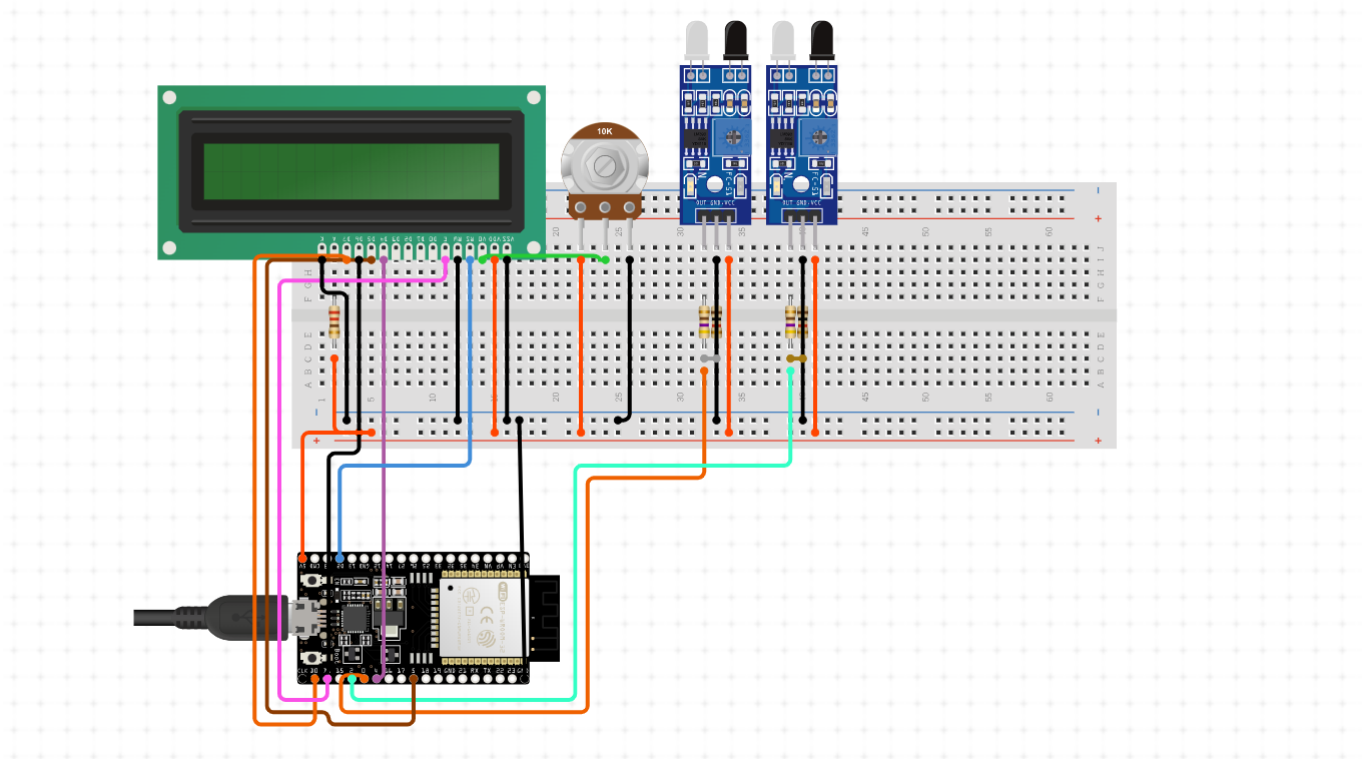


Speed Detector

Components

- ESP 32 (Devkit v1)
- 2 IR sensors (having receiver & Emitter)
- Potentiometer (to control the brightness of LCD and Showing the text)
- Jumper wires
- Resistors (not mandatory).
- Bread Board
- USB B type cable
- LCD 16*2

Circuit Diagram



Code

```
#include <WiFi.h>
#include <HTTPClient.h>
#include <LiquidCrystal.h>
```

```
LiquidCrystal lcd(19, 23, 18, 17, 16, 15);
```

```

#define SENSOR1_PIN 13
#define SENSOR2_PIN 14

unsigned long t1, t2;
float distance = 0.2; // distance between sensors in meters
float speed_limit = 1.0; // speed limit in km/hr

const char* ssid = "OnePlus Nord2 5G";
const char* password = "Faishal7";
String apiKey = "4144303";
String phone_number = "+918709822234";
String url;

void setup() {
  pinMode(SENSOR1_PIN, INPUT);
  pinMode(SENSOR2_PIN, INPUT);
  Serial.begin(9600);

  lcd.begin(16, 2);
  lcd.clear();

  WiFi.begin(ssid, password);
  Serial.println("Connecting to WiFi");
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.println();
  Serial.println("Connected to the WiFi network");

  if (WiFi.status() == WL_CONNECTED) {
    Serial.println("ESP32 is connected to WiFi.");
  } else {
    Serial.println("ESP32 is not connected to WiFi.");
  }

  message_to_whatsapp("Speed Detector Activated");
}

void loop() {

```

```

// Wait for an object to pass the first sensor
while (digitalRead(SENSOR1_PIN) == HIGH) {}
t1 = micros();

// Wait for the object to pass the second sensor
while (digitalRead(SENSOR2_PIN) == HIGH) {}
t2 = micros();

// Calculate the time difference and speed
float dt = abs((int)(t2 - t1)) / 1000000.0; // convert microseconds to seconds
float speed = distance / dt;
speed *= 3.6; // convert speed from m/s to km/hr

// Check if speed exceeds the speed limit
if (speed > speed_limit) {
    Serial.println("You have exceeded the speed limit!");
    message_to_whatsapp("Speed Limit Exceeded , Over Speed Detected! Current
Speed Is " + String(speed, 2) + " km/hr");
}

// Print the results to the serial monitor and LCD
Serial.print("Time 1: ");
Serial.println(t1);
Serial.print("Time 2: ");
Serial.println(t2);
Serial.print("Speed: ");
Serial.print(speed);
Serial.println(" km/hr");

lcd.setCursor(0, 0);
lcd.print("Speed: ");
lcd.print(speed, 1);
lcd.print(" km/hr");

delay(1000);
}

void message_to_whatsapp(String message) {

```

```

    url = "https://api.callmebot.com/whatsapp.php?phone=" + phone_number + "&apikey="
+ apiKey + "&text=" + urlencode(message);
    postData();
}

```

```

void postData() {
    int httpCode;
    HTTPClient http;
    http.begin(url);
    httpCode = http.POST(url);
    if (httpCode == 200) {
        Serial.println("Sent ok.");
    } else {
        Serial.println("Error.");
    }
    http.end();
}

```

```

String urlencode(String str) {
    String encodedString="";
    char c;
    char code0;
    char code1;
    char code2;
    for (int i =0; i < str.length(); i++){
        c=str.charAt(i);
        if (c == ' '){
            encodedString+= '+';
        } else if (isalnum(c)){
            encodedString+=c;
        }else{
            code1=(c & 0xf)+'0';
            if ((c & 0xf) >9){
                code1=(c & 0xf) - 10 + 'A';
            }
            c=(c>>4)&0xf;
            code0=c+'0';
            if (c > 9){
                code0=c - 10 + 'A';
            }
        }
    }
}

```

```
code2='\0';  
encodedString+='%';  
encodedString+=code0;  
encodedString+=code1;  
//encodedString+=code2;  
}  
yield();  
}  
return encodedString;  
}
```

Chatbot and WhatsApp message

To set up the chatbot, go through the link below and the steps provided in that link.

<https://www.callmebot.com/blog/free-api-whatsapp-messages/>

Images

