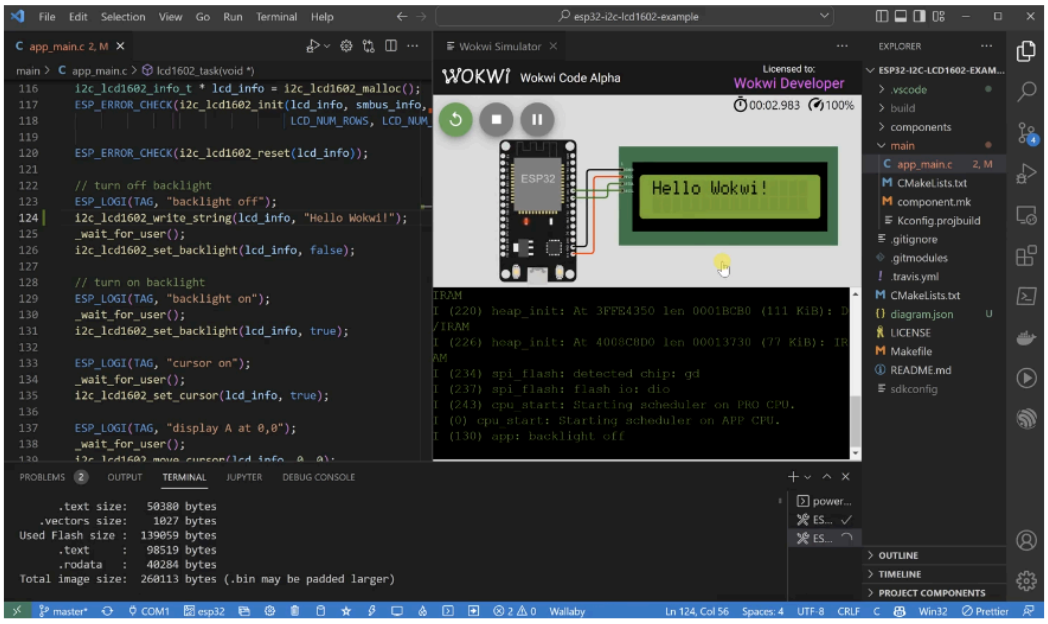
PRACTICE 5: MODERN IoT

1. LCD Screen Python

Let's write a Python program to configure ESp32 as MQTT Client to send messages on a LCD to the Adafruit dashboard.

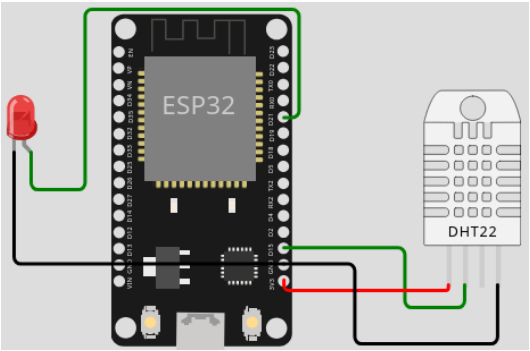


2. LCD Screen C/C++

Create a project that displays messages on a LCD as the above program. Program runs the simulation inside VS Code using C/C++ language.

3. Weather Station Python

Develop an IoT Weather Station program, use MQTT communication protocol with the ESP32 to publish messages and subscribe to topics by Python language.



4. Weather Station C/C++

Develop a program to run the simulation inside VS Code for the above Weather Station program by C/C++ language.

5. Light system

Design a light system that includes 5 buttons and 5 LEDs corresponding with different colors. The system can communicate with the Blynk cloud. If lights are on/off, then the dashboard of Blynk also turns on/off lights the same. In addition, information about the number of LEDs that are turned on should be shown off. Using MQTT communication protocol.

a) Implement in C/C++ language.
b) Implement in Python language.

References:

https://mqtt.org/