

### **-Names:**

-Hossam el-din Khaled Mohamed.

-Ahmed Tarek Abdelrahman Monir.

-Rahma Eldreny Eldreny Mohamed.

-Reem Ibrahim Shawky Ibrahim.

**-Project name:** Oximeter robotcar for covid 19.

**-Importance of the project:** measures heart rate and oxygen level in blood remotely to limit the interaction between the patient and the doctor to limit infection.

**-About the project:** measurement of heart rate and pulse oximetry in oximeter sensor detected by absorbance of pulse blood through a photodetector using two leds , red led and infrared led showing the results on the LCD ,the potentiometer controls the brightness of the LCD , the remote helps to control movement of the motor in many directions, forward ,backward and rotate around itself.

### **-Components:**

- 1x Arduino Uno.
- 1x Oximeter sensor.
- 1x LCD.
- 1x Potentiometer.
- 1x IR receiver ,remote.
- 2x Motor.
- H-bridge.
- Robotcar platform.

### **-Features:**

- Adding Bluetooth module to show results in mobile phones instead of the LCD.
- Making it wearable device like hand band instead of the robotcar.
- Changing used sensor to be any other sensor like temperature sensor to limit the interaction.

### **-code:**

```
const int leftForward=A0;
```

```
const int leftBackward=A1;
const int rightForward=A2;
const int rightBackward=A3;
#include <LiquidCrystal.h>
#include <IRremote.h>
//LiquidCrystal lcd(RS, E, D4, D5, D6, D7);
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);
#include <Wire.h>
#include "MAX30100_PulseOximeter.h"
#define REPORTING_PERIOD_MS 1000
PulseOximeter pox;
uint32_t tsLastReport = 0;
void onBeatDetected()
{

}

IRrecv irrcev (7);
decode_results results;
void setup()
{
  lcd.begin(16, 2);
  irrcev.enableIRIn();
  if (!pox.begin()) {
    lcd.println("FAILED");
    for(;;);
  } else {
    lcd.println("SUCCESS");
  }
  pox.setIRLedCurrent(MAX30100_LED_CURR_7_6MA);
```

```

    // Register a callback for the beat detection
    pox.setOnBeatDetectedCallback(onBeatDetected);
}

void loop()
{
    // Make sure to call update as fast as possible
    pox.update();
    if (millis() - tsLastReport > REPORTING_PERIOD_MS) {
        lcd.clear();
        lcd.setCursor(0,0);
        lcd.print("Heart rate:");
        lcd.print(pox.getHeartRate());
        lcd.setCursor(0, 1);
        lcd.print("SpO2: ");
        lcd.print(pox.getSpO2());
        lcd.print("%");
        tsLastReport = millis();
    } if(irrcev.decode(&results)){
        if(results.value==0xFF18E7){
            //button 2 "forward"
            digitalWrite(leftForward,HIGH);
            digitalWrite(rightForward,HIGH);delay(1000);
            irrcev.resume();}

            //////////////////////////////////////

            else if(results.value==0xFF4AB5)
            //button 8 "backward"
            {digitalWrite(leftBackward,HIGH);

```

```

digitalWrite(rightBackward,HIGH);delay(1000);

irrcev.resume();}

////////////////////////////////////

else if(results.value==0xFF38C7){

//button 5"rotating around itself"

analogWrite(leftForward,0);

analogWrite(rightForward,254);

delay(1000);

irrcev.resume();}

////////////////////////////////////

else if(results.value==0xFF6897){

//button 0 "stop"

digitalWrite(leftForward,LOW);

digitalWrite(rightForward,LOW);

digitalWrite(leftBackward,LOW);

digitalWrite(rightBackward,LOW);delay(1000);

irrcev.resume();}}

```

Simulation:

