A.3.3 Learning Activity

Temperature measurement circuit through a NodeMCU ESP32

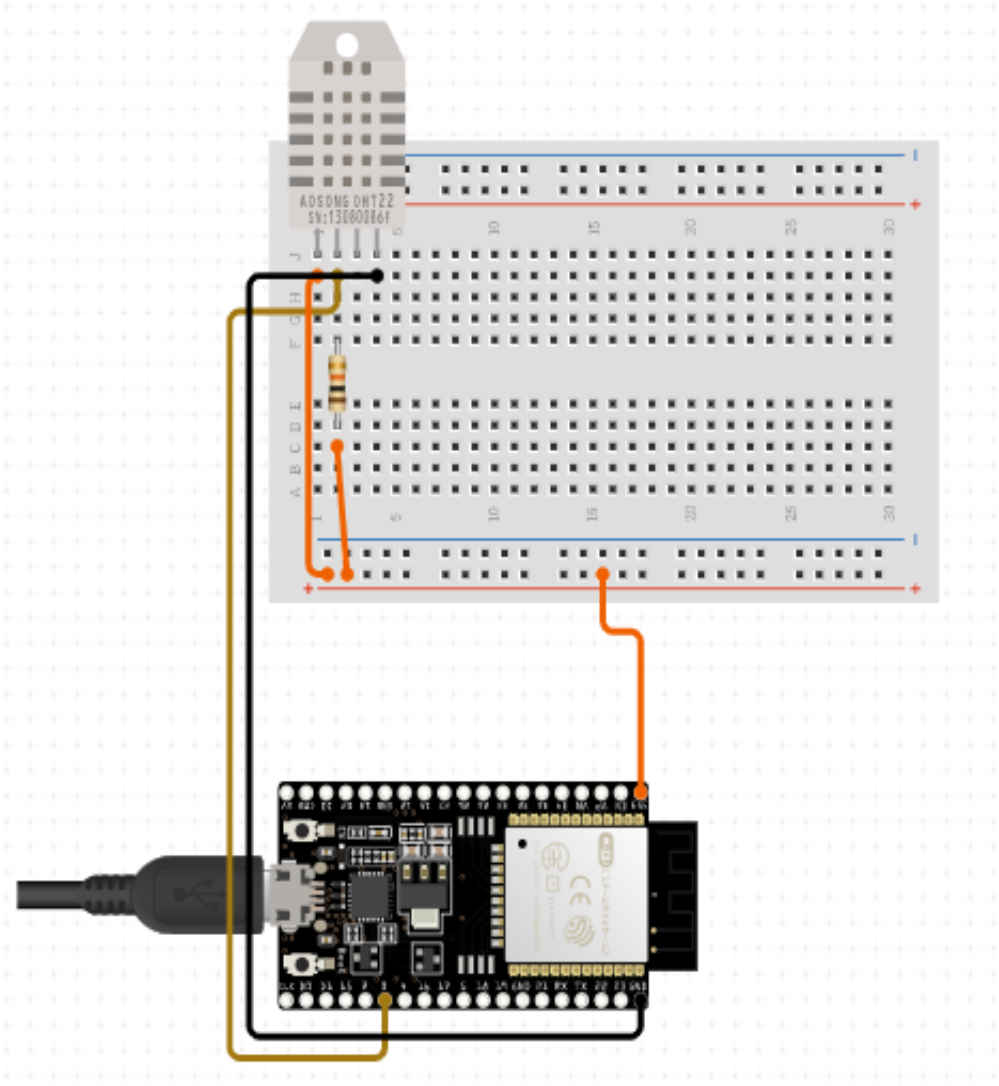
Development

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.

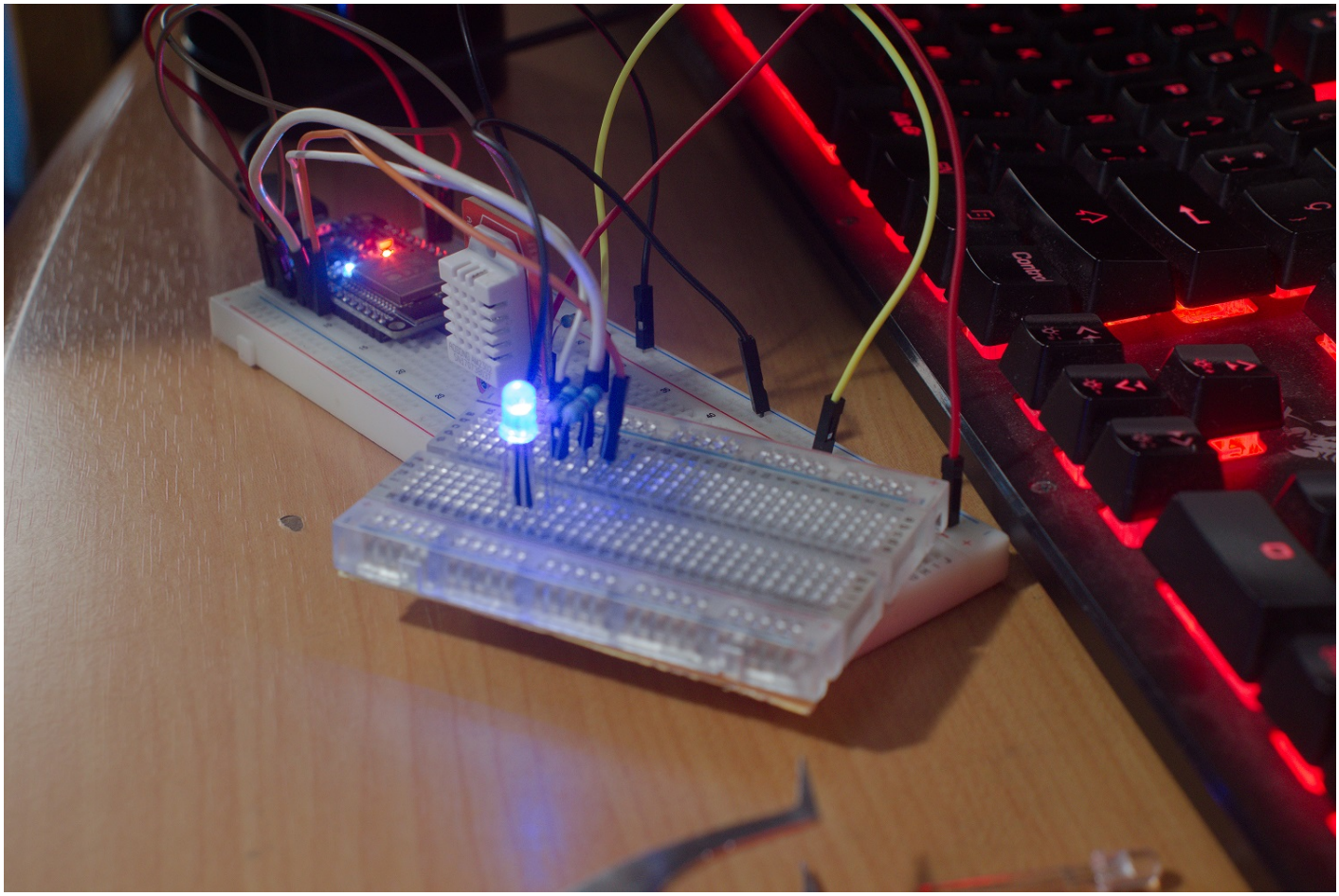
Figura 1 Circuito ESP32 y Sensor DHT

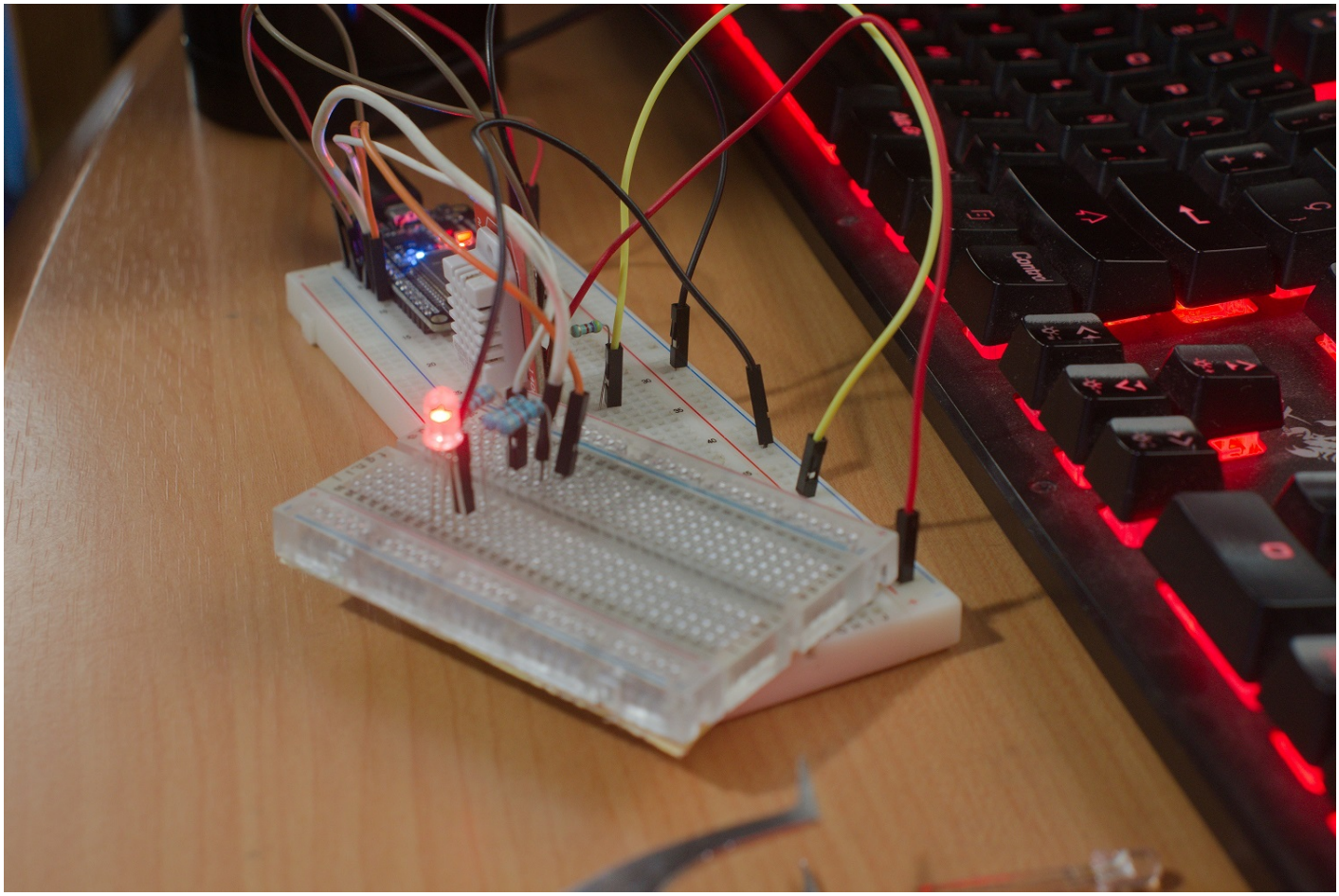


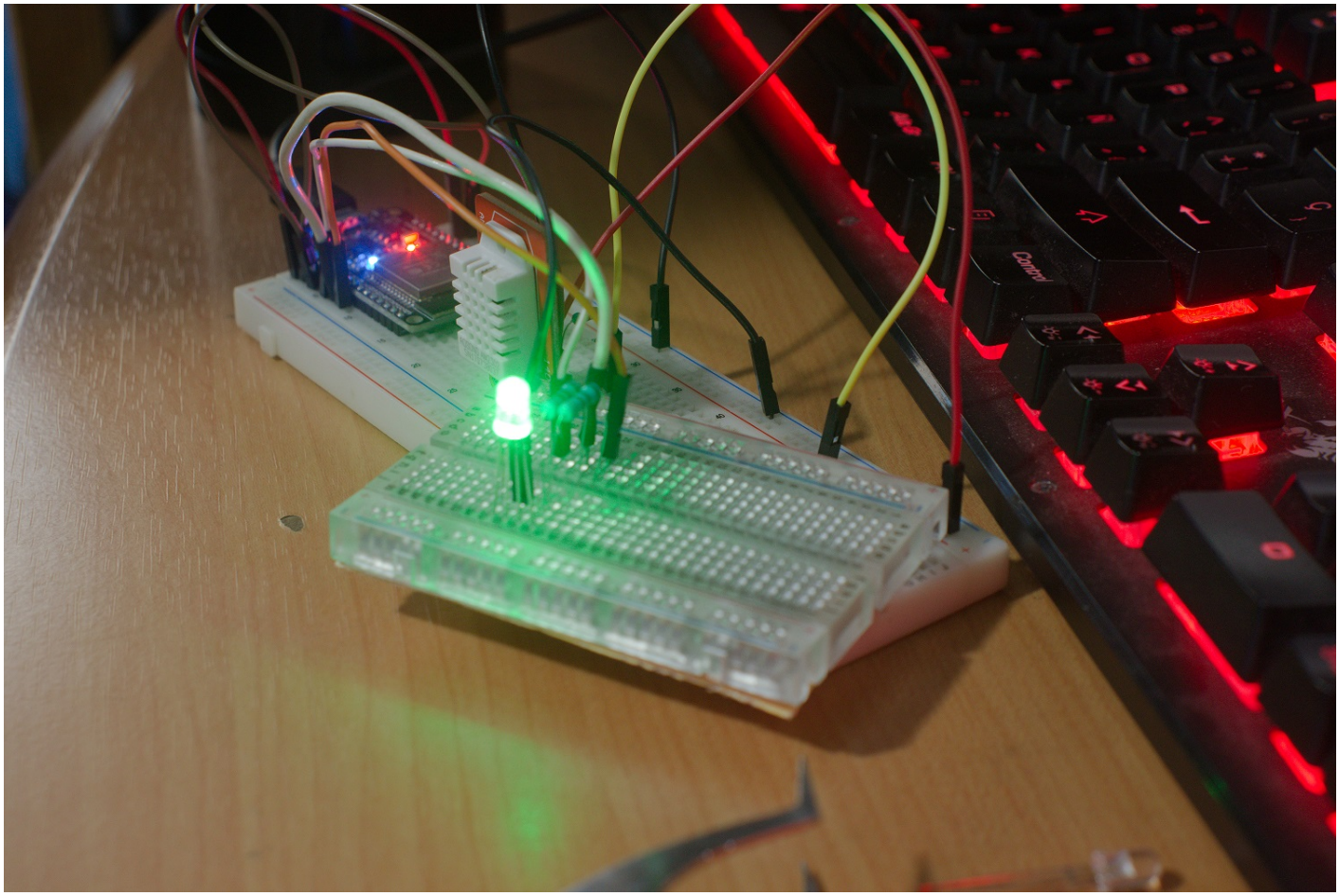
3. Once the above circuit is assembled, add an RGB LED and create the program that allows the RGB LED to function as an indicator for the following conditions:

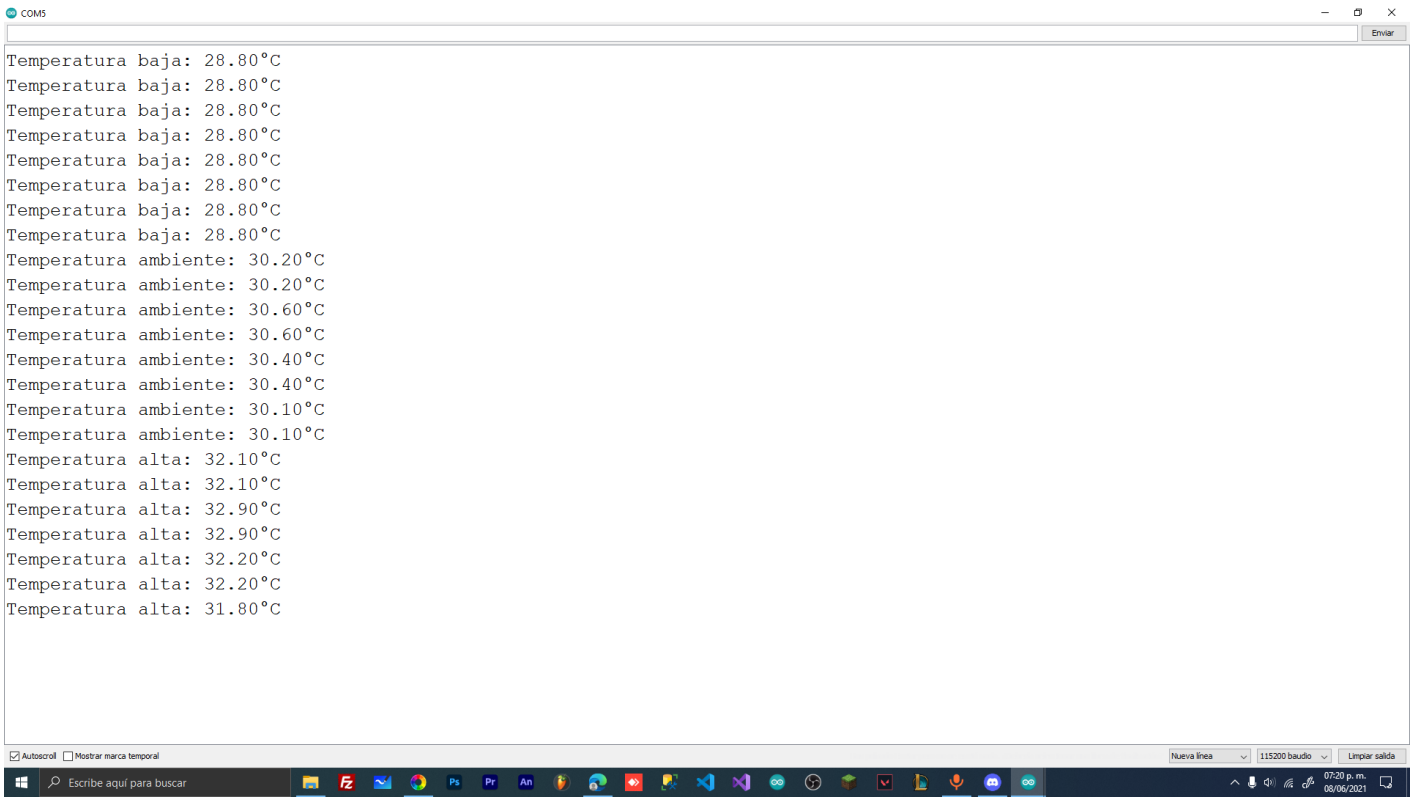
    - The temperature sensor will be sensing at all times, sending the value registered by the serial terminal, for example "Ambient temperature: 25 degrees" and the **RGB LED** will be lit green.
    - When the temperature sensor registers a value of ~ 20% above the ambient temperature, it should display 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.

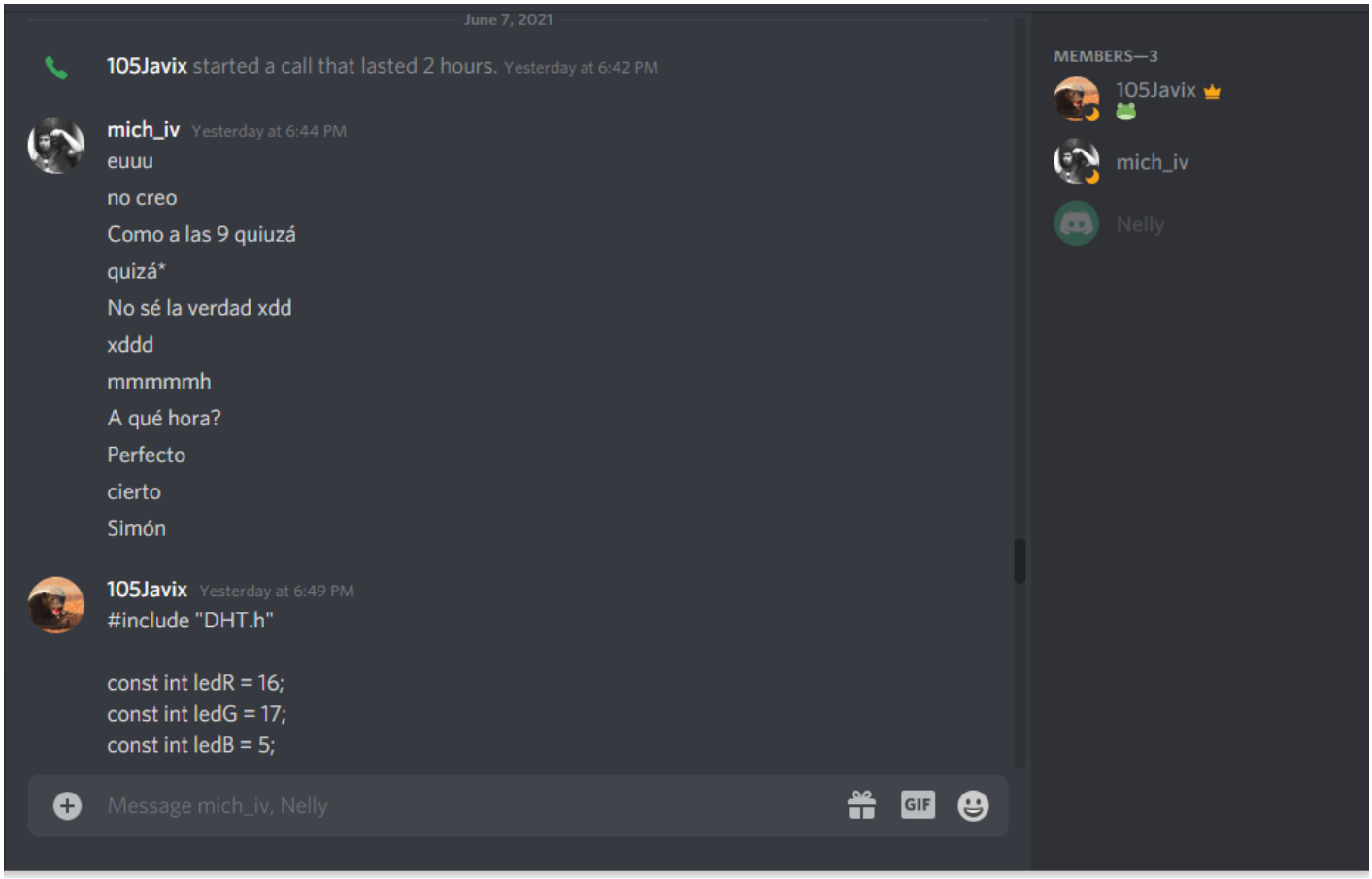


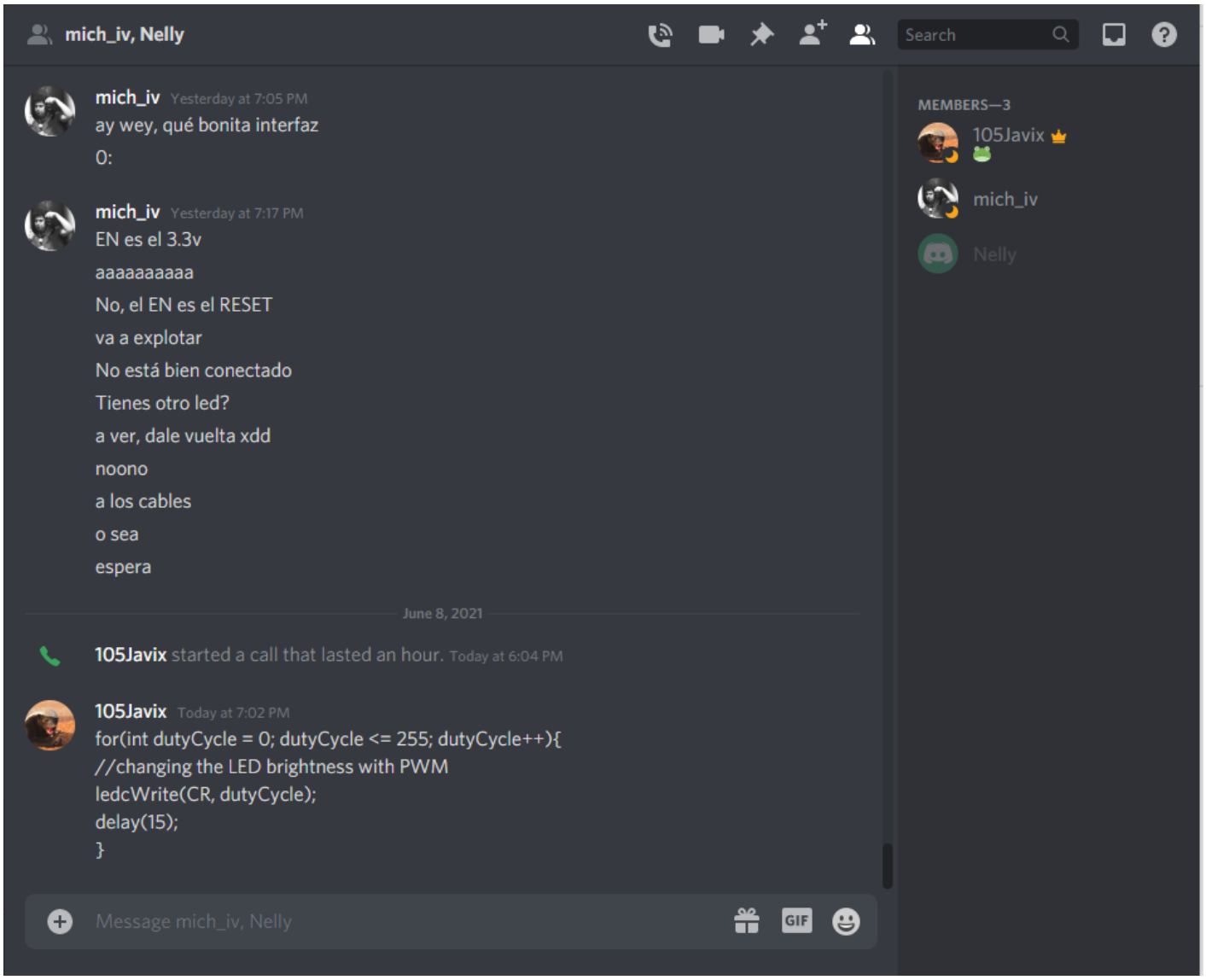






5. Insert images of **evidence** such as meetings of the team members held for the development of the activity


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;
Message mich_iv, Nelly
GIF
MEMBERS—3
105Javix
mich_iv
Nelly


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);
}
Message mich_iv, Nelly
GIF
MEMBERS—3
105Javix
mich_iv
Nelly

parvada 5

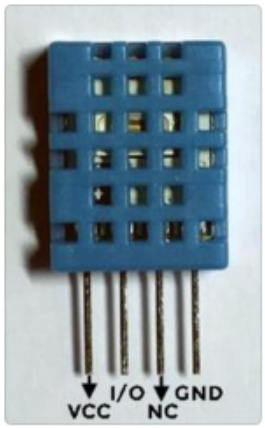
NELLY JAZMIN QUINO HERNANDEZ Domingo, 6 de junio

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** R Slicing 3D
> **Tiempo de lectura** 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

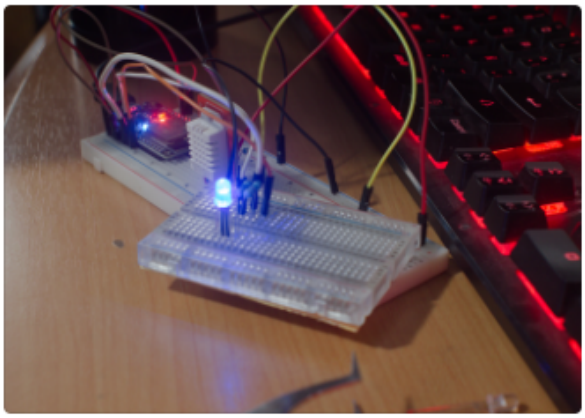
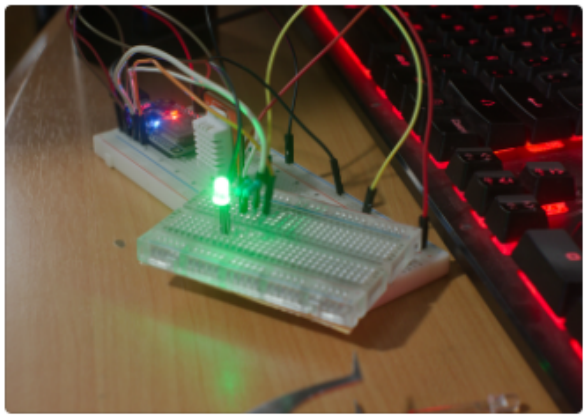
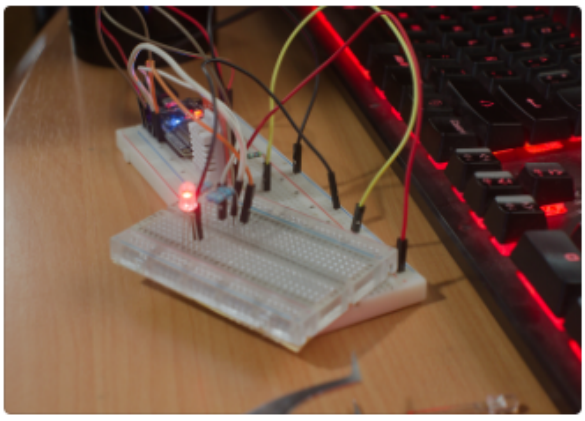
Enviar un mensaje a parvada

parvada 5

soldaduras, sin falsos contactos y sin desorden. Los cables
vienen en un arnés de cable plano (tipo listón, de 10
conductores, cada uno con su conector independie...
Mostrar más

Hoy

MICHELLE IVAN GASCA OLVERA 19:07
3 archivos

MICHELLE IVAN GASCA OLVERA 19:20
image.png

Enviar un mensaje a parvada

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