Engineering Design-G3

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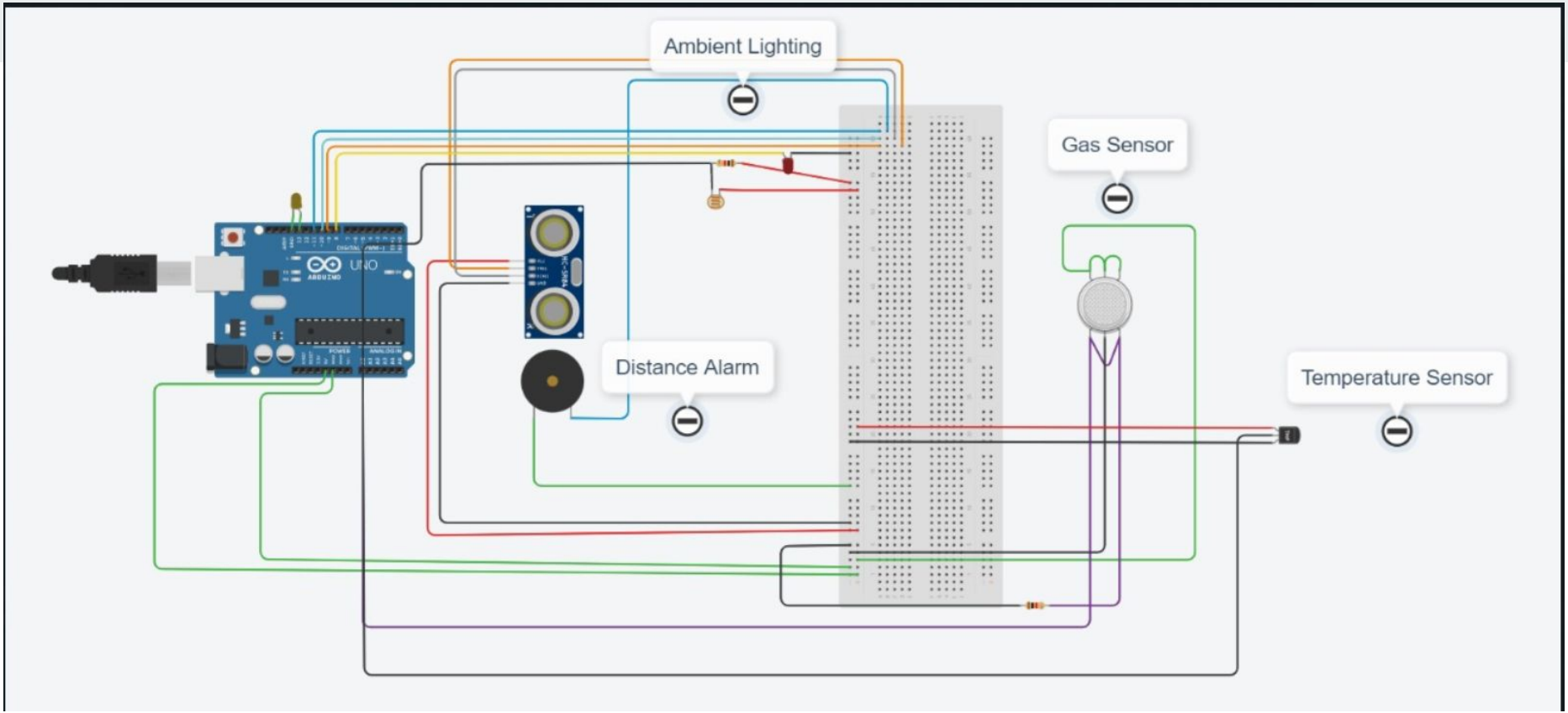

Ambient Lighting
Gas Sensor
Distance Alarm
Temperature Sensor

Code

```
#include <LiquidCrystal.h>

int sensorValue;

const int rs = 12, en = 11, d4 = 5, d5 = 4,d6 = 3, d7 = 2;

LiquidCrystal lcd(rs, en, d4, d5, d6, d7);

void setup(){  lcd.begin(16, 2);

Serial.begin(9600);

 }

void loop(){sensorValue = analogRead(0); // read analog input pin 0

Serial.print("AirQua=");

Serial.print(sensorValue, DEC); //
prints the value read

Serial.println(" PPM");

lcd.setCursor(0,0);

lcd.print("ArQ=");

lcd.print(sensorValue,DEC);

lcd.print(" PPM");

lcd.println("       ");

lcd.print("  ");

delay(100);
```

```
  sensorValue = analogRead(sensorPin);
  Serial.println(sensorValue);
  if(sensorValue < 100)
  {
    Serial.println("LED light on");
    digitalWrite(led,HIGH);
    delay(1000);
  }
  digitalWrite(led,LOW);
  delay(sensorValue);

}
```

```
#define trigPin 9
#define echoPin 10
int Buzzer = 11;
int ledPin= 13;
int duration, distance;


void setup() {
      Serial.begin (9600);

      pinMode(trigPin, OUTPUT);
      pinMode(echoPin, INPUT);
      pinMode(Buzzer, OUTPUT);
      pinMode(ledPin, OUTPUT);
}
```

```
void loop() {

   digitalWrite(trigPin, HIGH);
   delayMicroseconds(10);
   digitalWrite(trigPin, LOW);
   duration = pulseIn(echoPin, HIGH);
   distance = (duration/2) / 29.1;

  if (distance >= 40 || distance <= 0)
      {
      Serial.println("no object detected");
      digitalWrite(Buzzer,LOW);
      digitalWrite(ledPin,LOW);
      }
  else {
      Serial.println("object detected \n");
      Serial.print("distance= ");
      Serial.print(distance);
      tone(Buzzer,330);
      digitalWrite(ledPin,HIGH);
  }
}
```

Temperature Sensor-:

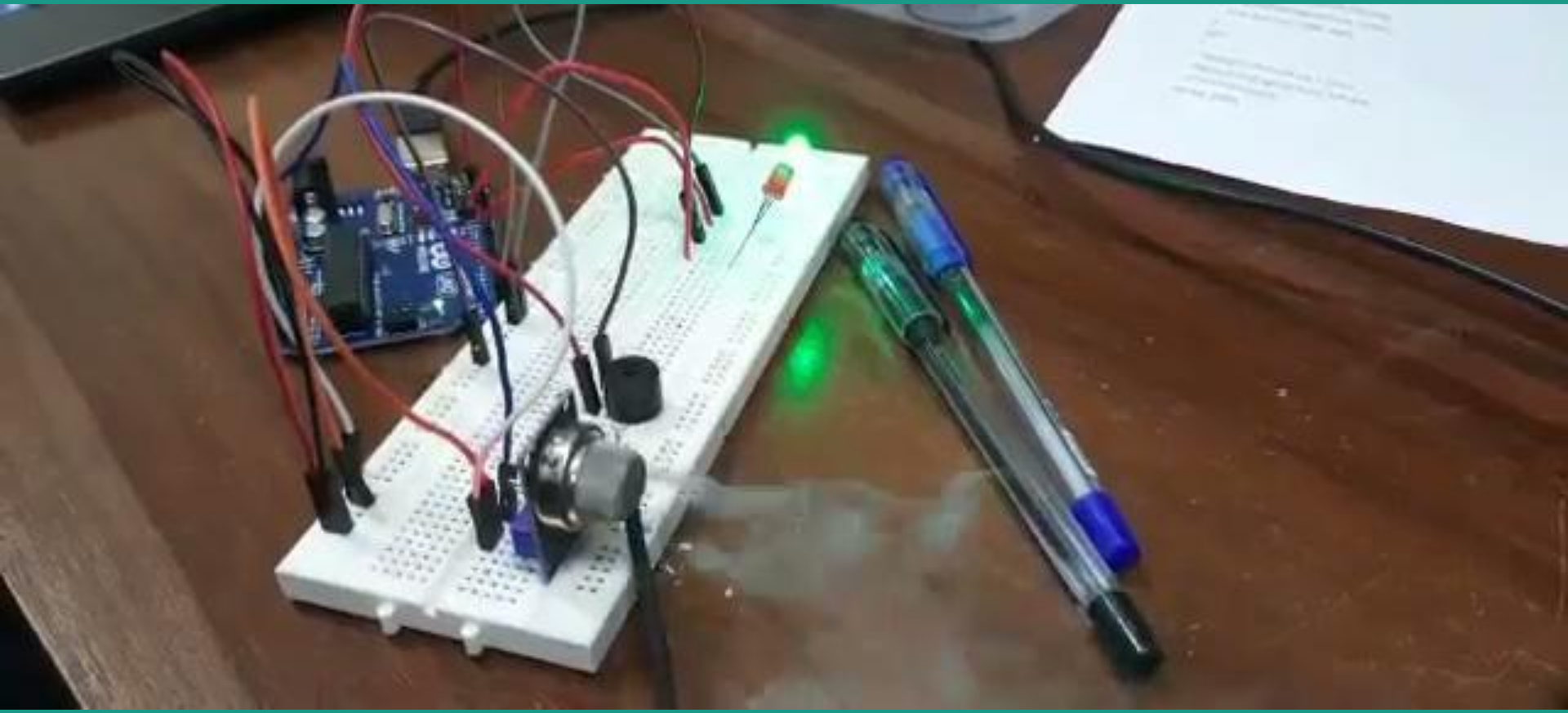
```
Int buzzer;
float temp;
int temppin=0;
Void setup(){
        serial.begin(9600);
}
Void loop(){
        temp = analogRead(temppin);
        temp = temp*0.48828125;
        serial.print("Temperature=");
        serial.print(temp);
        delay(1000);
        }
```

HeartBeat Sensor-:

```
int const pulse_sensor_pin=0;
Int signal;
Int threshold = 550;

Void setup(){
        pinmode(led_Builtin,output);
        serial.begin(9600);
}
Void loop(){
        Signal = analogRead(pulse_sensor_pin);
        serial.println(Signal);
        if(Signal>Threshold) {
                digitalWrite(led_builtin,high);
        }else{
                digitalWrite(led_builtin,low);
        tone(buzzer,1000,200);
        }
        Delay(10);
}
```

```
#include<SoftwareSerial.h>
int sensorPin=A0;
int sensorValue = 0;
int led = 3;
void setup() {
 pinMode(led, OUTPUT);
 Serial.begin(9600);
 }
void loop() {
```



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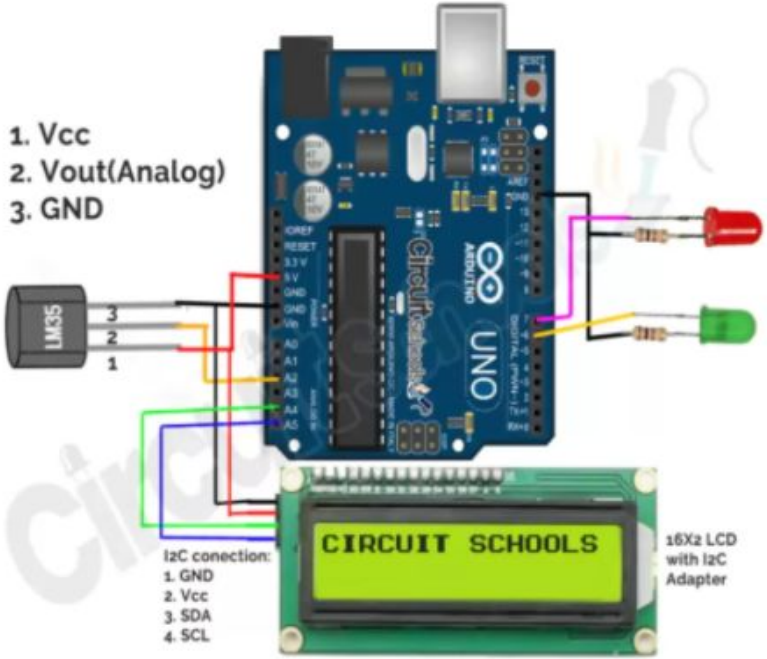
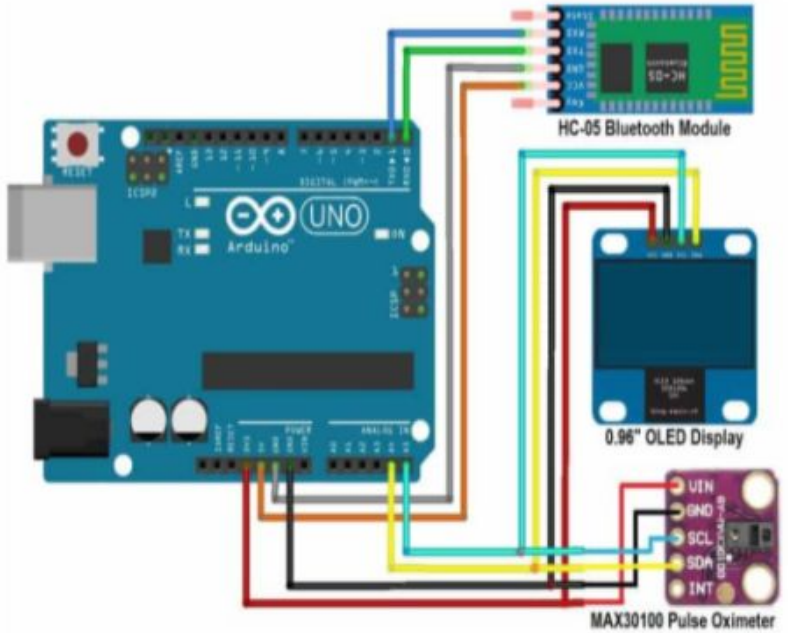
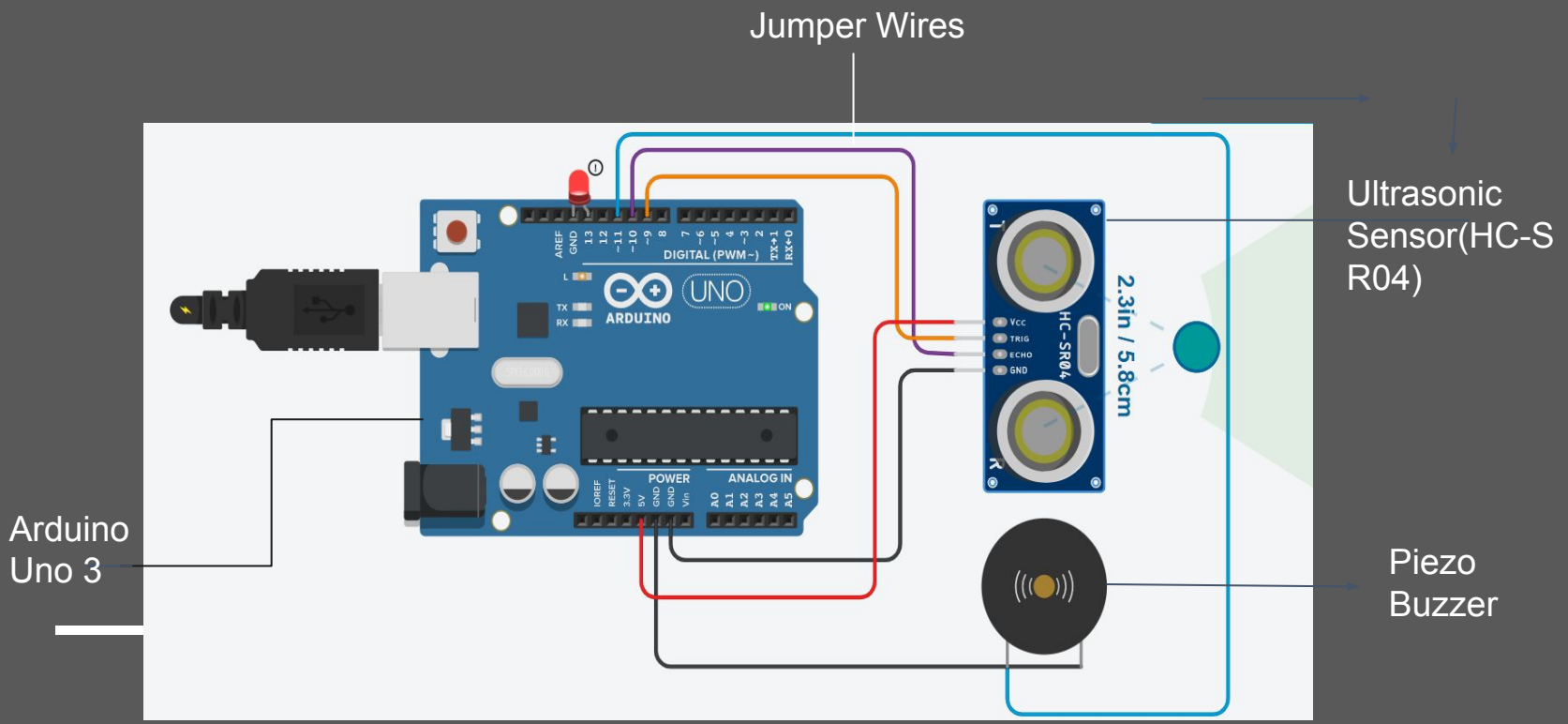
CIRCUIT CONNECTIONS(EARLIER 4)

Circuit connections-:

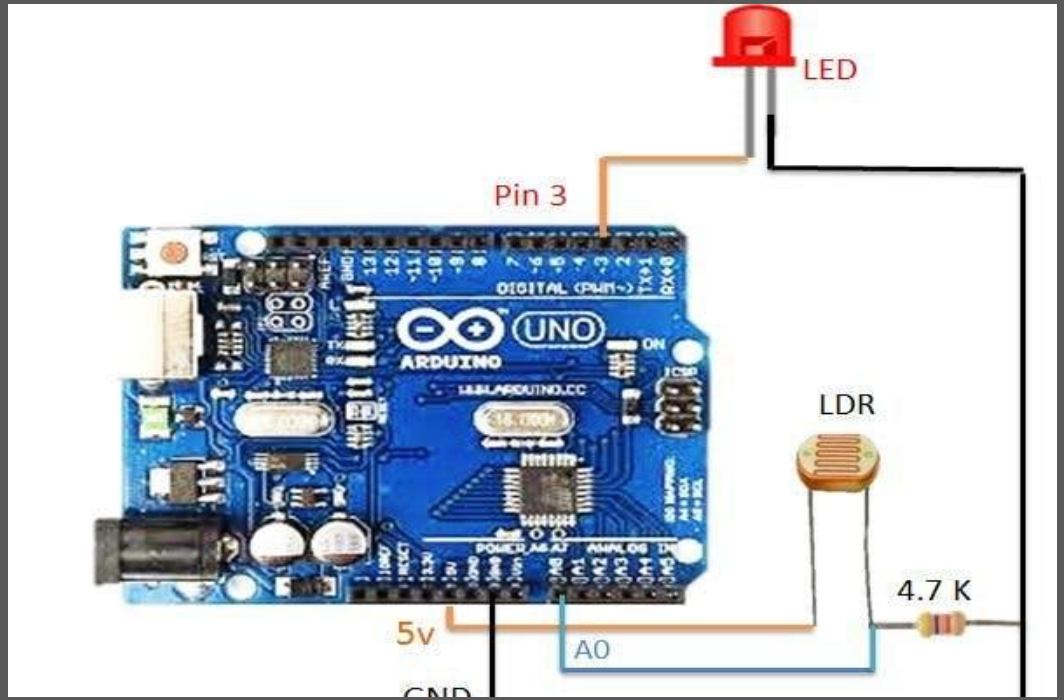




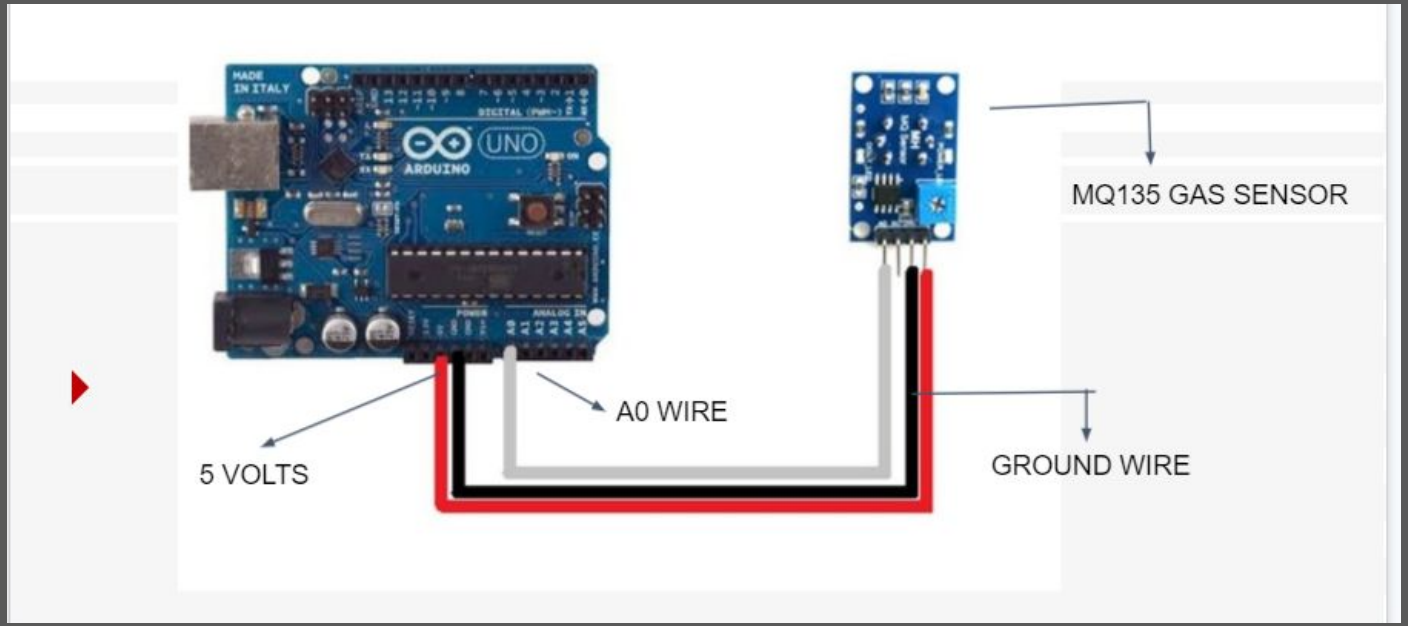
Circuit connections

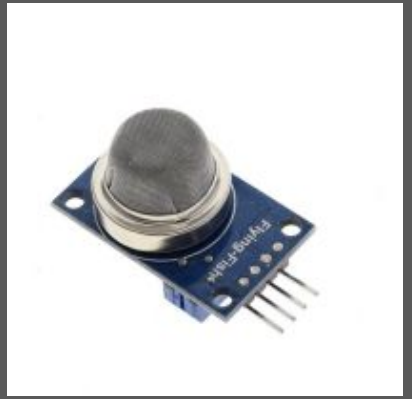


Circuit connections



Circuit connections

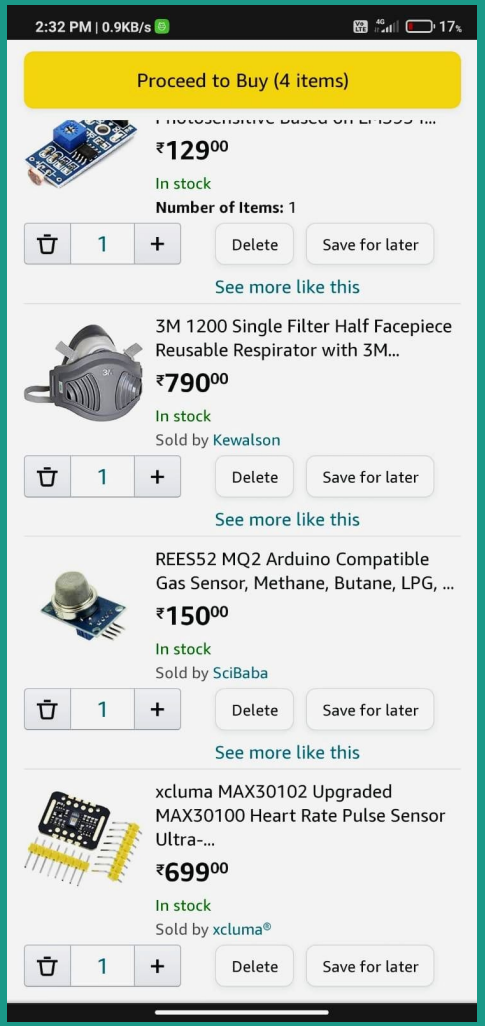




MQ-135 GAS SENSOR

Thank
You

COMBINED CODE FOR 1 ARDUINO



Required materials ordered

‹ Back to results

Click to open expanded view

Waiting for unagi-eu.amazon.com...

REES52 MQ2 Arduino Compatible Gas Sensor, Methane, Butane, LPG, Smoke Sensor

Brand: REES52

4.1 out of 5 stars 205 ratings | 12 answered questions

M.R.P.: ~~₹280.00~~
Price: ₹150.00
You Save: ₹130.00 (46%)
Inclusive of all taxes

₹60.00 delivery: **Sep 16 - 20** Details

Save Extra with 3 offers

Bank Offer (2): Get up to Rs 1250 Amazon Pay Gift Card with Citi Credit EMI transactions | See All

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10 Days Returnable

In stock.

Share

Quantity: 1

Add to Cart

Buy Now

Secure transaction

Select delivery location

Add to Wish List

New (3) from ₹150.00 + ₹60.00 Delivery charge

Other Sellers on Amazon

₹284.00 Add to Cart

FREE Delivery. No Minimum order value for first order in this category Details

Sold by: REES52

Click to open expanded view

xcluma Heart Beat Pulse Sensor Module

Visit the xcluma Store

3.5 out of 5 stars 26 ratings

M.R.P.: ~~₹599.00~~
Price: ₹218.00
You Save: ₹381.00 (64%)
Inclusive of all taxes

FREE delivery: **Thursday, Sep 16** Details

Save Extra with 3 offers

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No Cost EMI: Avail No Cost EMI on select cards for orders above ₹3000 | Details

See 1 more

10 Days Replacement | Amazon Delivered | No-Contact Delivery

In stock.

Sold by xcluma® and Delivered by Amazon.

New (2) from ₹218.00 **FREE Delivery.**

Share

Quantity: 2

Minimum order quantity: 2
Details

Add to Cart

Buy Now

Secure transaction

Select delivery location

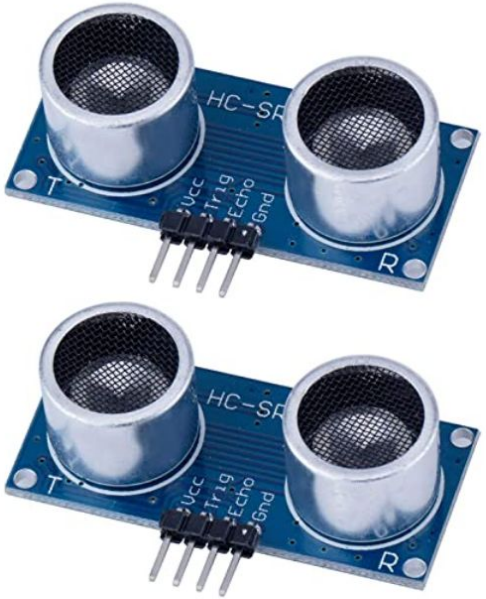
Add to Wish List

New (2) from
₹218.00 **FREE Delivery.**

Other Sellers on Amazon

₹308.00 Add to Cart

FREE Delivery. No Minimum order value for first order in this category Details
Sold by: Cloudtail India



Roll over image to zoom in

Easy Electronics HC-SR04 Ultrasonic Distance Sensor Module (Set Of 2)

Brand: easy electronics

4.4 out of 5 stars 284 ratings

M.R.P.: ~~₹999.00~~
Price: ₹278.00
You Save: ₹721.00 (72%)
Inclusive of all taxes

FREE delivery: **Thursday, Sep 16**
No Minimum order value for first order in this category

Save Extra with 3 offers

Bank Offer (2): Get up to Rs 1250 Amazon Pay Gift Card with Citi Credit EMI transactions | See All

No Cost EMI: Avail No Cost EMI on select cards for orders above ₹3000 | Details

See 1 more

Pay on Delivery | 10 Days Returnable | Amazon Delivered | No-Contact Delivery

In stock.

Share

Quantity: 1

Add to Cart

Buy Now

Secure transaction

Add gift options

Select delivery location

Add to Wish List

Have one to sell?

Sell on Amazon

Industrial & Scientific › Occupational Health & Safety Products › Work Safety Equipment & Gear › Masks & Respirators › Respirators › Reusable Respirators

Visit the 3M Store

3M 1200 Single Filter Half Facepiece Reusable Respirator with 3M 1744C P2 (94%) Particulate Filter (Single) and 3M 1700 Filter Holder (Single)

4.1 out of 5 stars 122 ratings

M.R.P.: ~~₹1,101.00~~
Price: ₹790.00
You Save: ₹311.00 (28%)
Inclusive of all taxes

₹75.00 delivery: **Sep 13 - 14** Details

Returns Policy | Amazon Delivered | No-Contact Delivery

In stock.

Sold by Kewalson and Delivered by Amazon.

Care Instructions	Non Washable
Brand	3M
Material	Other
Colour	Grey

Share

Quantity: 1

Add to Cart

Buy Now

Secure transaction

Select delivery location

Add to Wish List

New (3) from
₹790.00 + ₹75.00 Delivery charge

Other Sellers on Amazon

₹999.00 Add to Cart
Fulfilled FREE Delivery. Details
Sold by: RR...

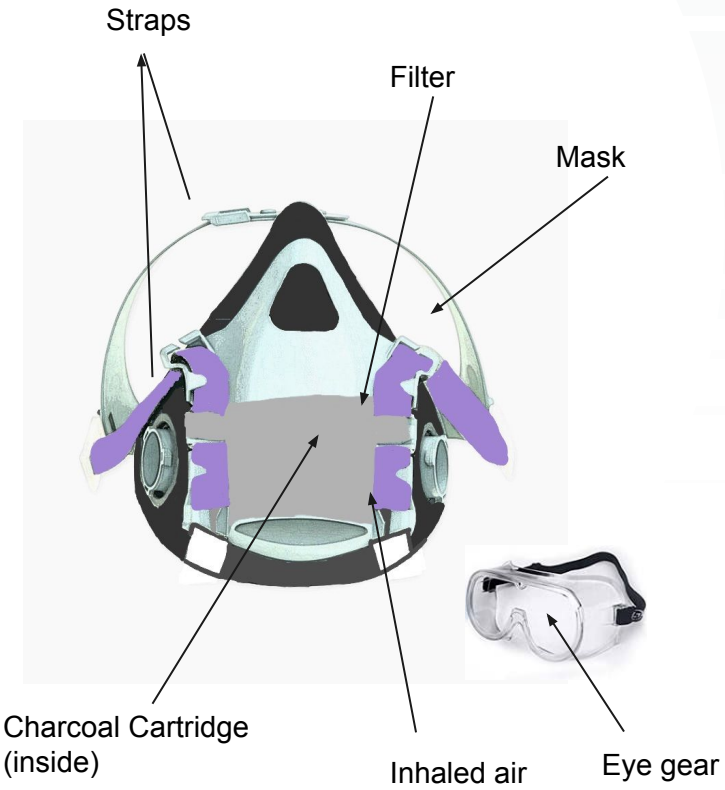
Have one to sell?
Sell on Amazon

How it is different from the conventional one ??? What's new ???

- ➔ The size is compact.
- ➔ The passage of air is vertical as compared to sideways or diagonal as compared to the conventional one.
- ➔ Thereby, solves the problem of restriction of vision.
- ➔ Charcoal is used as adsorbant for particulates.
- ➔ Cost is much less.
- ➔ Additional eye gear is used instead of plastic/fibre shields.
- ➔ Cost->Rs. 650

Leads to restricted vision

GAS MASK



- **PHYSICAL DESIGN**
- Design to be chosen such that can be used with the hat.
- Additional , eye gear
- Compact , comfortable , flexible

- **CHEMICAL DESIGN**
- Charcoal
- Calcium Bentonite

This kind of mask is available in market, so we can purchase it and do our modifications

Battery specification

- Minimum capacity: 1200mah
- Typical capacity: 1210mah
- Internal impedance: <1 ohm
- Standard voltage: 3.7V
- Overcharge voltage: 4.18V
- Over discharge voltage (under a constant load of 11.4Ohm/500mA)
  - 0.01V voltage drop/3-min
  - 0.2V voltage drop/60-min
- Final discharge voltage: 1.2V-3.73V = 2.53V (3.73V dropped to 2.53 in < 14 hrs max)
- Cost : Rs. 59-200
- Charger-> 600-700

XTT ICR18650 3.7V Rechargeable 1200mAh Li-ion Battery

Sensors

Charcoal Air Filter and Eye Protection

Air purity sensor

Heartbeat and Temperature sensor

Height detection sensor

Lighting control system

Lithium-ion batteries

Gas Mask