#include <Wire.h>

#include "MAX30100\_PulseOximeter.h"

#define BLYNK\_PRINT Serial

#include <Blynk.h>

#include <ESP8266WiFi.h>

#include <BlynkSimpleEsp8266.h>

#include "Wire.h"

#include "Adafruit\_GFX.h"

#include "OakOLED.h"

#define REPORTING\_PERIOD\_MS 1000

OakOLED oled;

char auth[] = "N-81lOStH83VwUeNuKHOzpLVzqjFXhHO"; // You should get Auth Token in the Blynk App.

char ssid[] = "BYNARK"; // Your WiFi credentials.

char pass[] = "bynark@123";

// Connections : SCL PIN - D1 , SDA PIN - D2 , INT PIN - D0

PulseOximeter pox;

float BPM, SpO2;

uint32\_t tsLastReport = 0;

const unsigned char bitmap [] PROGMEM=

{

0x00, 0x00, 0x00, 0x00, 0x01, 0x80, 0x18, 0x00, 0x0f, 0xe0, 0x7f, 0x00, 0x3f, 0xf9, 0xff, 0xc0,

0x7f, 0xf9, 0xff, 0xc0, 0x7f, 0xff, 0xff, 0xe0, 0x7f, 0xff, 0xff, 0xe0, 0xff, 0xff, 0xff, 0xf0,

0xff, 0xf7, 0xff, 0xf0, 0xff, 0xe7, 0xff, 0xf0, 0xff, 0xe7, 0xff, 0xf0, 0x7f, 0xdb, 0xff, 0xe0,

0x7f, 0x9b, 0xff, 0xe0, 0x00, 0x3b, 0xc0, 0x00, 0x3f, 0xf9, 0x9f, 0xc0, 0x3f, 0xfd, 0xbf, 0xc0,

0x1f, 0xfd, 0xbf, 0x80, 0x0f, 0xfd, 0x7f, 0x00, 0x07, 0xfe, 0x7e, 0x00, 0x03, 0xfe, 0xfc, 0x00,

0x01, 0xff, 0xf8, 0x00, 0x00, 0xff, 0xf0, 0x00, 0x00, 0x7f, 0xe0, 0x00, 0x00, 0x3f, 0xc0, 0x00,

0x00, 0x0f, 0x00, 0x00, 0x00, 0x06, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00

};

void onBeatDetected()

{

Serial.println("Beat Detected!");

oled.drawBitmap( 60, 20, bitmap, 28, 28, 1);

oled.display();

}

void setup()

{

Serial.begin(115200);

oled.begin();

oled.clearDisplay();

oled.setTextSize(1);

oled.setTextColor(1);

oled.setCursor(0, 0);

oled.println("Initializing pulse oximeter..");

oled.display();

pinMode(16, OUTPUT);

Blynk.begin(auth, ssid, pass);

Serial.print("Initializing Pulse Oximeter..");

if (!pox.begin())

{

Serial.println("FAILED");

oled.clearDisplay();

oled.setTextSize(1);

oled.setTextColor(1);

oled.setCursor(0, 0);

oled.println("FAILED");

oled.display();

for(;;);

}

else

{

oled.clearDisplay();

oled.setTextSize(1);

oled.setTextColor(1);

oled.setCursor(0, 0);

oled.println("SUCCESS");

oled.display();

Serial.println("SUCCESS");

pox.setOnBeatDetectedCallback(onBeatDetected);

}

// The default current for the IR LED is 50mA and it could be changed by uncommenting the following line.

//pox.setIRLedCurrent(MAX30100\_LED\_CURR\_7\_6MA);

}

void loop()

{

pox.update();

Blynk.run();

BPM = pox.getHeartRate();

SpO2 = pox.getSpO2();

if (millis() - tsLastReport > REPORTING\_PERIOD\_MS)

{

Serial.print("Heart rate:");

Serial.print(BPM);

Serial.print(" bpm / SpO2:");

Serial.print(SpO2);

Serial.println(" %");

Blynk.virtualWrite(V7, BPM);

Blynk.virtualWrite(V8, SpO2);

oled.clearDisplay();

oled.setTextSize(1);

oled.setTextColor(1);

oled.setCursor(0,16);

oled.println(pox.getHeartRate());

oled.setTextSize(1);

oled.setTextColor(1);

oled.setCursor(0, 0);

oled.println("Heart BPM");

oled.setTextSize(1);

oled.setTextColor(1);

oled.setCursor(0, 30);

oled.println("Spo2");

oled.setTextSize(1);

oled.setTextColor(1);

oled.setCursor(0,45);

oled.println(pox.getSpO2());

oled.display();

tsLastReport = millis();

}

}