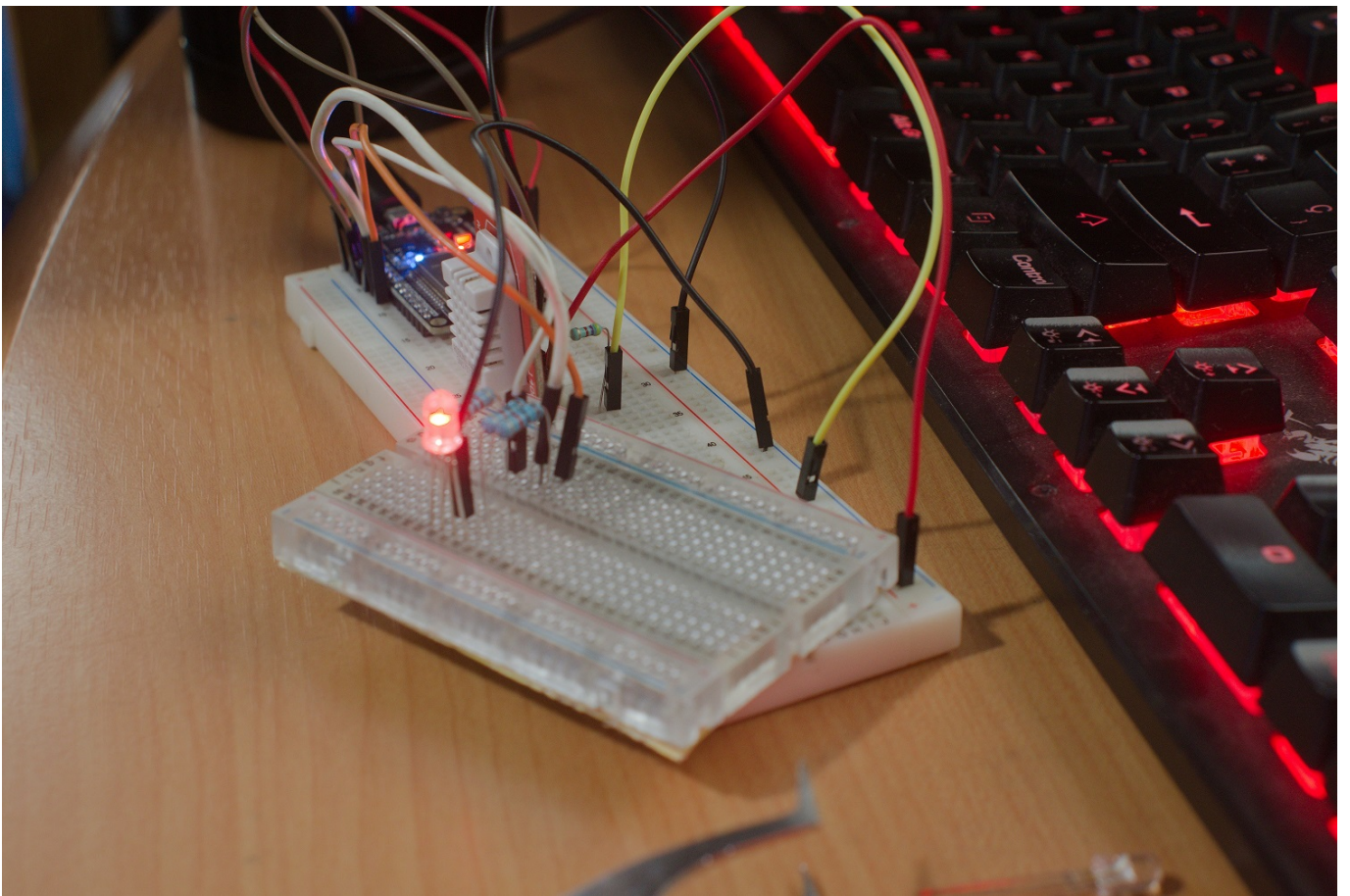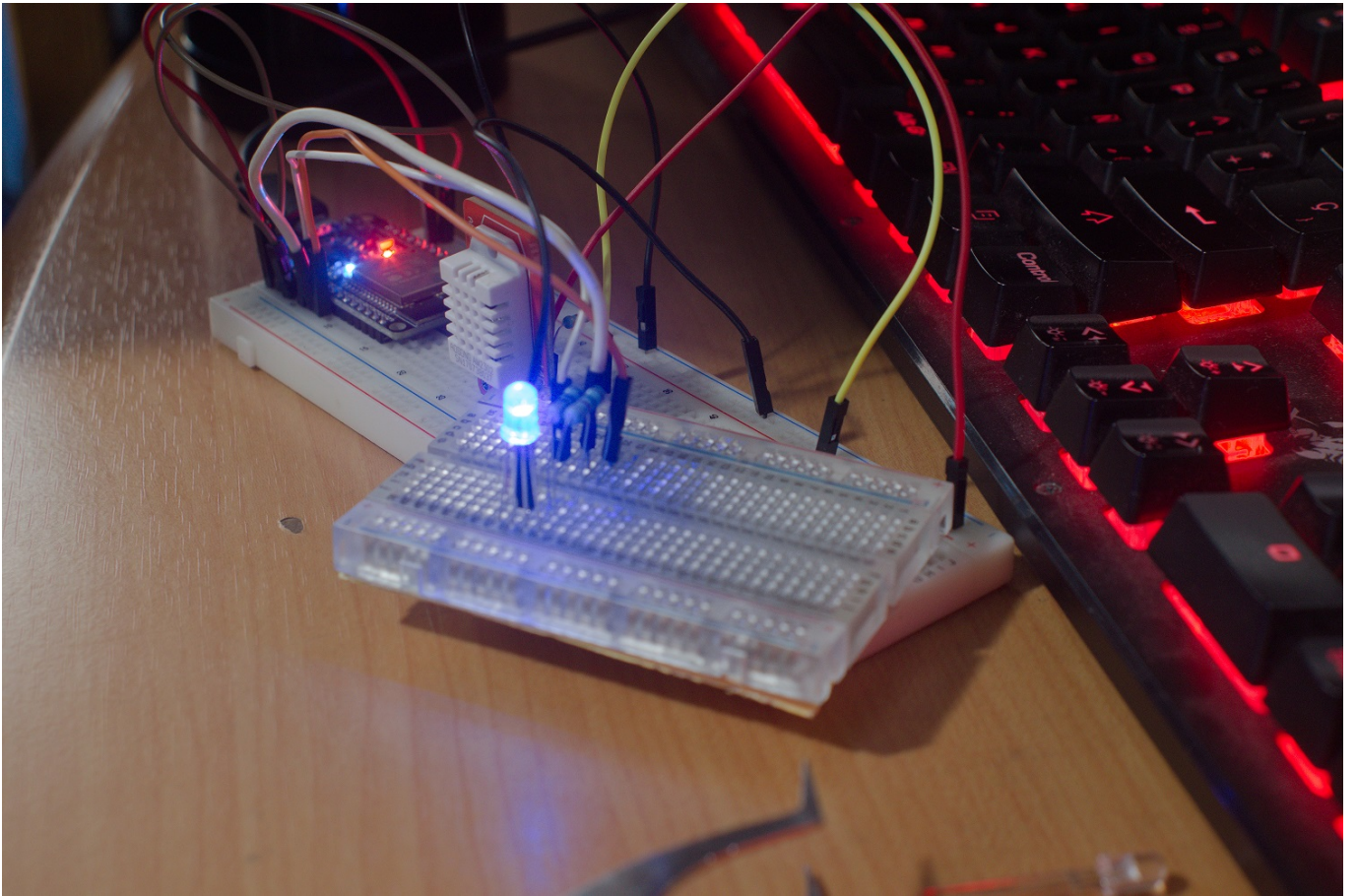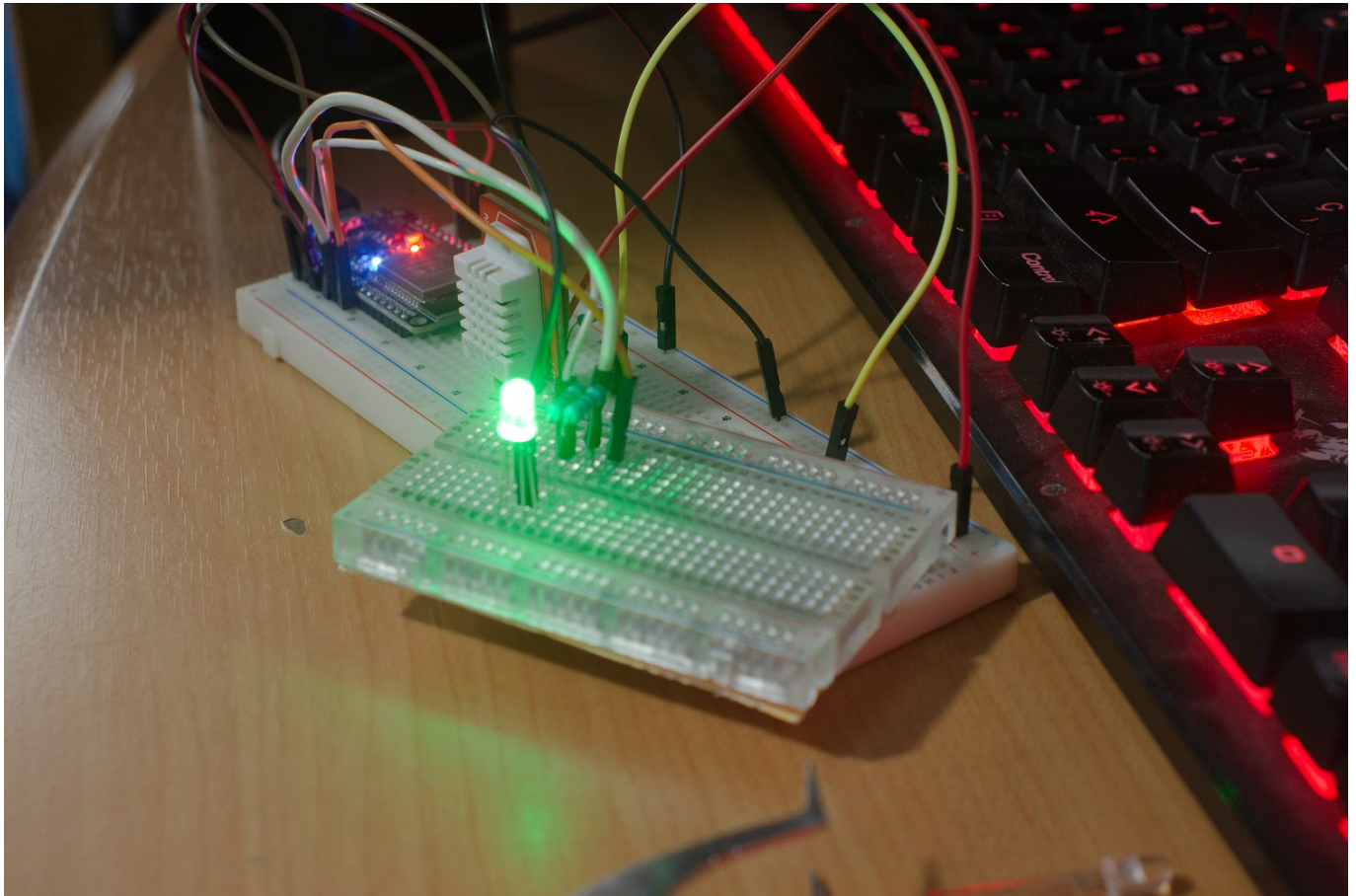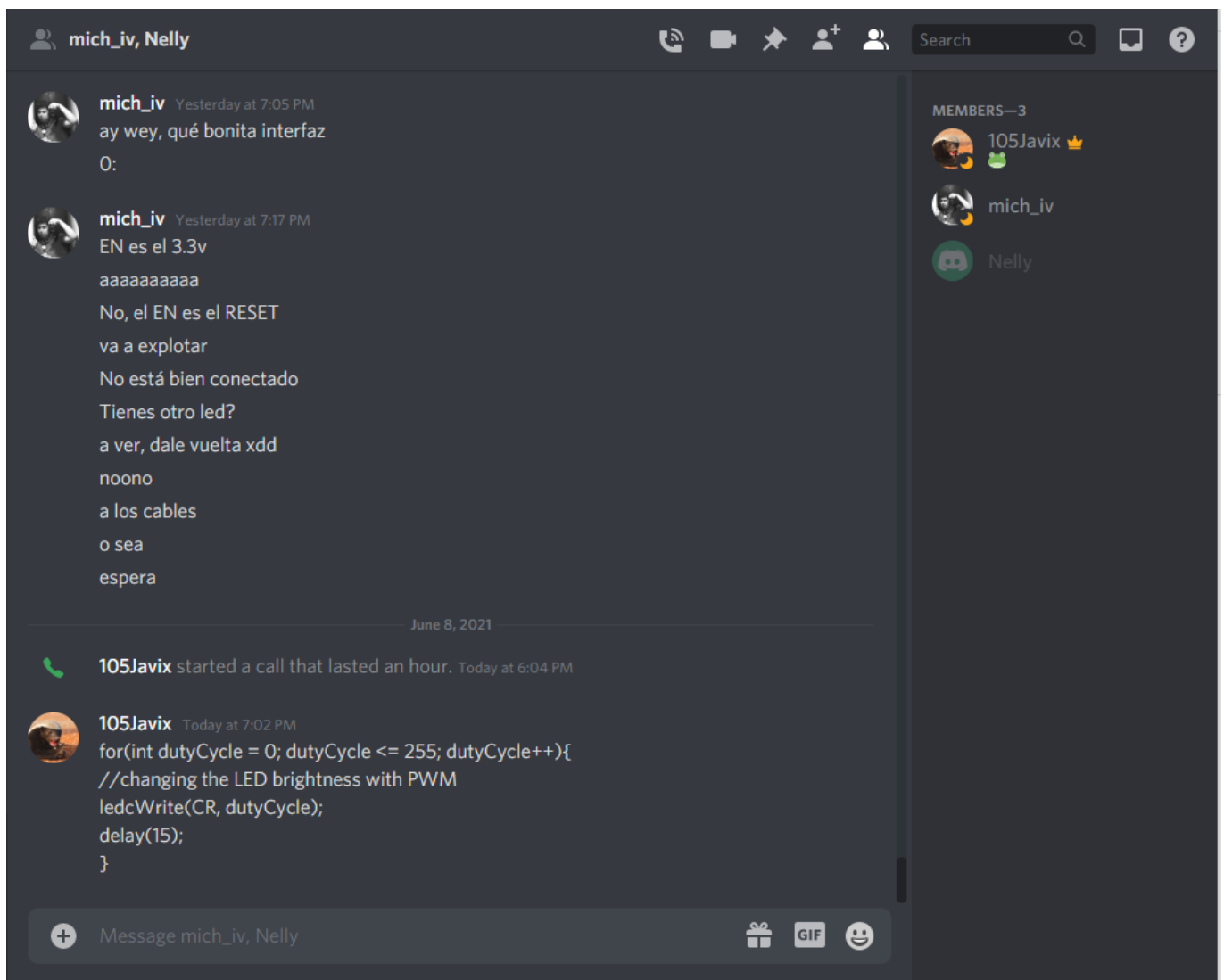
```
Temperatura baja: 28.80°C
Temperatura baja: 28.80°C
Temperatura baja: 28.80°C
Temperatura baja: 28.80°C
Temperatura baja: 28.80°C
Temperatura baja: 28.80°C
Temperatura baja: 28.80°C
Temperatura baja: 28.80°C
Temperatura ambiente: 30.20°C
Temperatura ambiente: 30.20°C
Temperatura ambiente: 30.60°C
Temperatura ambiente: 30.60°C
Temperatura ambiente: 30.40°C
Temperatura ambiente: 30.40°C
Temperatura ambiente: 30.10°C
Temperatura ambiente: 30.10°C
Temperatura alta: 32.10°C
Temperatura alta: 32.10°C
Temperatura alta: 32.90°C
Temperatura alta: 32.90°C
Temperatura alta: 32.20°C
Temperatura alta: 32.20°C
Temperatura alta: 31.80°C
```

5. Insert images of **evidence** such as meetings of the team members held for the development of the activity

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June 7, 2021

📞 **105Javix** started a call that lasted 2 hours. Yesterday at 6:42 PM

mich_iv Yesterday at 6:44 PM
euuu
no creo
Como a las 9 quiuzá
quizá*
No sé la verdad xdd
xddd
mmmmmh
A qué hora?
Perfecto
cierto
Simón

105Javix Yesterday at 6:49 PM

```
#include "DHT.h"

const int ledR = 16;
const int ledG = 17;
const int ledB = 5;
```

MEMBERS—3
105Javix 👑 🐸
mich_iv
Nelly

Message mich_iv, Nelly   🎁 GIF 😊

👥 **mich_iv, Nelly**   📞 🎥 📌 👤➕ 👥   Search 🔍 💬 ❓

mich_iv Yesterday at 7:05 PM
ay wey, qué bonita interfaz
0:

mich_iv Yesterday at 7:17 PM
EN es el 3.3v
aaaaaaaaaa
No, el EN es el RESET
va a explotar
No está bien conectado
Tienes otro led?
a ver, dale vuelta xdd
noono
a los cables
o sea
espera

June 8, 2021

📞 **105Javix** started a call that lasted an hour. Today at 6:04 PM

105Javix Today at 7:02 PM
```
for(int dutyCycle = 0; dutyCycle <= 255; dutyCycle++){
//changing the LED brightness with PWM
ledcWrite(CR, dutyCycle);
delay(15);
}
```

MEMBERS—3
105Javix 👑 🐸
mich_iv
Nelly

Message mich_iv, Nelly   🎁 GIF 😊

🔒 **parvada** ⌄   👤👤👤 5

NELLY JAZMIN QUINO HERNANDEZ (Domingo, 6 de junio ⌄)
https://www.prometec.net/rgb-led/

prometec.net
Los diodos LED RGB | Tienda y Tutoriales Arduino
Circuito y programas para gobernar el color de un LED RGB en Arduino

https://www.rslicing3d.com/programacion-arduino-complementos/sensor-de-temperatura-dht11-y-dht22/

rslicing3d.com
Sensor de Temperatura DHT11 y DHT22
DHT11 y DHT22 DHT11 DHT11 afirma ser una señal digital
calibrada, por lo que tiene una alta confiabilidad y estabilidad.
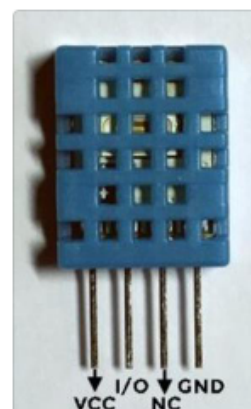Podemos comprarlo de dos formas,

Escrito por	Tiempo de lectura
R Slicing 3D	8 minutos

7 dic. 2020

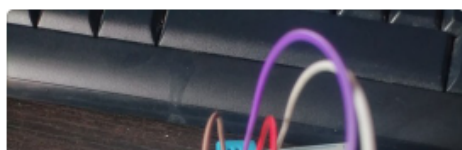https://mvelectronica.com/products/CW4K7

MV Electronica
4k7 4.7k ohms resistencia de 1/4 watts
Las resistencias eléctricas son componentes semiconductores su principal función es
limitar el paso de la corriente en un circuito eléctrico. tiene diferentes usos, puede
usarse desde un componente que ayude a generar un pequeño retardo en el
funcionamiento de un circuito hasta generar diferentes frecuencias y poder aplicar un
control en ciertos aparatos. esta es una resistencia de 4.7 kΩ y soporta una potencia
máxima de ¼ w.

─────────────── Ayer ⌄ ───────────────

NELLY JAZMIN QUINO HERNANDEZ 18:13
193767432_388540855825242_5121345429485653802_n.jpg ⌄

Enviar un mensaje a 🔒 parvada

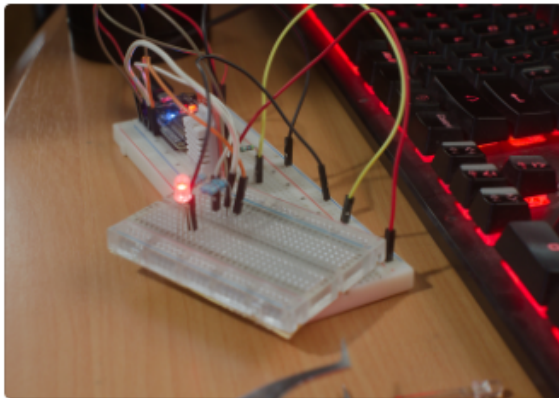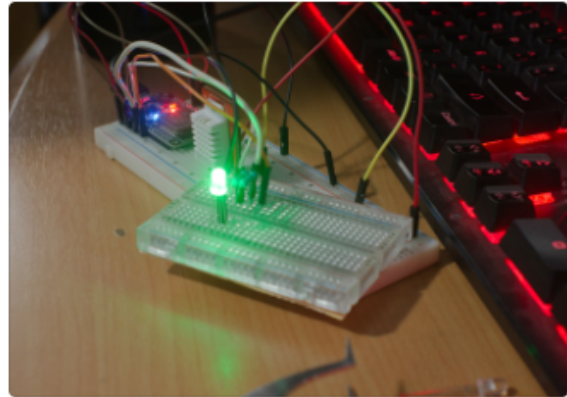⚡ | B I S </> 🔗 ≔ ≔ ≔ 🕐   Aa @ ☺ 📎 ➤

🔒 **parvada** ⌄   👤👤👤 5

soldaduras, sin falsos contactos y sin desorde~ ' -- -- ables
vienen en un arnés de cable plano (tipo listór., ~~ ~~
conductores, cada uno con su conector independie...

Mostrar más

MICHELLE IVAN GASCA OLVERA 19:07
3 archivos ⌄

MICHELLE IVAN GASCA OLVERA 19:20
image.png ⌄

Enviar un mensaje a 🔒 parvada

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🐞 Nelly Quino

DHT11 sensor is a digital sensor we can measure the humidity and temperature. In our case for this practice only used it for measuring the temperature also we used a RGB LED for showing three condictions when we have a low temperature the led will on in color blue, en the second case when it´s ambient temperature the

led will on color green y the last case when it´s high temperature the led will on color red. In this practice we had problems when tried to upload the code but fortunately we could solvede it.

📷 Michelle Gasca

By doing this practice, I was able to know in detail the operation of the DHT22 sensor, and some curiosities of the ESP32 (specifically the D2 pin). We were able to measure the temperature and we made the LED change color by means of conditions that we adjusted depending on the ambient temperature registered by the sensor.

☕ Francisco Villarreal

During the practice with the DHT22 we had experience so detecting and measuring temperature was not a problem, but using the RGB LEDs we had no experience and less with the ESP32 with which we were having an error with which the program did not load, but my partner found that the origin was pin 2 we were using. Other than that, it was relatively easy to do the practice.

💣 Rubric

Criteria	Description	Score
Instructions	Do you fulfill each of the points indicated in the instruction section?	10
Sevelopment	Did you answer each one of the points requested in the development of the activity?	60
Demonstration	Was the student present in the explanation of the functionality of the activity?	20
Conclusions	Se incluye una opinión personal de la actividad por cada uno de los integrantes del equipo?	10

🎓 Members repositories

🐞 Nelly Quino

📷 Michelle Gasca

☕ Francisco Villarreal