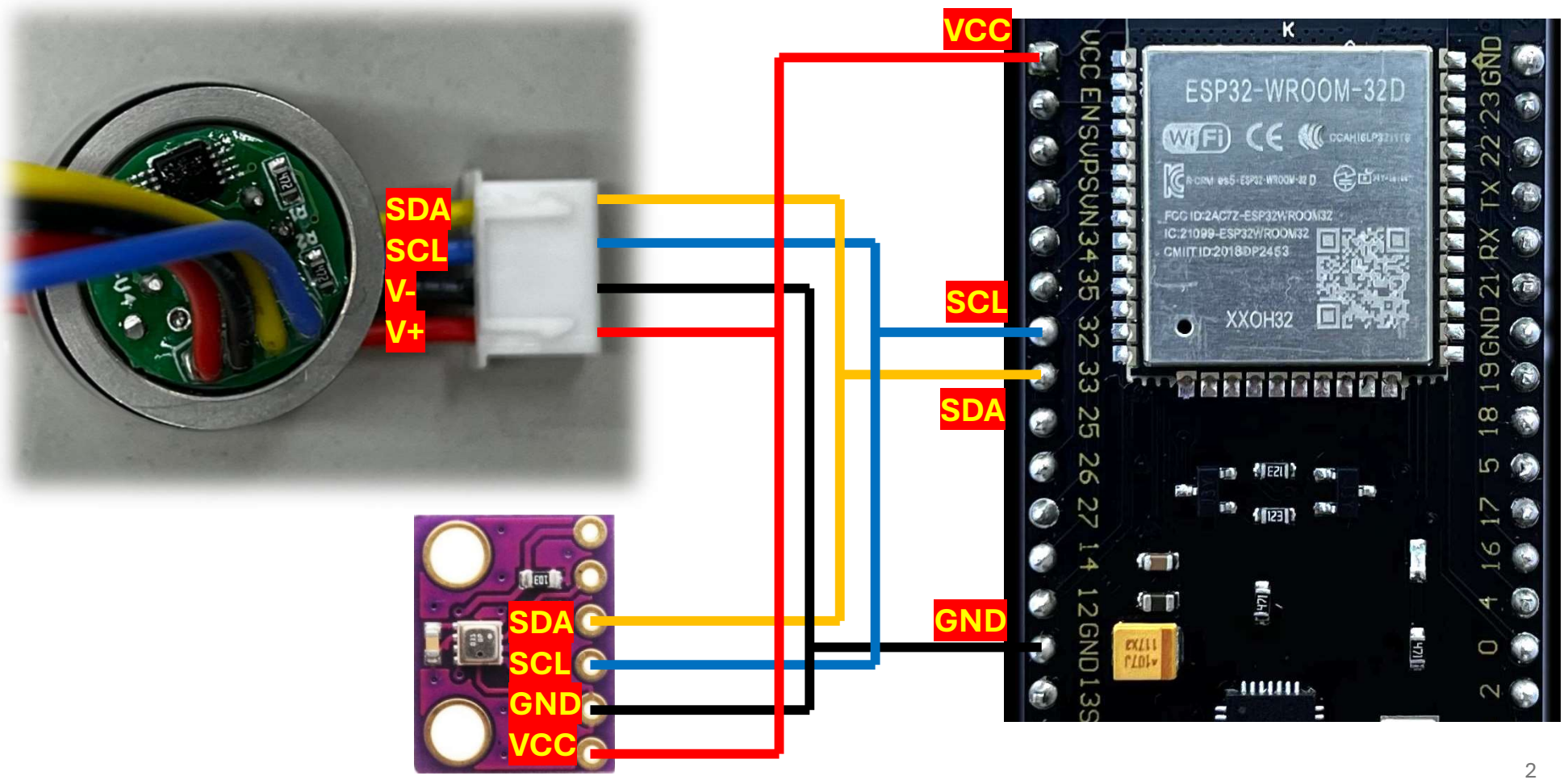
Projetando dispositivos comerciais

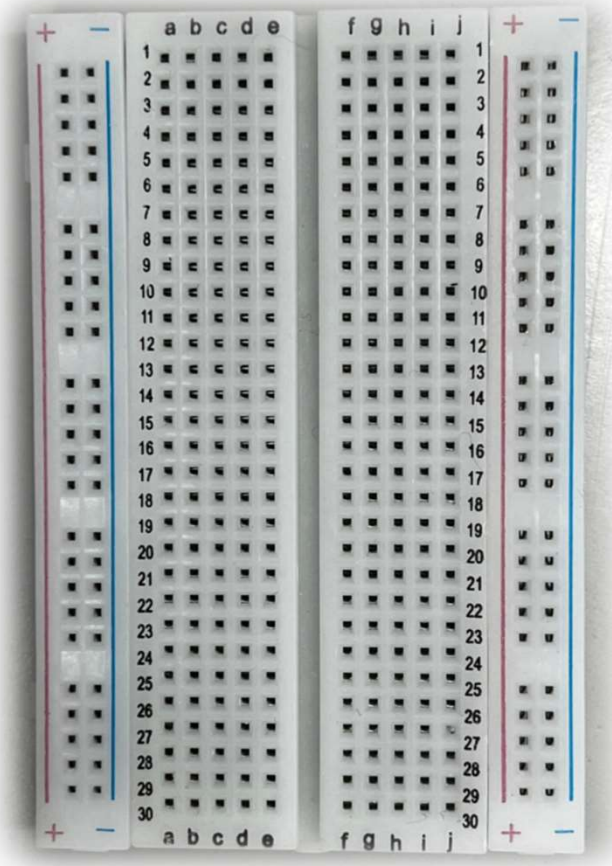
Handson

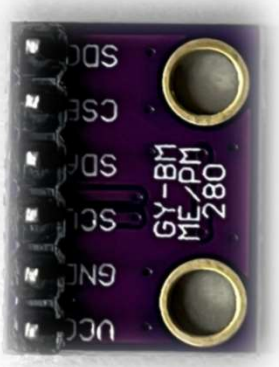
TEX.com.br

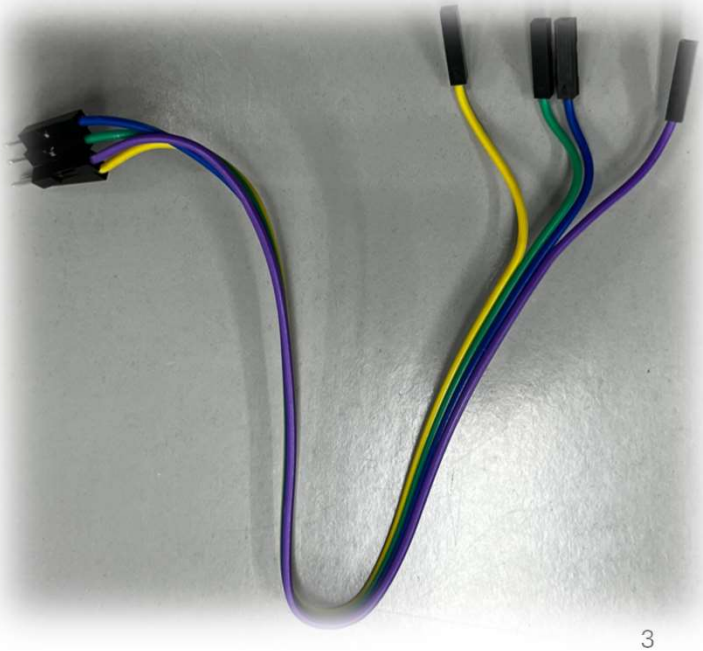
Integrando o MVP



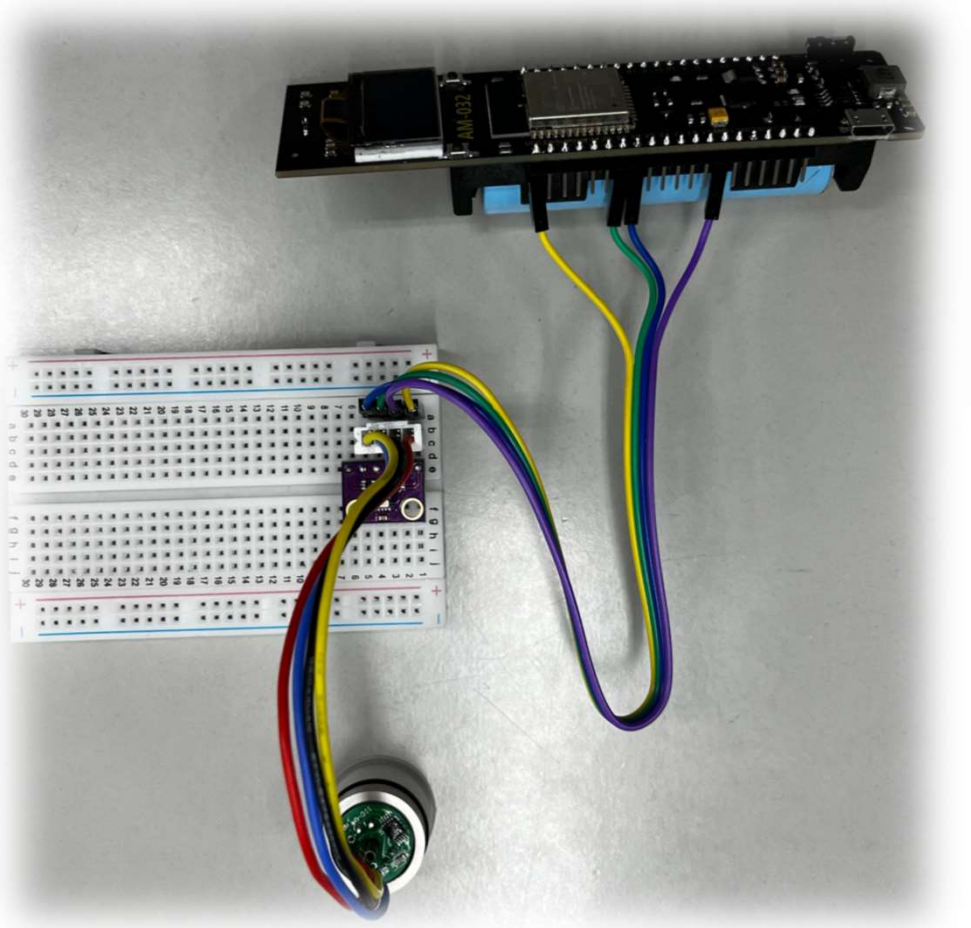
Integrando o MVP



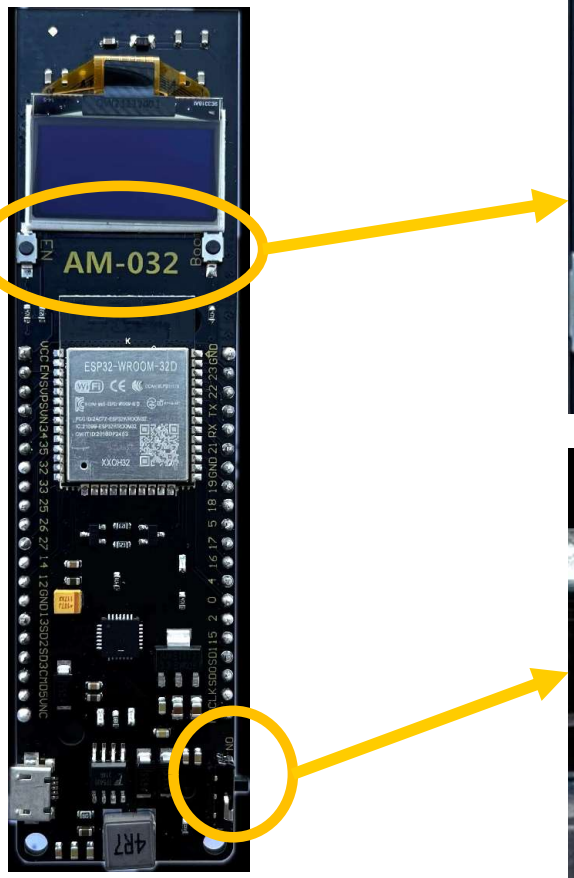




Integrando o MVP



Funções dos botões e chave

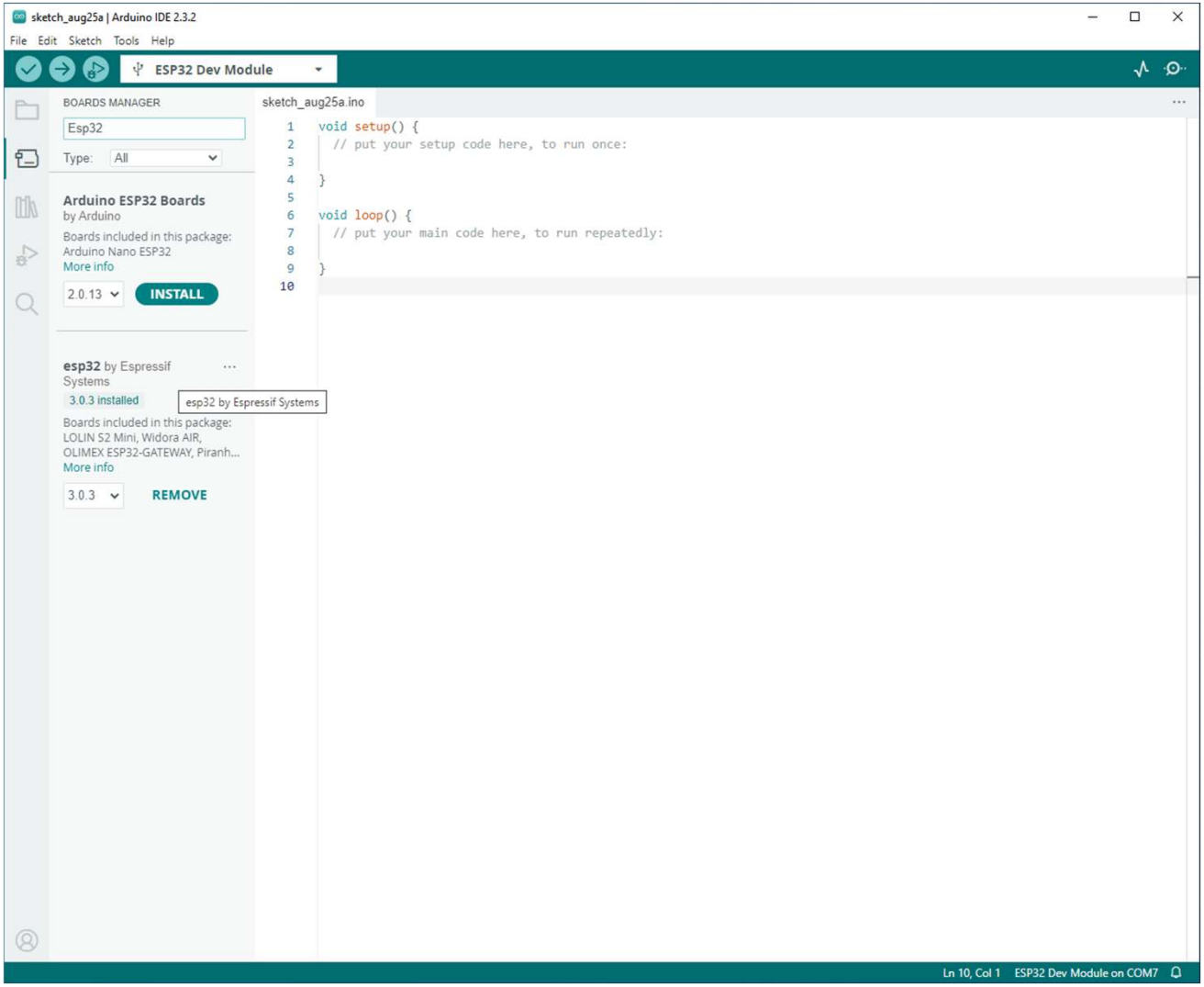


EN: RESET
Boot: Modo de gravação

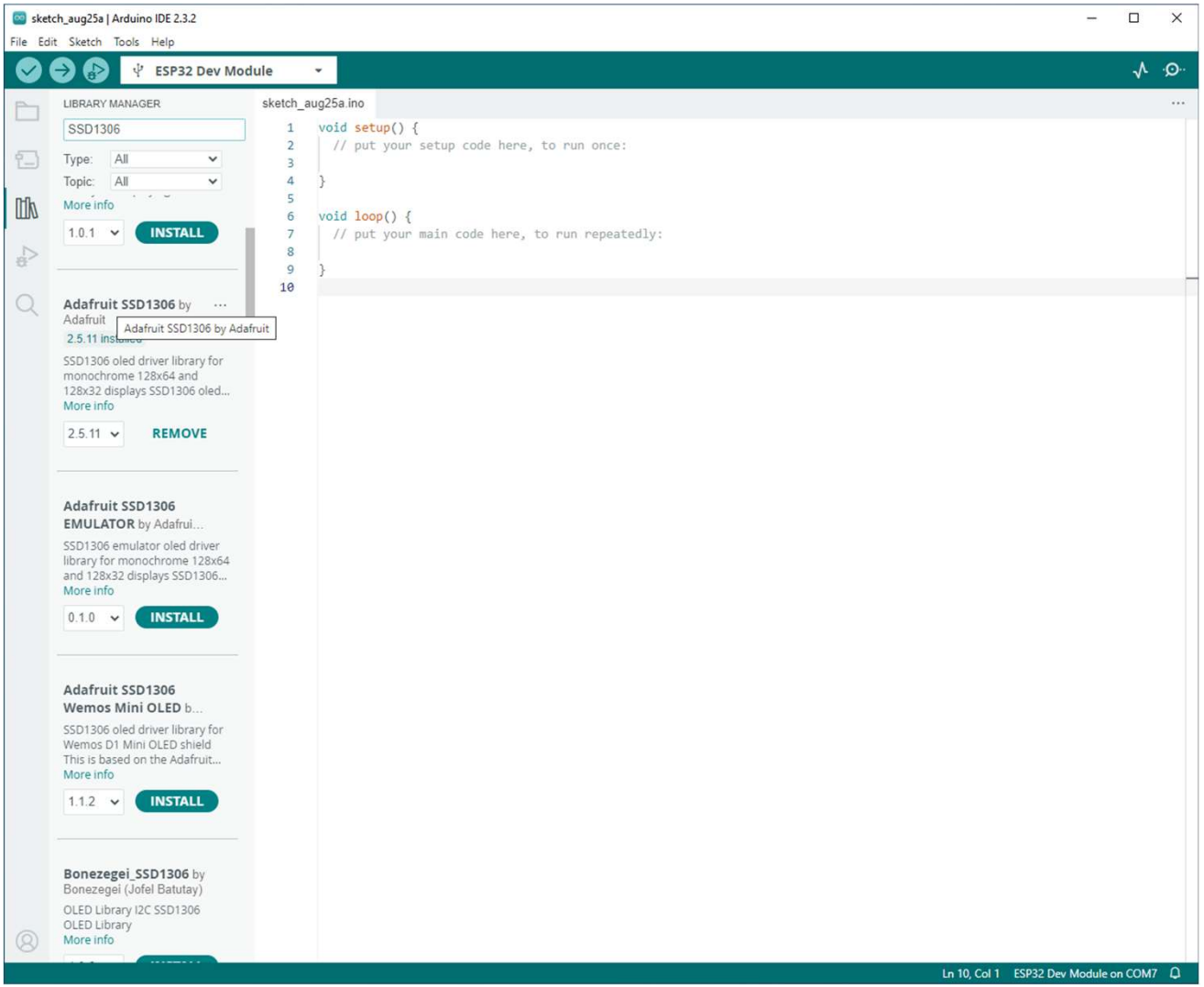
ON: Liga
OFF: Desliga

Configurando ambiente Arduino

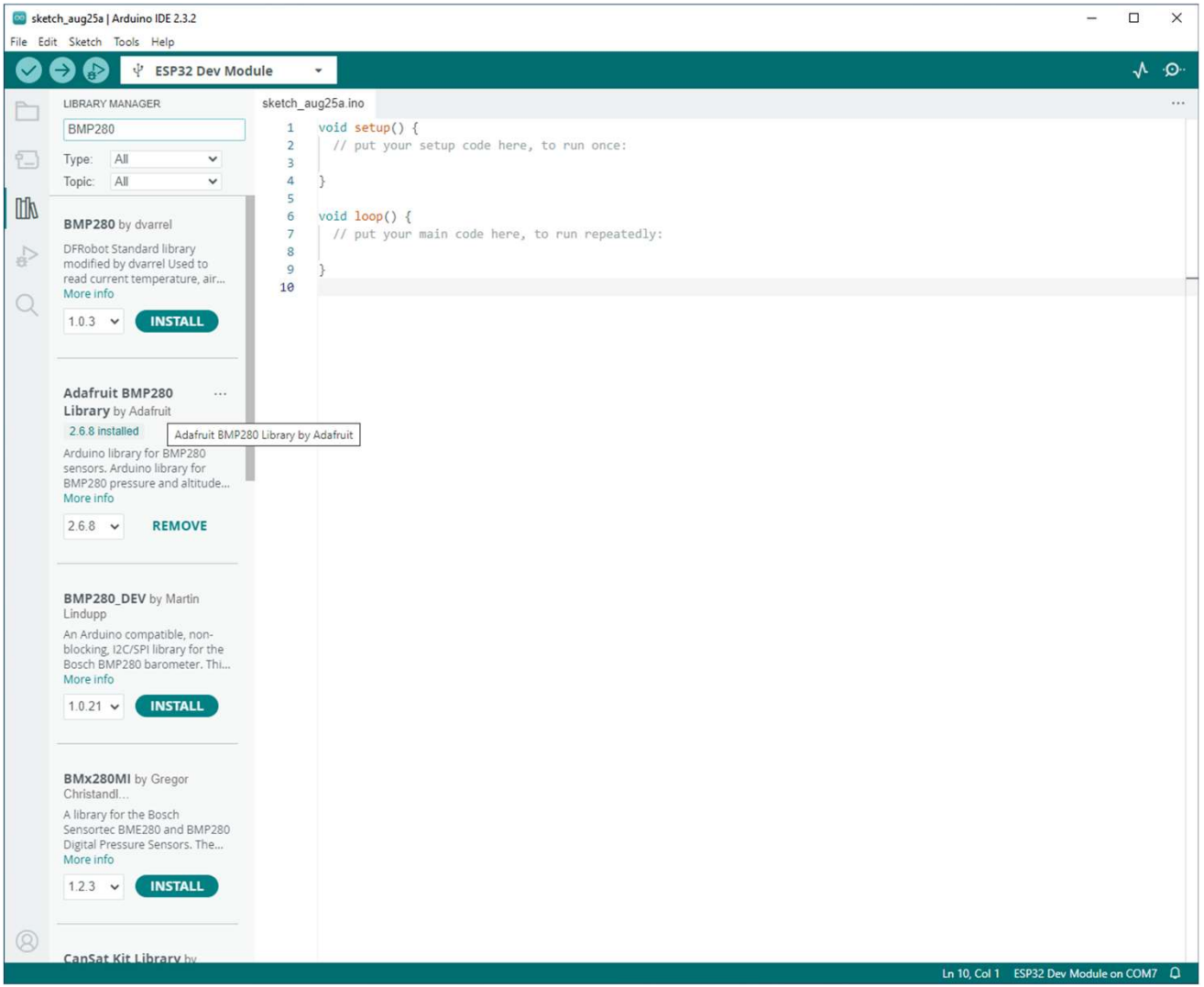
Instalar via **Board Manager** ***: esp32 by Espressif (3.0.3)***



Instalar via ***Library Manager : Adafruit SSD1306 by Adafruit (2.5.11)***



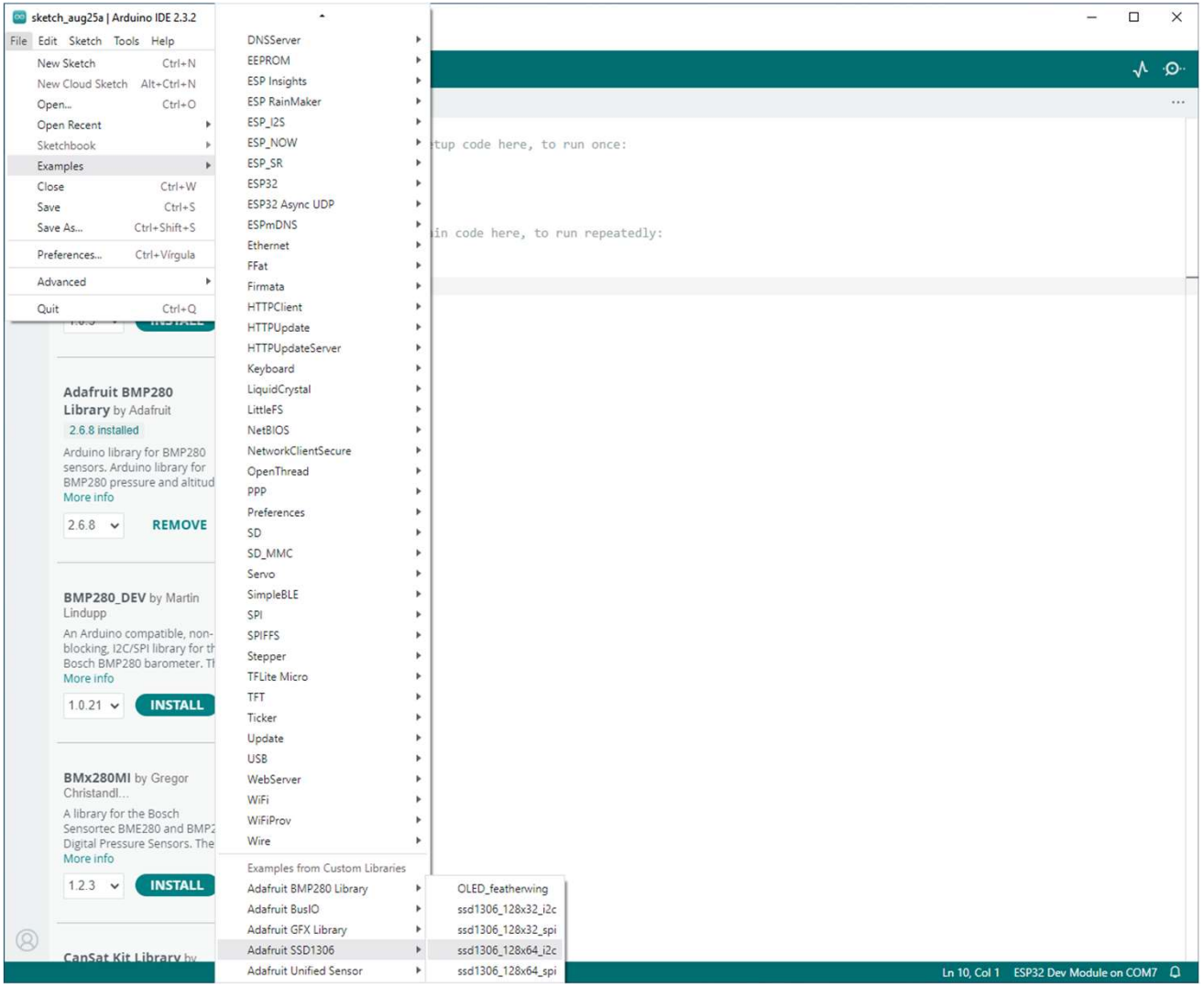
Instalar via ***Library Manager : Adafruit BMP280 Library by (1.0.3)***



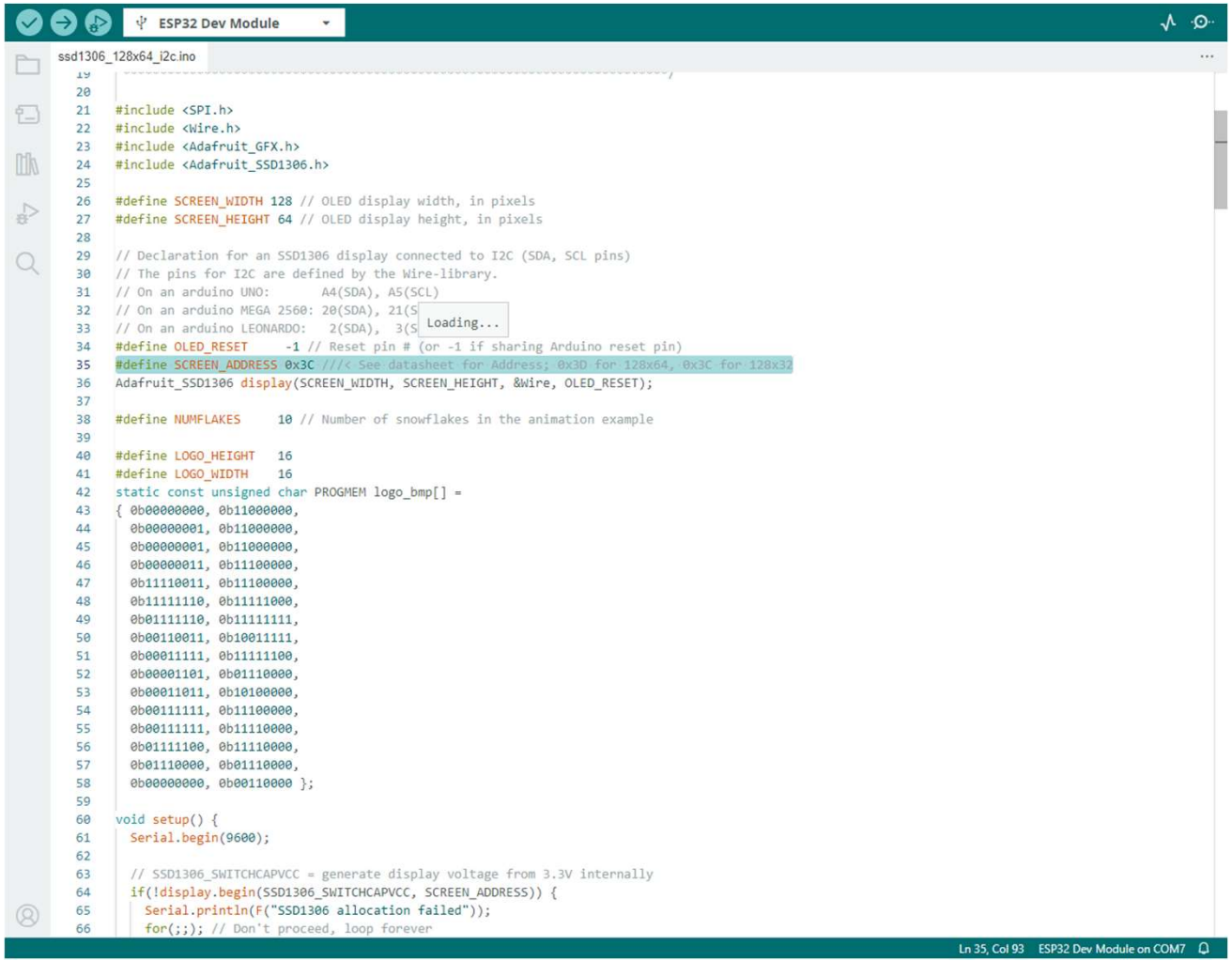
Exemplo Arduino:
Display OLED SSD1306

https://github.com/eng-software/HandsonINO/tree/main/OLED_SSD1306

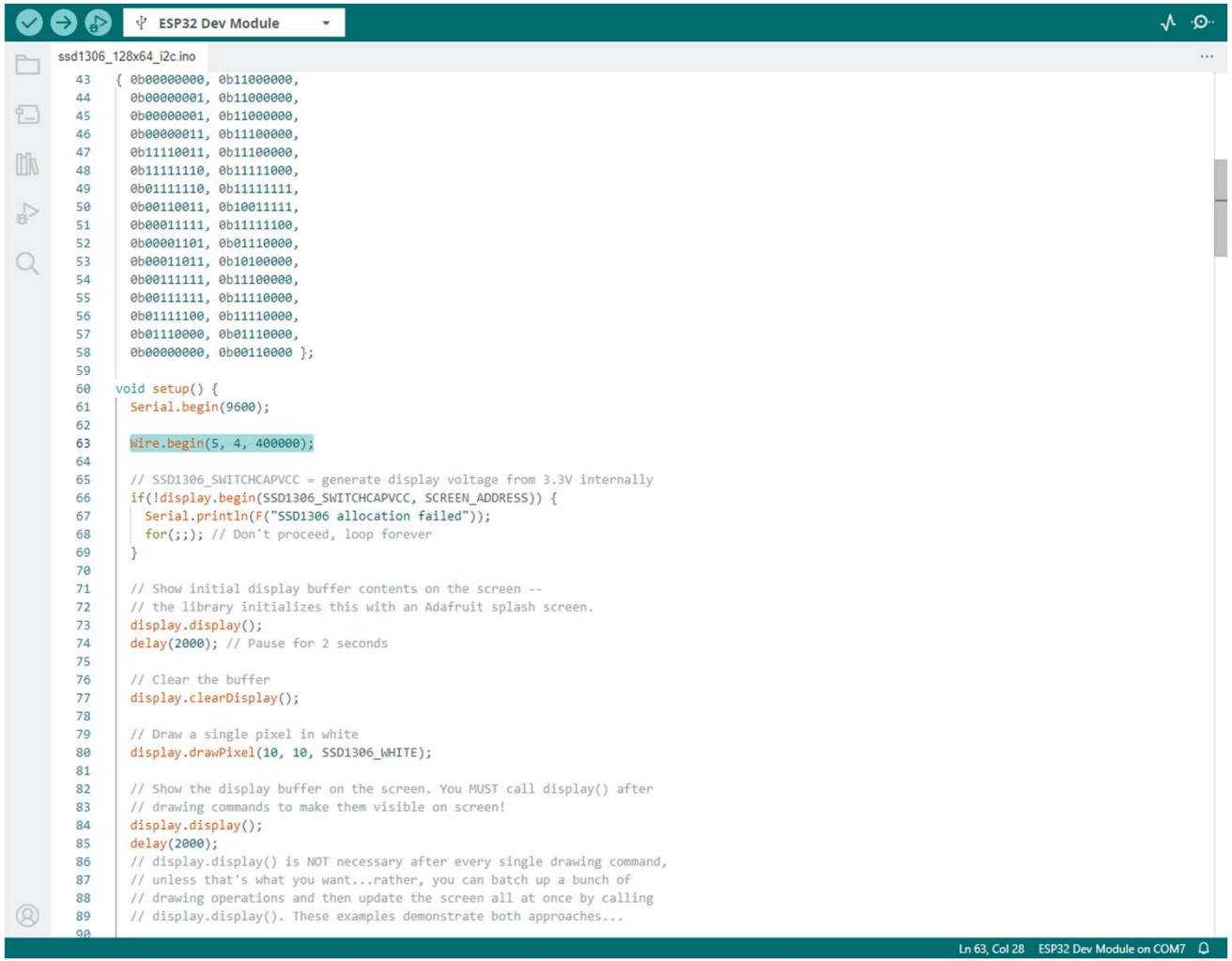
Carregar o exemplo: ***Adafruit SSD1306 -> ssd1306_128x64_i2x***



Alterar o ***SCREEN_ADDRESS*** para ***0x3C***



Incluir na função ***setup()*** a linha em destaque:



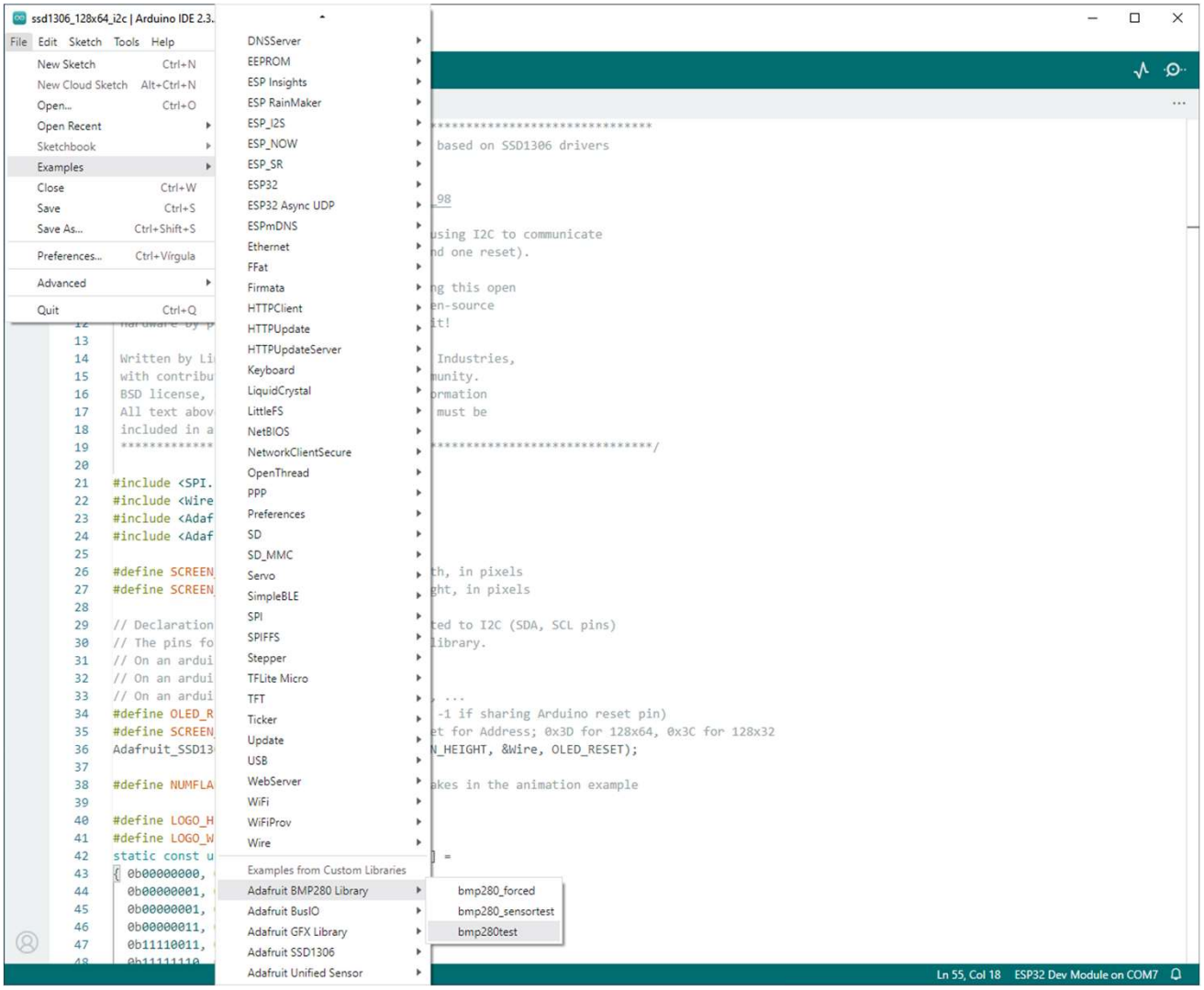
Agora compile e grave na placa.

O exemplo da Adafruit no display deverá aparecer

Exemplo Arduino: Sensor BMP280

https://github.com/eng-software/HandsonINO/tree/main/BMP280

Agora, carregue o exemplo : ***Adafruit BMP280 Library -> bmp280test***

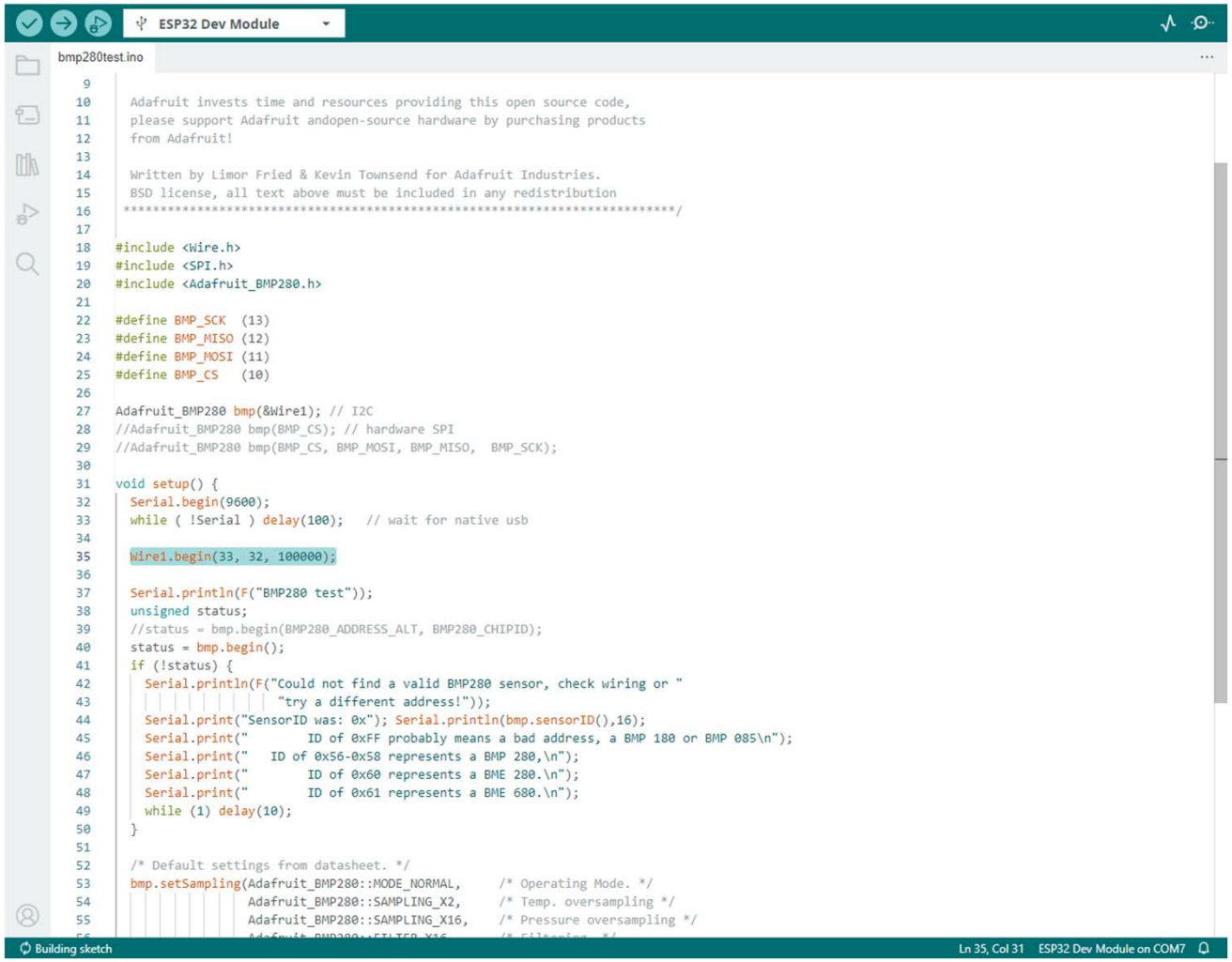


Altere a instancia de ***bmp*** como mostrado em destaque

Agora compile e grave na placa.

O exemplo da Adafruit envia no monitor serial a leitura do sensor a cada 2 segundos

Na função ***setup()*** adicione a linha em destaque:

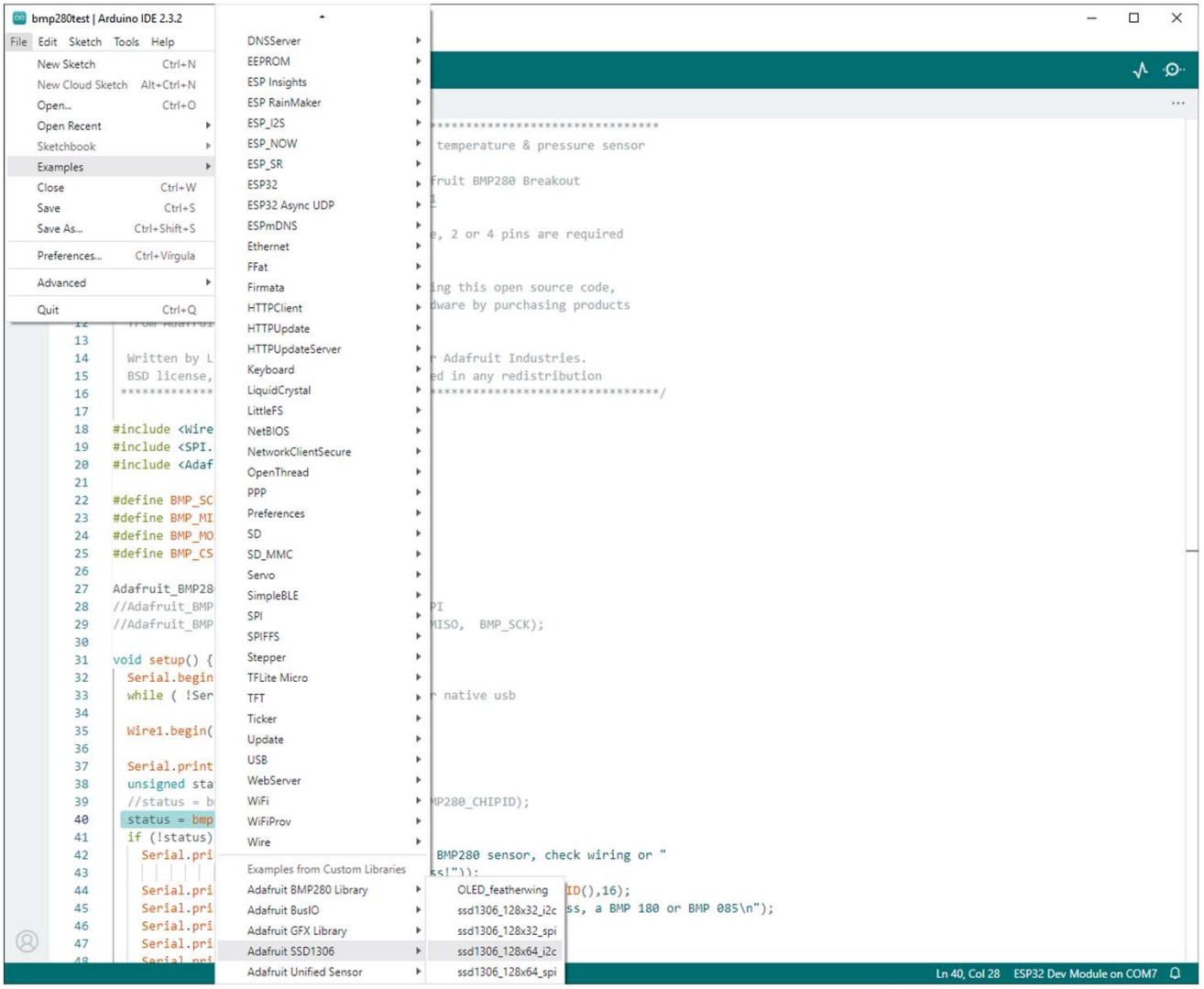


E altere a inicialização do ***bmp*** como em destaque:

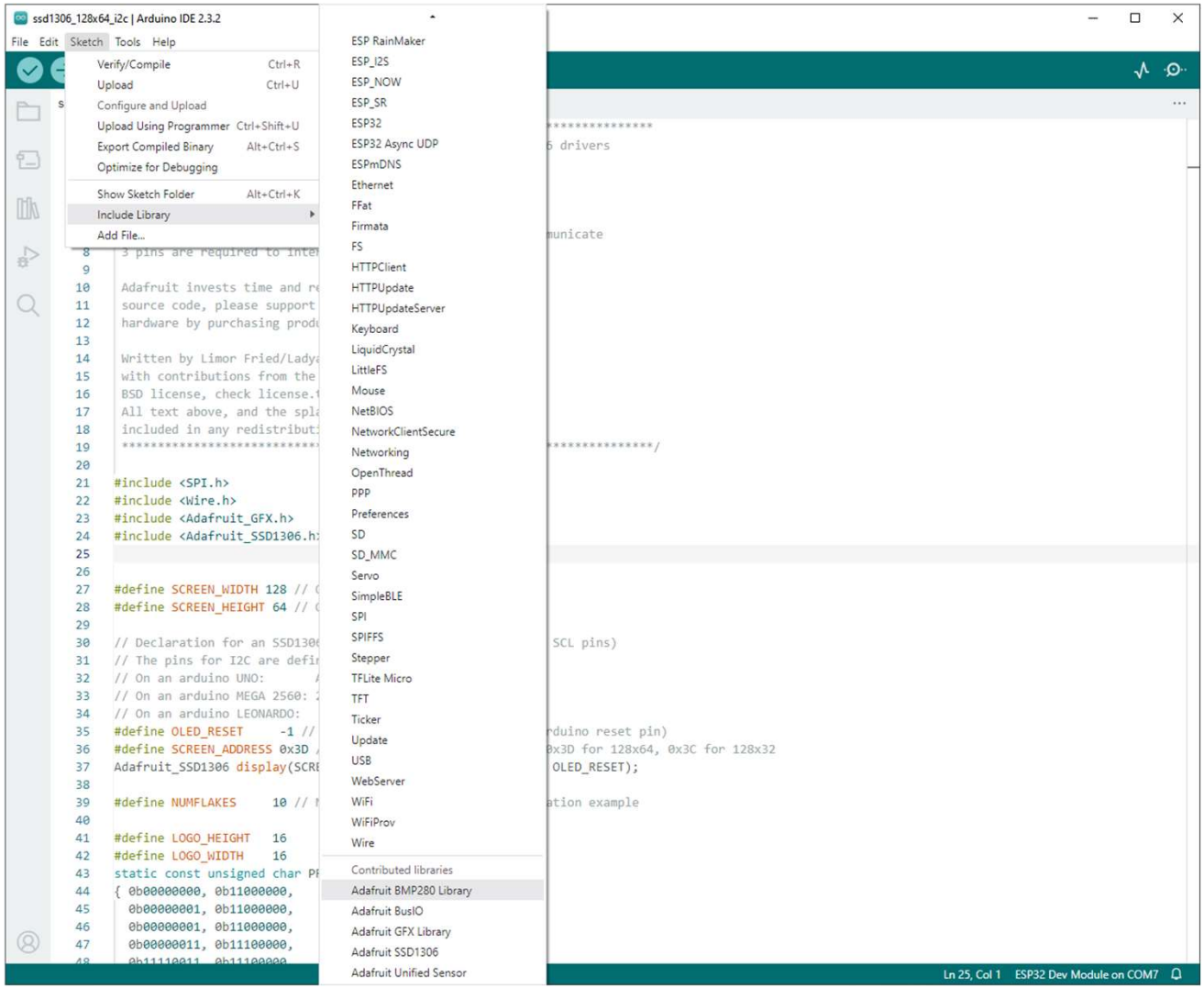
Exemplo Arduino:
Display OLED SSD1306 e BMP280

https://github.com/eng-software/HandsonINO/tree/main/OLED_SSD1306_BMP280

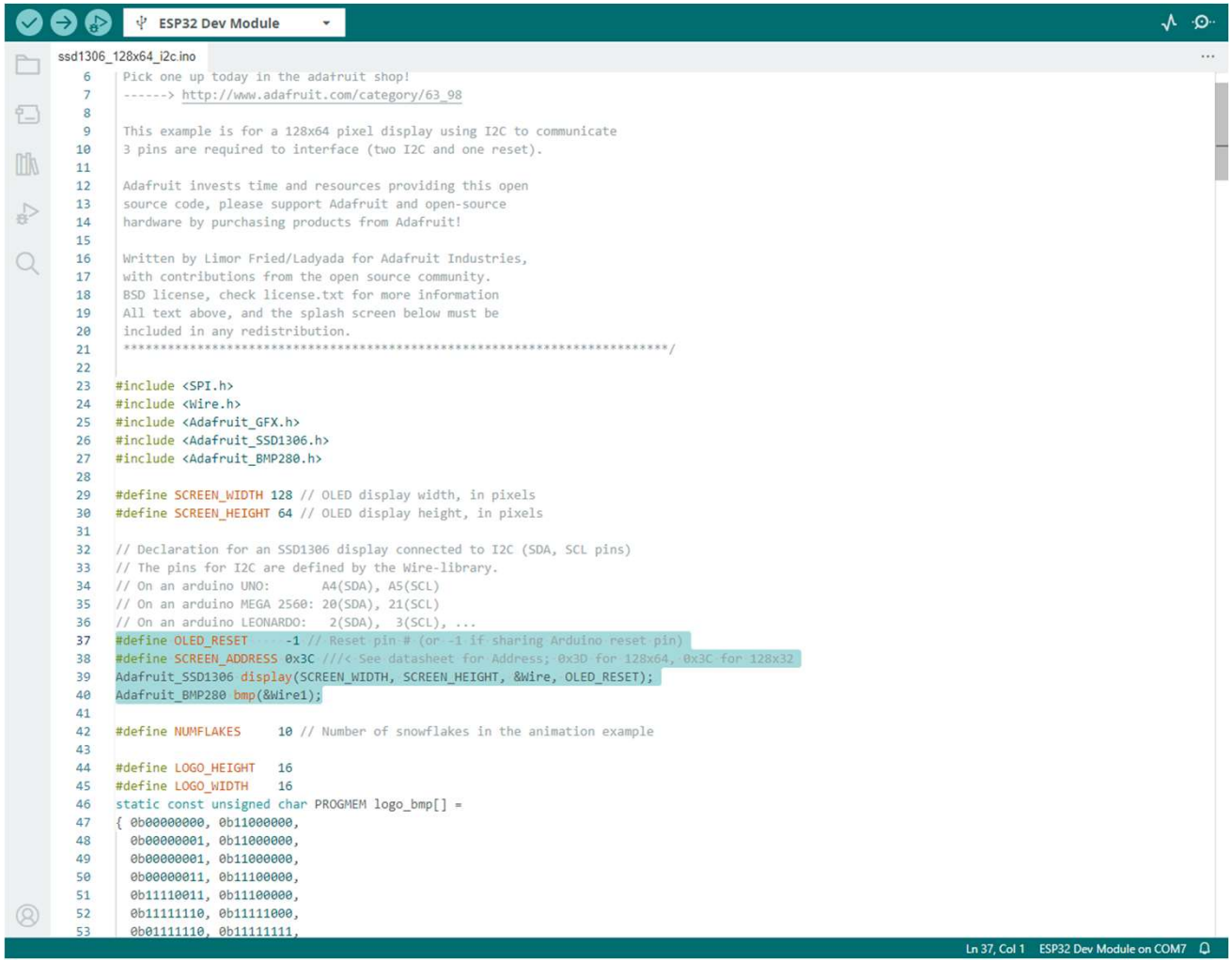
Carregar um novo exemplo: ***Adafruit SSD1306 -> ssd1306_128x64_i2x***



Inclua a biblioteca: ***Adafruit BMP280 library***

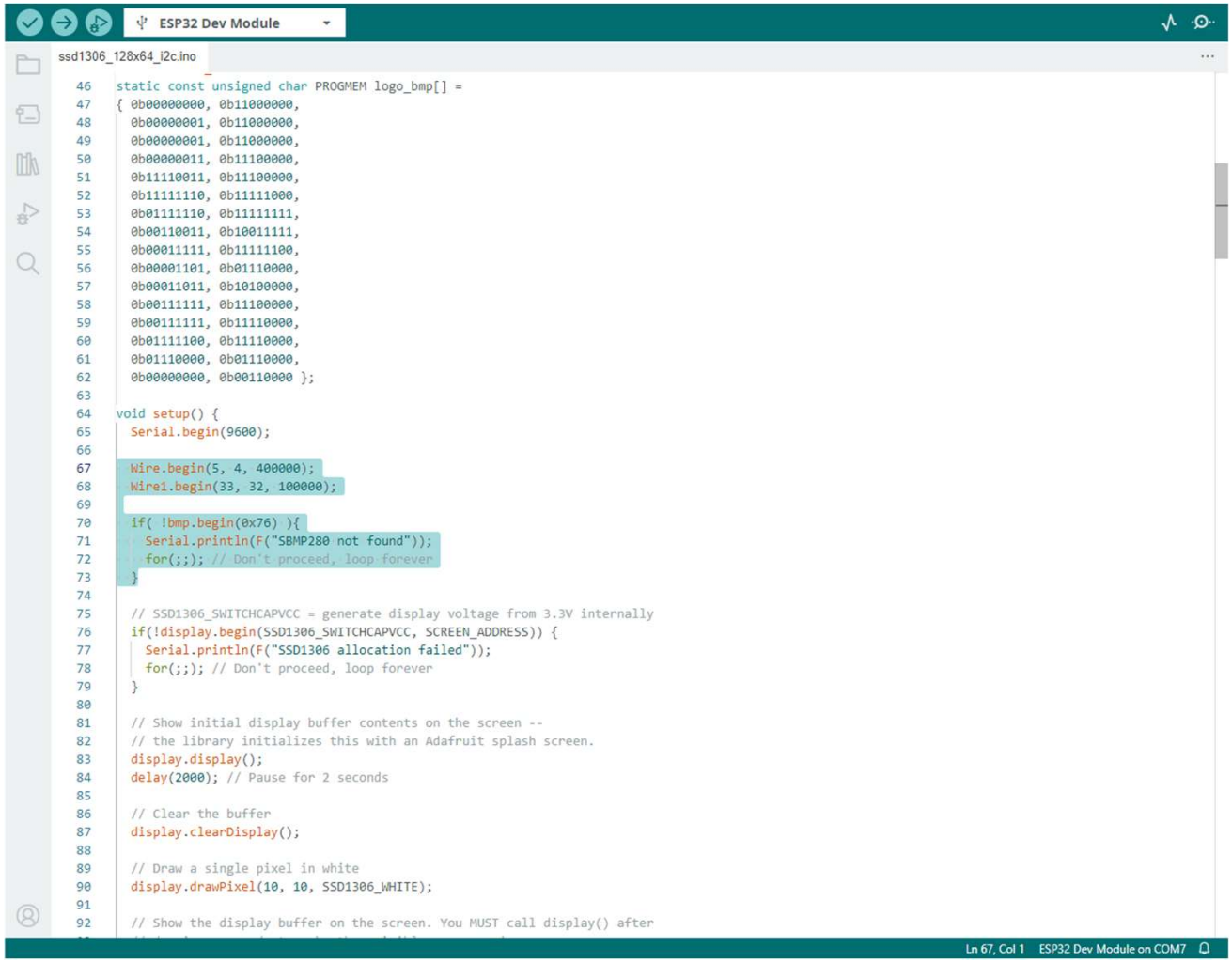


Altere o ***SCREEN_ADDRESS*** e instancie o ***BMP280*** como em destaque



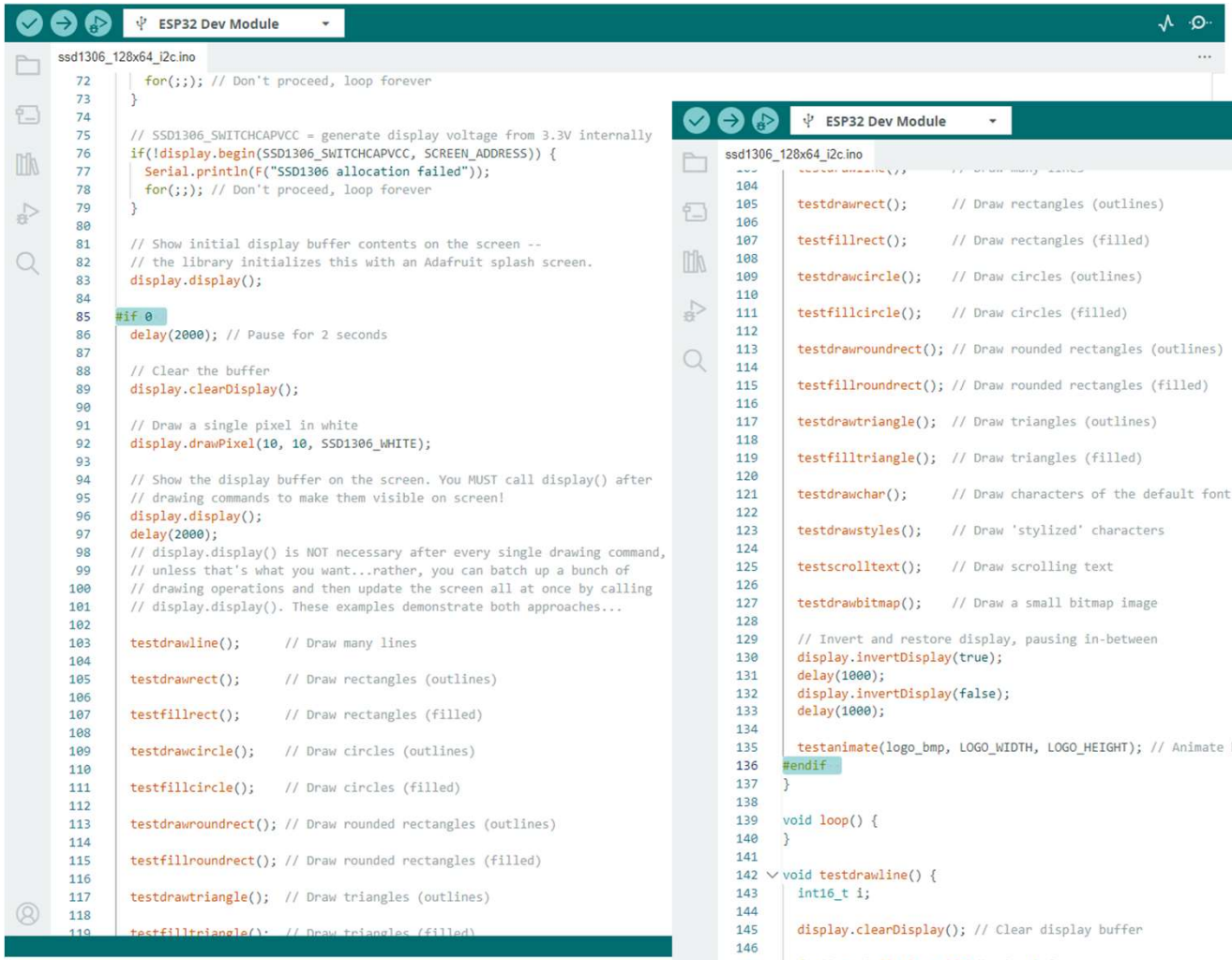

```
 6  Pick one up today in the adafruit shop!
 7  ------> http://www.adafruit.com/category/63_98
 8
 9  This example is for a 128x64 pixel display using I2C to communicate
10  3 pins are required to interface (two I2C and one reset).
11
12  Adafruit invests time and resources providing this open
13  source code, please support Adafruit and open-source
14  hardware by purchasing products from Adafruit!
15
16  Written by Limor Fried/Ladyada for Adafruit Industries,
17  with contributions from the open source community.
18  BSD license, check license.txt for more information
19  All text above, and the splash screen below must be
20  included in any redistribution.
21  *********************************************************************/
22
23 #include <SPI.h>
24 #include <Wire.h>
25 #include <Adafruit_GFX.h>
26 #include <Adafruit_SSD1306.h>
27 #include <Adafruit_BMP280.h>
28
29 #define SCREEN_WIDTH 128 // OLED display width, in pixels
30 #define SCREEN_HEIGHT 64 // OLED display height, in pixels
31
32 // Declaration for an SSD1306 display connected to I2C (SDA, SCL pins)
33 // The pins for I2C are defined by the Wire-library.
34 // On an arduino UNO:       A4(SDA), A5(SCL)
35 // On an arduino MEGA 2560: 20(SDA), 21(SCL)
36 // On an arduino LEONARDO:   2(SDA),  3(SCL), ...
37 #define OLED_RESET     -1 // Reset pin # (or -1 if sharing Arduino reset pin)
38 #define SCREEN_ADDRESS 0x3C ///< See datasheet for Address; 0x3D for 128x64, 0x3C for 128x32
39 Adafruit_SSD1306 display(SCREEN_WIDTH, SCREEN_HEIGHT, &Wire, OLED_RESET);
40 Adafruit_BMP280 bmp(&Wire1);
41
42 #define NUMFLAKES     10 // Number of snowflakes in the animation example
43
44 #define LOGO_HEIGHT   16
45 #define LOGO_WIDTH    16
46 static const unsigned char PROGMEM logo_bmp[] =
47 { 0b00000000, 0b11000000,
48   0b00000001, 0b11000000,
49   0b00000001, 0b11000000,
50   0b00000011, 0b11100000,
51   0b11110011, 0b11100000,
52   0b11111110, 0b11111000,
53   0b01111110, 0b11111111,
```

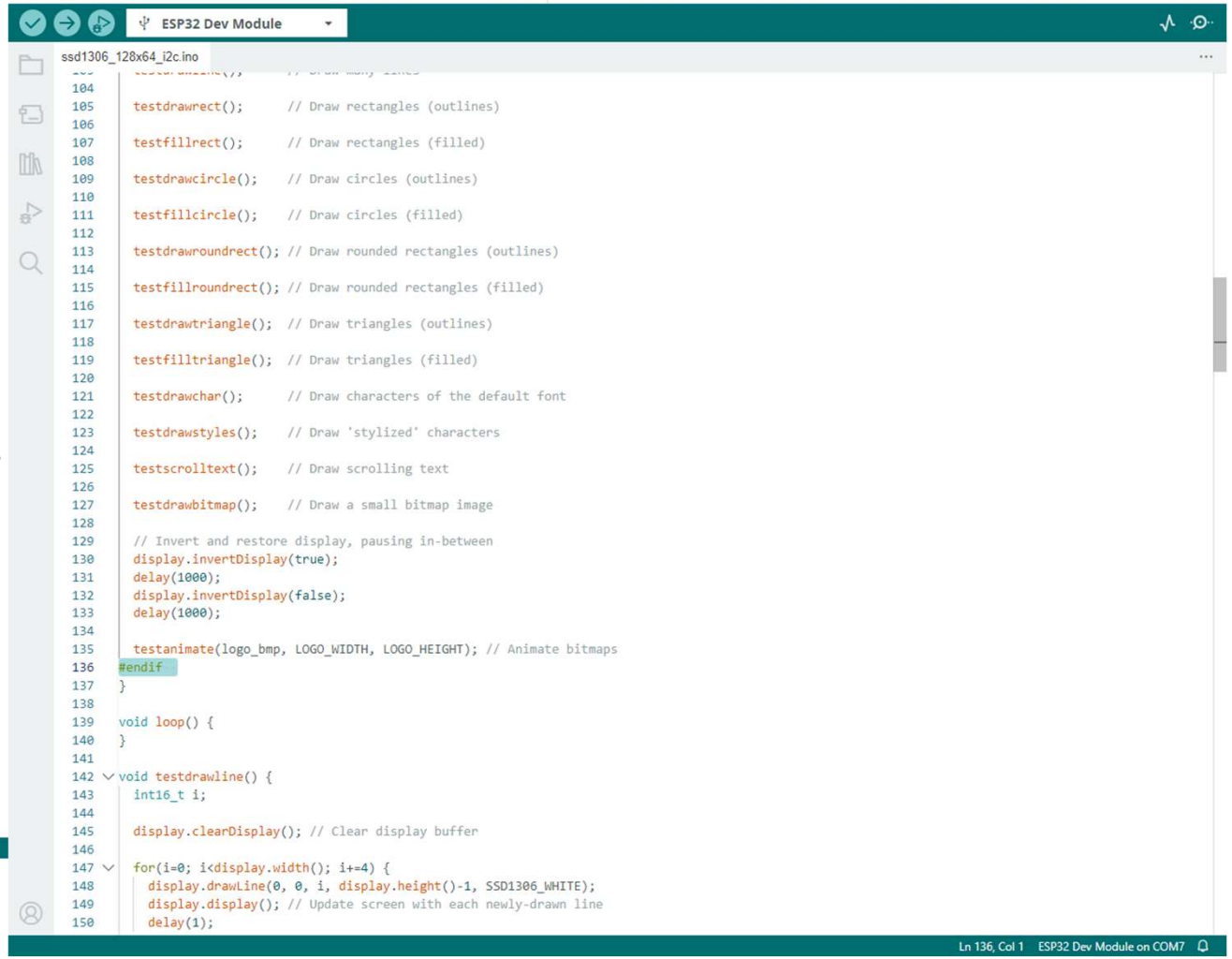
Adiciona na função ***setup()*** as linhas em destaque



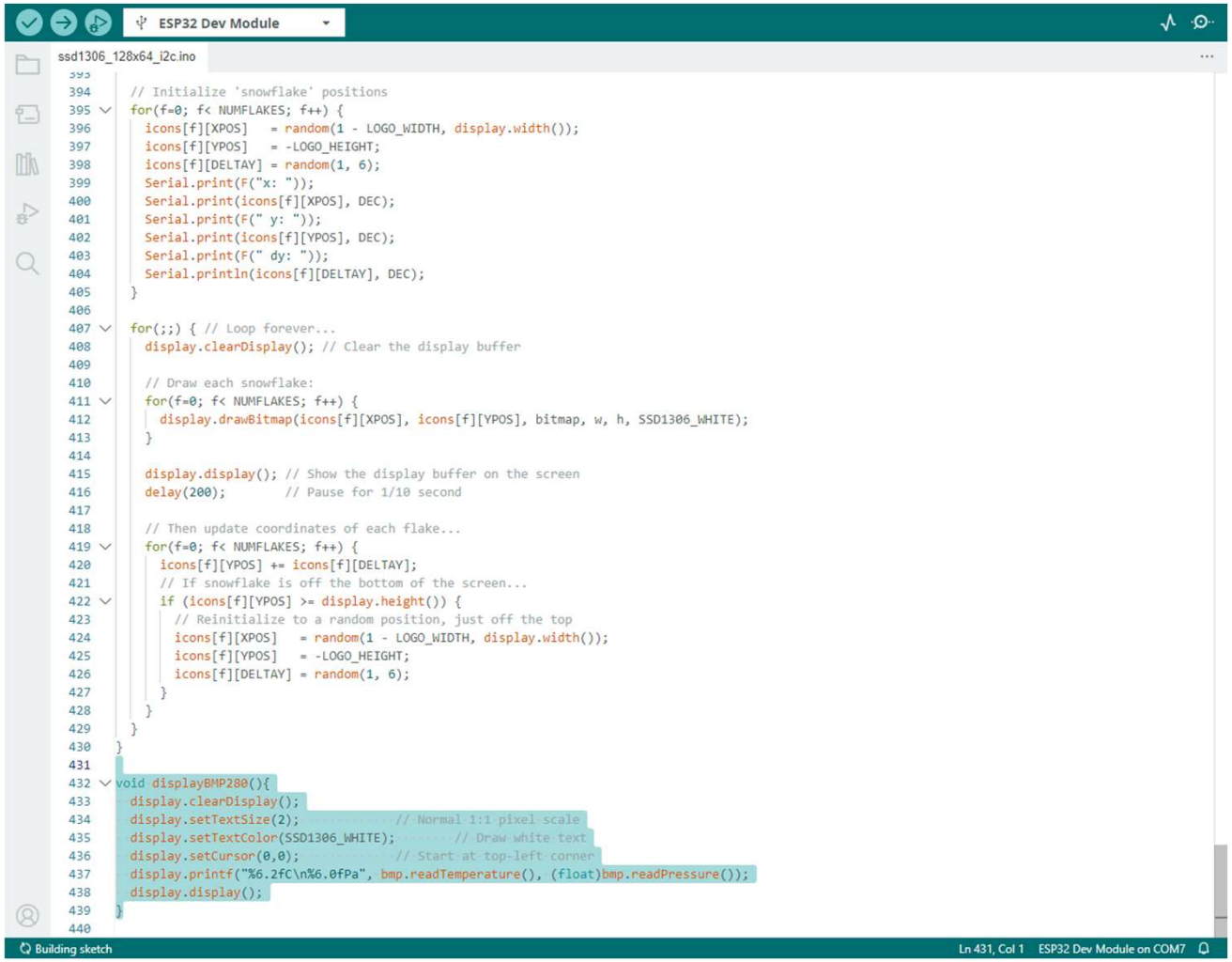

```
46  static const unsigned char PROGMEM logo_bmp[] =
47  { 0b00000000, 0b11000000,
48    0b00000001, 0b11000000,
49    0b00000001, 0b11000000,
50    0b00000011, 0b11100000,
51    0b11110011, 0b11100000,
52    0b11111110, 0b11111000,
53    0b01111110, 0b11111111,
54    0b00110011, 0b10011111,
55    0b00011111, 0b11111100,
56    0b00001101, 0b01110000,
57    0b00011011, 0b10100000,
58    0b00111111, 0b11100000,
59    0b00111111, 0b11110000,
60    0b01111100, 0b11110000,
61    0b01110000, 0b01110000,
62    0b00000000, 0b00110000 };
63
64  void setup() {
65    Serial.begin(9600);
66
67    Wire.begin(5, 4, 400000);
68    Wire1.begin(33, 32, 100000);
69
70    if( !bmp.begin(0x76) ){
71      Serial.println(F("SBMP280 not found"));
72      for(;;); // Don't proceed, loop forever
73    }
74
75    // SSD1306_SWITCHCAPVCC = generate display voltage from 3.3V internally
76    if(!display.begin(SSD1306_SWITCHCAPVCC, SCREEN_ADDRESS)) {
77      Serial.println(F("SSD1306 allocation failed"));
78      for(;;); // Don't proceed, loop forever
79    }
80
81    // Show initial display buffer contents on the screen --
82    // the library initializes this with an Adafruit splash screen.
83    display.display();
84    delay(2000); // Pause for 2 seconds
85
86    // Clear the buffer
87    display.clearDisplay();
88
89    // Draw a single pixel in white
90    display.drawPixel(10, 10, SSD1306_WHITE);
91
92    // Show the display buffer on the screen. You MUST call display() after
```

Usando ***#if 0*** e ***#endif*** ,remova a execução do exemplo como abaixo





No final do arquivo crie a função ***displayBMP280()*** como abaixo



E na função ***loop()*** faça a chamada da função ***displayBMP280()***

Este exemplo irá mostrar no display a leitura da pressão e temperatura lida do ***BMP280***