

SNS COLLEGE OF TECHNOLOGY

DEPARTMENT OF ECE

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PROJECT: Industry-specific intelligent fire management system

PROJECT CODE:

```
int t=2;
```

```
int e=3;
```

```
void setup()
```

```
{
```

```
  Serial.begin(9600);
```

```
  pinMode(t,OUTPUT);
```

```
  pinMode(e,INPUT);
```

```
  pinMode(12,OUTPUT);
```

```
}
```

```
void loop()
```

```
{
```

```
  //ultrasonic sensor
```

```
  digitalWrite(t,LOW);
```

```
  digitalWrite(t,HIGH);
```

```
  delayMicroseconds(10);
```

```
  digitalWrite(t,LOW);
```

```
  float dur=pulseIn(e,HIGH);
```

```
  float dis=(dur*0.0343)/2;
```

```
  Serial.print("Distance is: ");
```

```
  Serial.println(dis);
```

```

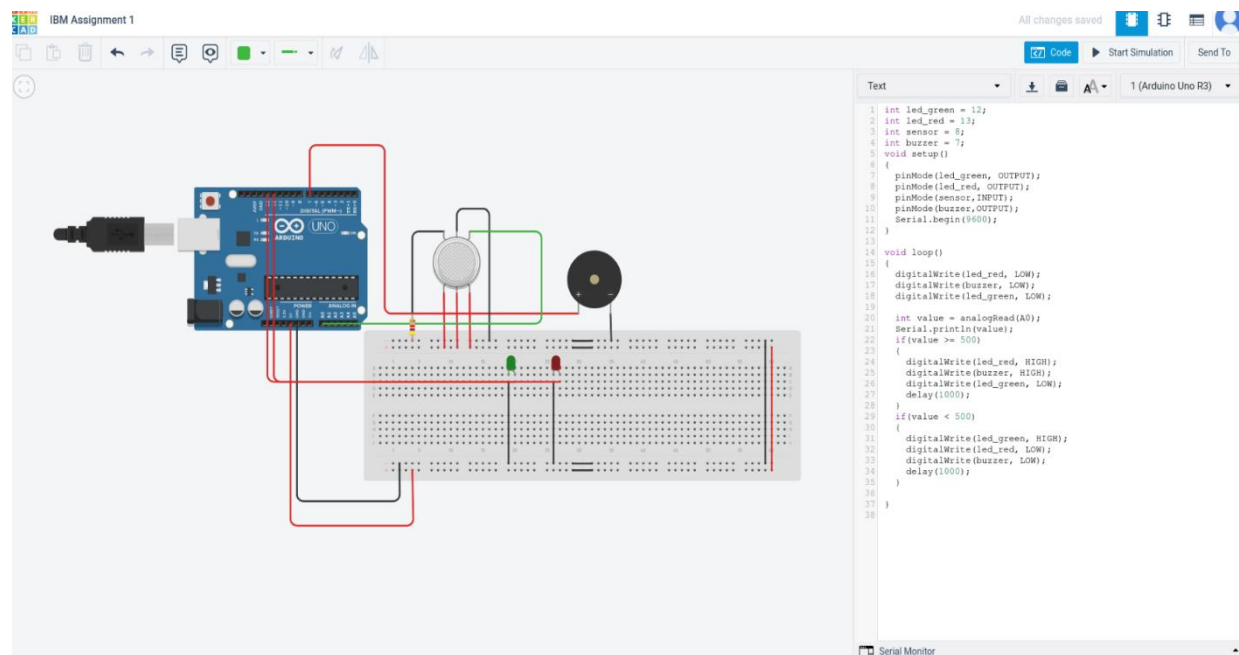
//LED ON
if(dis>=100)
{
    digitalWrite(8,HIGH);
    digitalWrite(7,HIGH);
}

//Buzzer For ultrasonic Sensor
if(dis>=100)
{
    for(int i=0; i<=30000; i=i+10)
    {
        tone(12,i);
        delay(1000);
        noTone(12);
        delay(1000);
    }
}

//Temperate Sensor
double a= analogRead(A0);
double t=((a/1024)*5)-0.5)*100;
Serial.print("Temp Value: ");
Serial.println(t);
delay(1000);
}
}

```

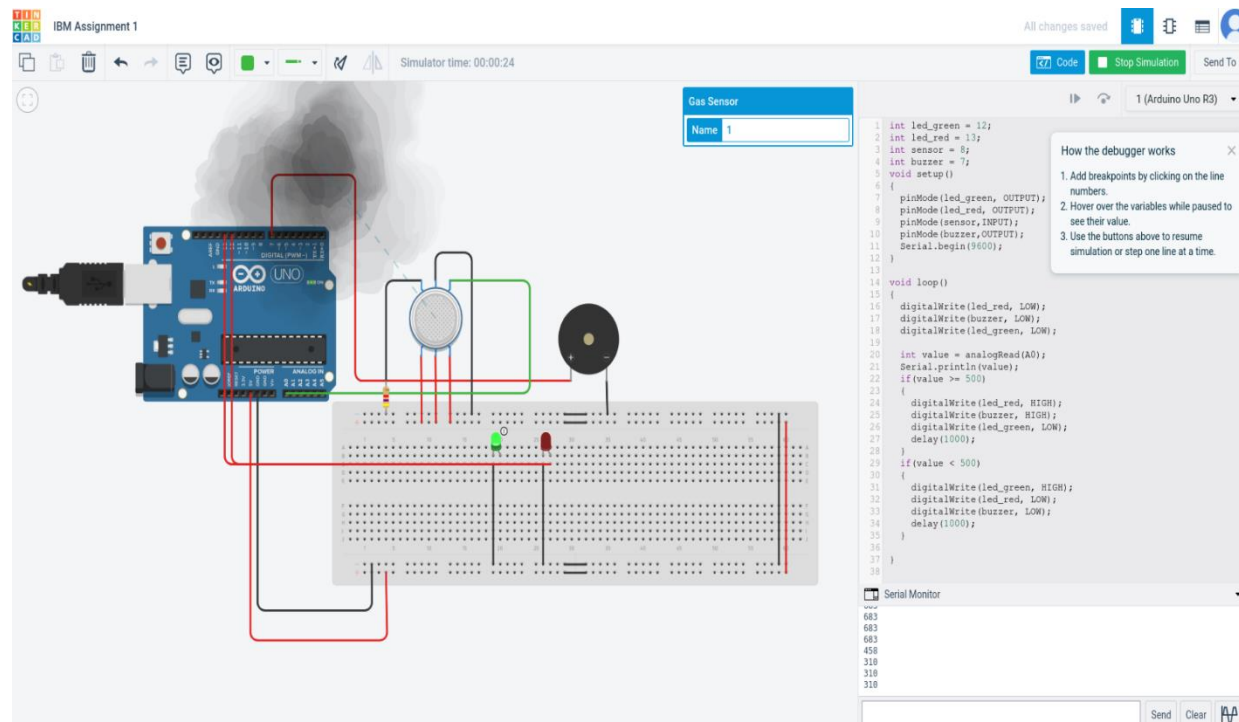
CIRCUIT WITH CODE:



The screenshot shows the Arduino IDE interface with a circuit diagram on the left and the code on the right. The circuit diagram depicts an Arduino Uno connected to a breadboard. A gas sensor module is connected to the Arduino's A0 pin. Two LEDs, one green and one red, and a buzzer are connected to the Arduino's digital pins. The code defines the pin numbers and implements a logic where the green LED turns on and the buzzer sounds when the gas sensor detects a high value (above 500), and the red LED turns on and the buzzer stops when the value is low (below 500).

```
1 int led_green = 12;
2 int led_red = 13;
3 int sensor = 8;
4 int buzzer = 7;
5 void setup()
6 {
7   pinMode(led_green, OUTPUT);
8   pinMode(led_red, OUTPUT);
9   pinMode(sensor, INPUT);
10  pinMode(buzzer, OUTPUT);
11  Serial.begin(9600);
12 }
13
14 void loop()
15 {
16   digitalWrite(led_red, LOW);
17   digitalWrite(buzzer, LOW);
18   digitalWrite(led_green, LOW);
19
20   int value = analogRead(A0);
21   Serial.println(value);
22   if(value >= 500)
23   {
24     digitalWrite(led_red, HIGH);
25     digitalWrite(buzzer, HIGH);
26     digitalWrite(led_green, LOW);
27     delay(1000);
28   }
29   if(value < 500)
30   {
31     digitalWrite(led_green, HIGH);
32     digitalWrite(led_red, LOW);
33     digitalWrite(buzzer, LOW);
34     delay(1000);
35   }
36 }
37
38
```

CIRCUIT WITH OUTPUT:



This screenshot shows the same circuit diagram as the first image, but with the Serial Monitor open at the bottom. The Serial Monitor displays the output of the code, showing the values read from the gas sensor (A0) and the corresponding actions taken by the LEDs and buzzer. The output shows a sequence of values (683, 683, 458, 318, 318) and the corresponding state of the LEDs and buzzer. A tooltip titled "How the debugger works" is also visible on the right side of the IDE.

```
1 int led_green = 12;
2 int led_red = 13;
3 int sensor = 8;
4 int buzzer = 7;
5 void setup()
6 {
7   pinMode(led_green, OUTPUT);
8   pinMode(led_red, OUTPUT);
9   pinMode(sensor, INPUT);
10  pinMode(buzzer, OUTPUT);
11  Serial.begin(9600);
12 }
13
14 void loop()
15 {
16   digitalWrite(led_red, LOW);
17   digitalWrite(buzzer, LOW);
18   digitalWrite(led_green, LOW);
19
20   int value = analogRead(A0);
21   Serial.println(value);
22   if(value >= 500)
23   {
24     digitalWrite(led_red, HIGH);
25     digitalWrite(buzzer, HIGH);
26     digitalWrite(led_green, LOW);
27     delay(1000);
28   }
29   if(value < 500)
30   {
31     digitalWrite(led_green, HIGH);
32     digitalWrite(led_red, LOW);
33     digitalWrite(buzzer, LOW);
34     delay(1000);
35   }
36 }
37
38
```

Serial Monitor Output:

```
683
683
458
318
318
```