Arduino Heart Rate Moniter

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Introduction

The Arduino heart reading project is an innovative application that harnesses the power of Arduino technology to create a user-friendly system for monitoring heart rate. By combining an Arduino microcontroller, a heart pulse sensor, and an LCD display screen, this project enables individuals to measure and track their heart rate in real time.

Code

```cpp
#define USE_ARDUINO_INTERRUPTS true
#include <PulseSensorPlayground.h>
#include <Wire.h>
#include <LCD.h>
#include <LiquidCrystal_I2C.h>

#define I2C_ADDR 0x27
#define En_pin 2
#define Rw_pin 1
#define Rs_pin 0
#define D4_pin 4
#define D5_pin 5
#define D6_pin 6
#define D7_pin 7
#define BACKLIGHT 3

LiquidCrystal_I2C lcd(I2C_ADDR, En_pin, Rw_pin, Rs_pin, D4_pin, D5_pin, D6_pin, D7_pin);

const int PulseWire = 0;
const int LED13 = 13;
int Threshold = 550;

PulseSensorPlayground pulseSensor;

void setup() {
Serial.begin(9600);
lcd.begin(16, 2);
lcd.setBacklightPin(BACKLIGHT, POSITIVE);
lcd.setBacklight(HIGH);

pulseSensor.analogInput(PulseWire);
pulseSensor.blinkOnPulse(LED13);
pulseSensor.setThreshold(Threshold);

if (pulseSensor.begin()) {
Serial.println("We created a pulseSensor Object !");
lcd.setCursor(0, 0);
lcd.print(" Heart Monitor");
}
}

void loop() {
int myBPM = pulseSensor.getBeatsPerMinute();

if (pulseSensor.sawStartOfBeat() && myBPM >= 60 && myBPM <= 100) {
Serial.println("♥ A HeartBeat Happened !");
Serial.print("BPM: ");
Serial.println(myBPM);
lcd.setCursor(0, 1);
lcd.print("BPM: ");
lcd.print(myBPM);
}

delay(20);
}
```
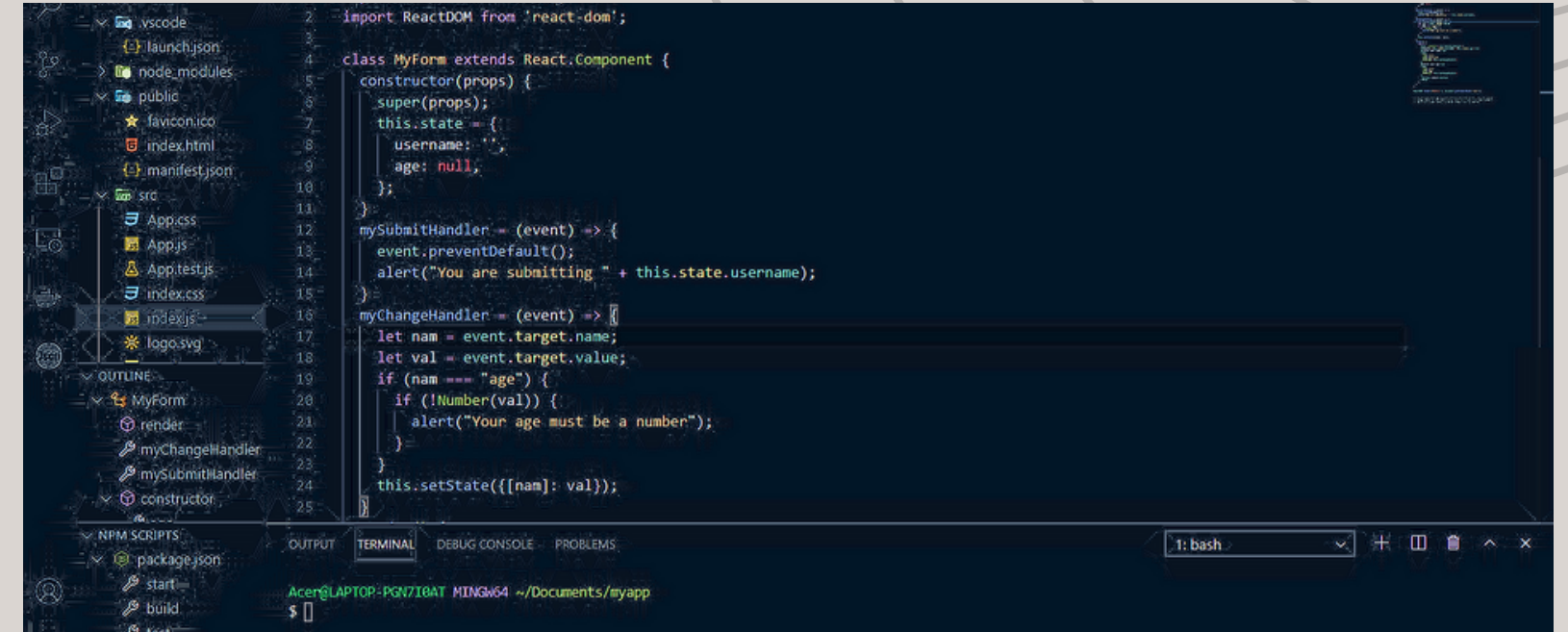
Components

1 Arduino Board

The Arduino board is the core component of the project. It serves as the microcontroller that controls and coordinates the entire system. The board provides a programmable platform to receive inputs, process data, and control the output components.

2 LCD 216 with I2C to LCD Serial

The LCD (Liquid Crystal Display) is used to visually display information, such as the heart rate, in a user-friendly format. The LCD 216 with I2C to LCD Serial module simplifies the connection between the Arduino and the LCD by utilizing the I2C communication protocol.

3 Heart Sensor

The heart sensor is a vital component of the project as it detects the user's heart rate. It typically uses an optical or electrical method to measure the pulse or heartbeat. The sensor captures the heart rate data and sends it to the Arduino for processing.

4 Bread Board

5 wires

Implementation

These components work together to create the Arduino Heartbeat Monitor project. The Arduino board serves as the brain of the system, receiving heart rate data from the heart sensor. It then processes the data and communicates with the LCD to display the heart rate information. The breadboard and wires provide a convenient platform for connecting and arranging the components, facilitating the construction of the project.

Demonstration and Results

The primary result of the Arduino Heartbeat Monitor project was we created a portable device capable of accurately measuring and displaying an individual's heart rate in real time.

Through building the Arduino Heartbeat Monitor, we gained hands-on experience in hardware assembly, programming, and troubleshooting.
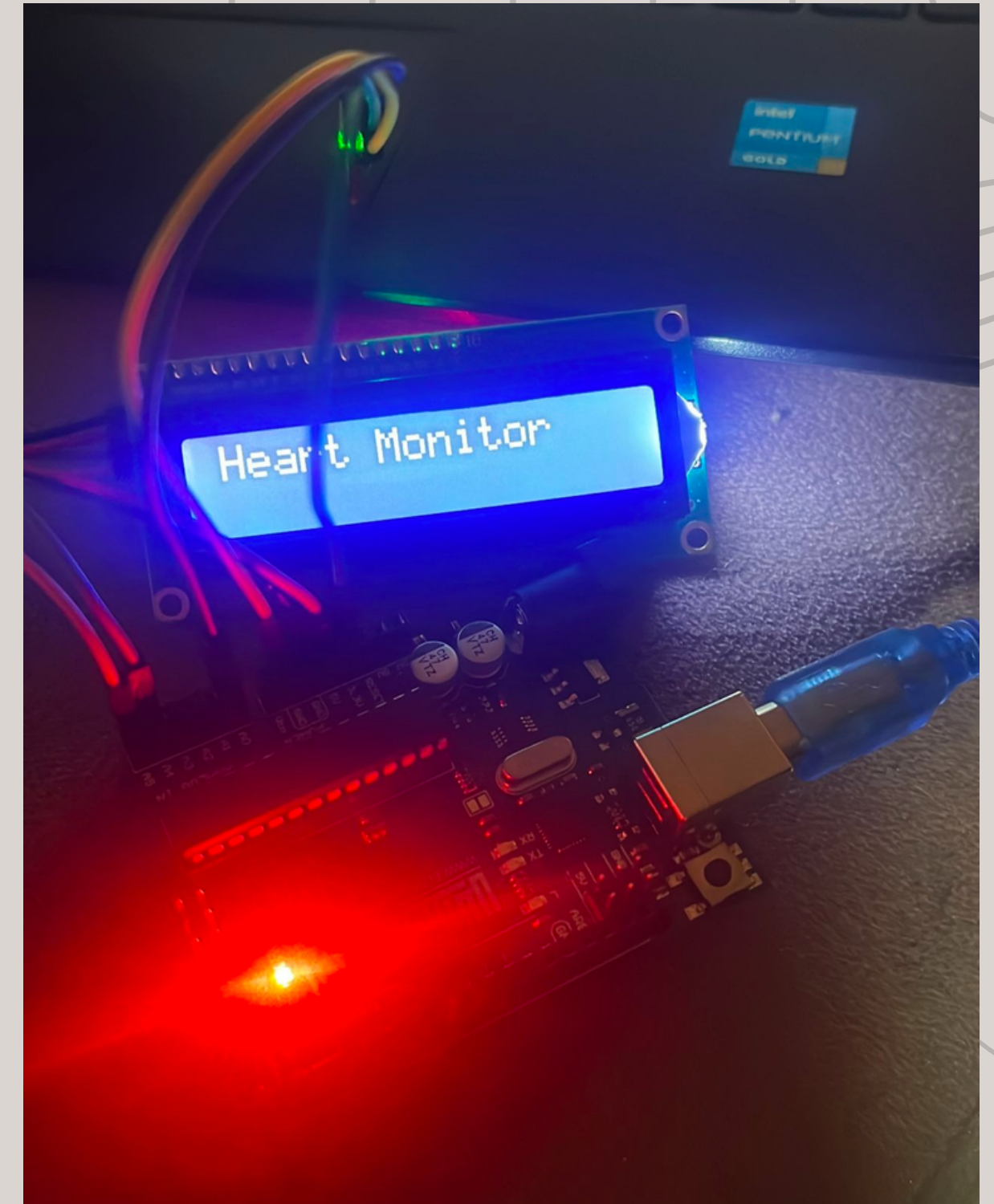
Conclusion

In conclusion, the Arduino Heartbeat Monitor project serves as a testament to the capabilities of Arduino technology in heart rate monitoring, while also providing us with invaluable experiences and insights as students.

Thank You