LCA PROJECT REPORT

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FIRE ALARM

Instructor:

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CONTENTS

FIRE ALARM

A fire alarm is **a unit made of several devices, which uses visual and audio signalization to warn people about a possible fire, smoke, or carbon monoxide occurrence in the area of coverage**. Fire alarms are usually set in fire alarm systems to provide zonal coverage for residences and commercial buildings.

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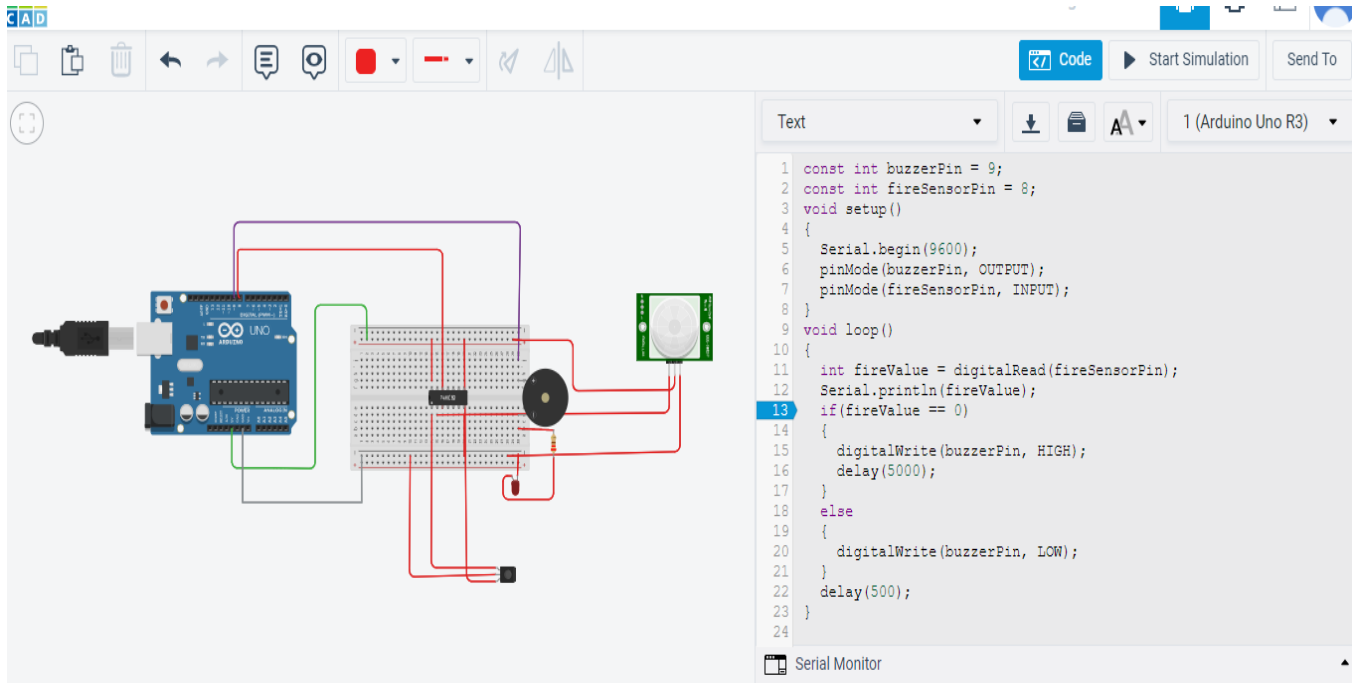
HOW IT WORKS

1) *Ionization-type smoke alarms have a small amount of radioactive material between two electrically charged plates, which ionizes the air and causes current to flow between the plates. When smoke enters the chamber, it disrupts the flow of ions, thus reducing the flow of current and activating the alarm.*

2) *The sensors in the flame detector will detect the radiation that is sent by the flame, the photoelectric converts the radiant intensity signal of the flame to a relevant voltage signal and this signal would be processed in a single chip microcomputer and converted into a desired output.*

COMPONENTS

- **Breadboard**
- **Connecting Wires**
- **LED Light**
- **Arduino UNO R3**
- **OR Gate**
- **Buzzers**
- **IR Detector (module)**
- **Smoke Detector (module)**
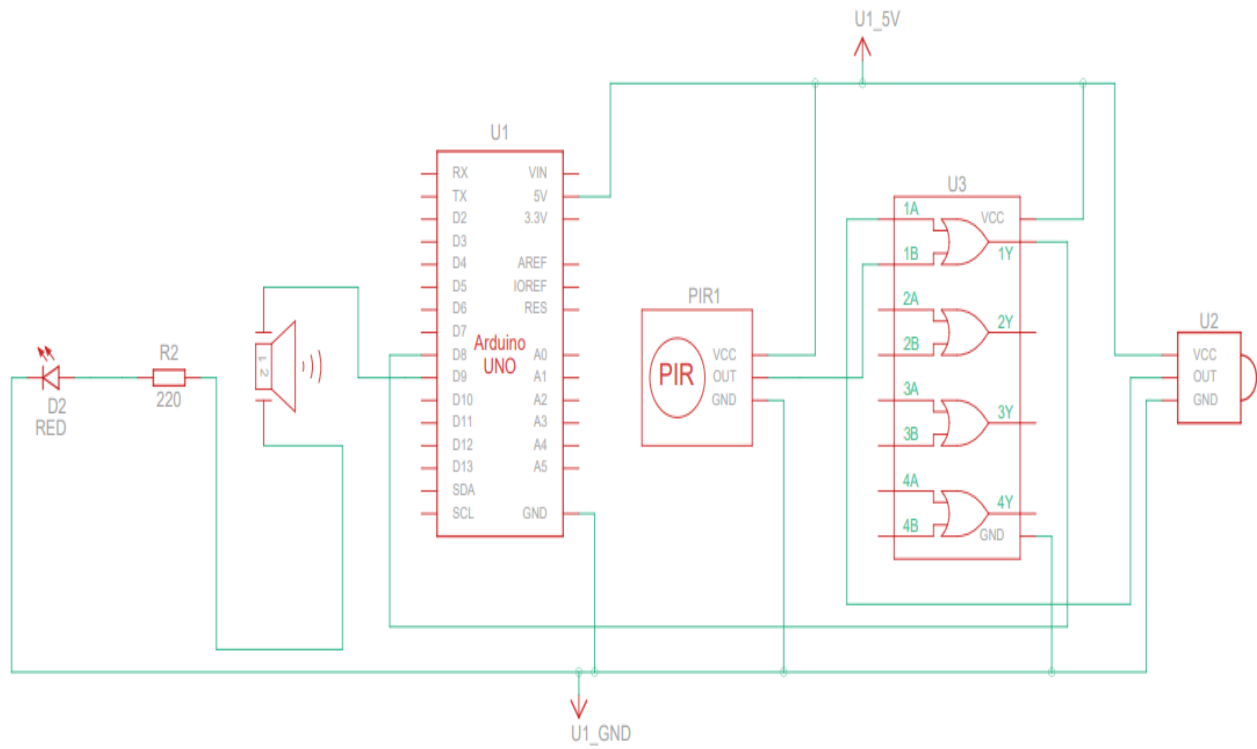
SIMULATIONS


```
1  const int buzzerPin = 9;
2  const int fireSensorPin = 8;
3  void setup()
4  {
5    Serial.begin(9600);
6    pinMode(buzzerPin, OUTPUT);
7    pinMode(fireSensorPin, INPUT);
8  }
9  void loop()
10 {
11   int fireValue = digitalRead(fireSensorPin);
12   Serial.println(fireValue);
13   if(fireValue == 0)
14   {
15     digitalWrite(buzzerPin, HIGH);
16     delay(5000);
17   }
18   else
19   {
20     digitalWrite(buzzerPin, LOW);
21   }
22   delay(500);
23 }
24
```
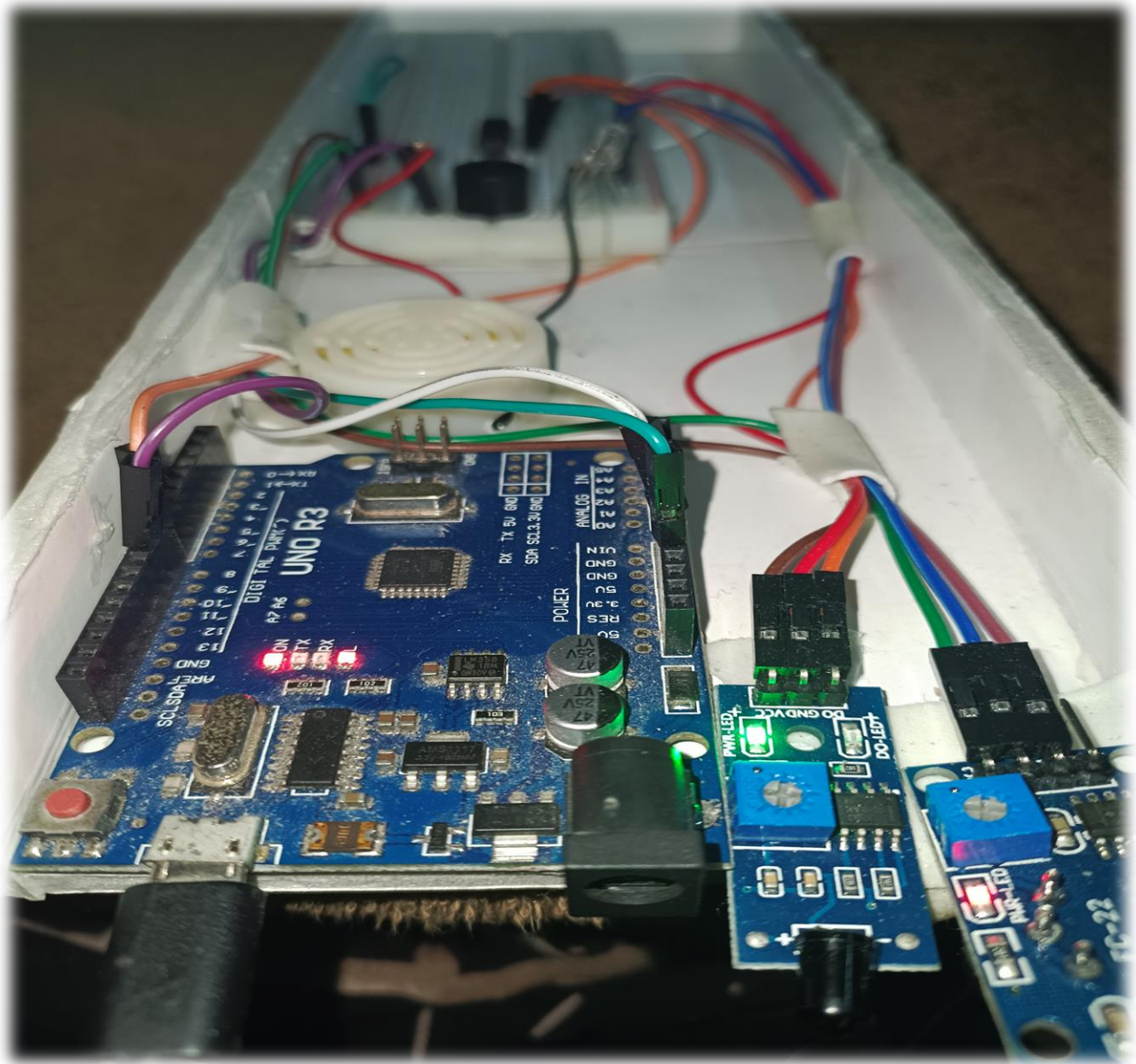
Circuit diagram

U1_5V

U1

RX	VIN
TX	5V
D2	3.3V
D3	
D4	AREF
D5	IOREF
D6	RES
D7	
D8	A0
D9	A1
D10	A2
D11	A3
D12	A4
D13	A5
SDA	
SCL	GND

Arduino UNO

R2
220

D2
RED

PIR1

PIR
VCC
OUT
GND

U3

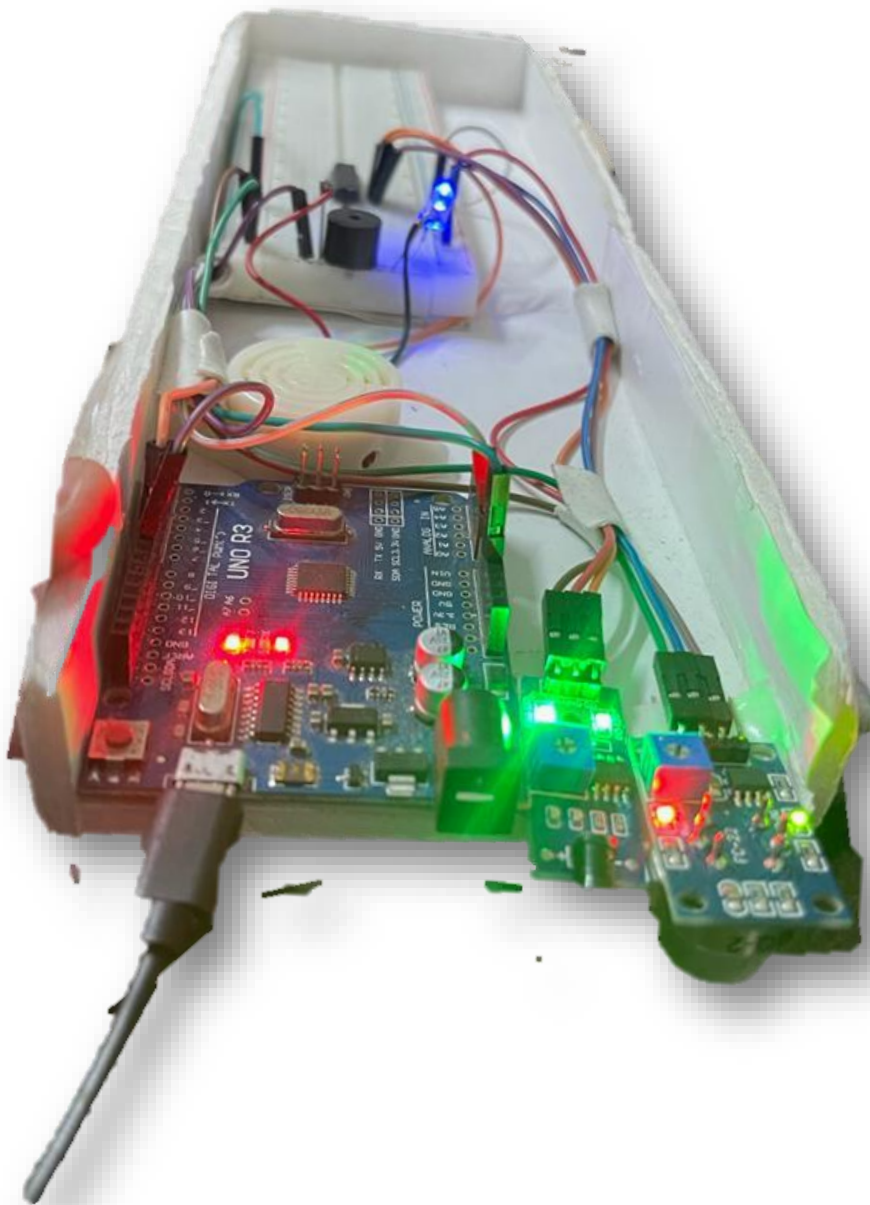|	
1A	VCC
1B	1Y
2A	2Y
2B	
3A	3Y
3B	
4A	4Y
4B	GND

U2

VCC
OUT
GND

U1_GND
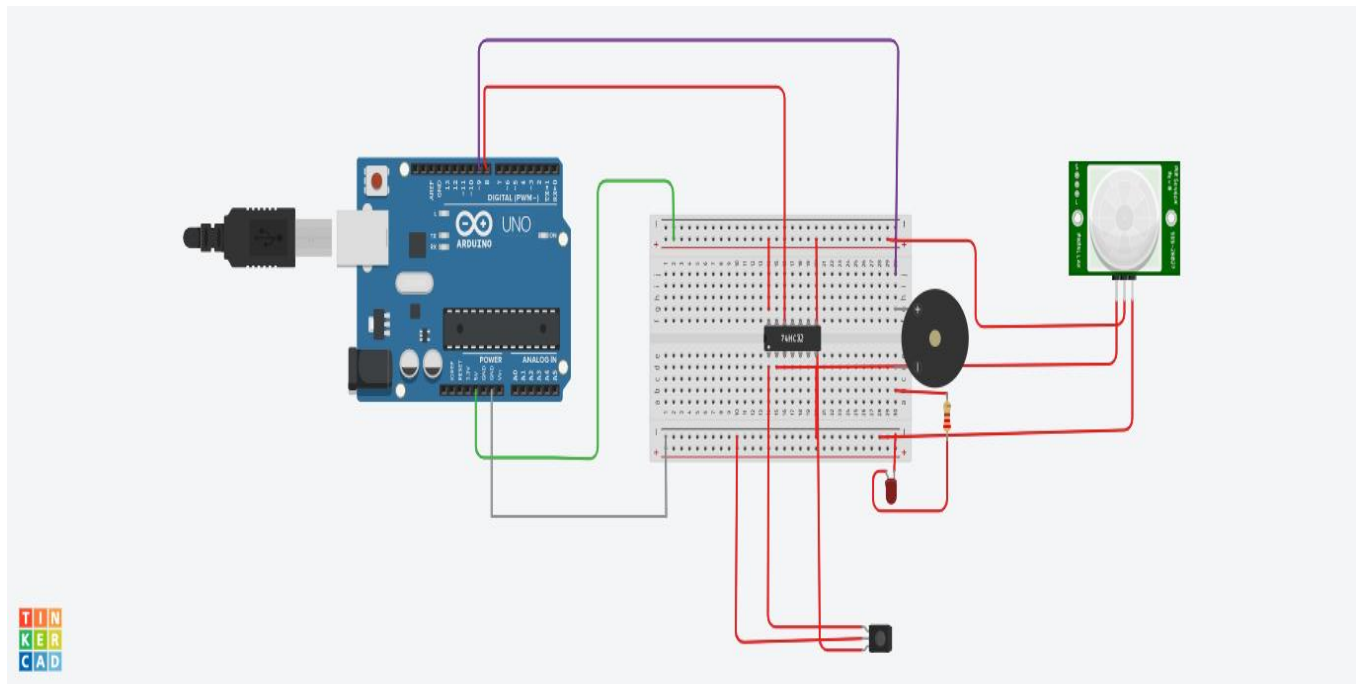
ARDUINO CODE

```
/*
HANZLA
SAJJAD   403214      |  FFFF I RRRR EEEE   AAAAA L   AAAAAA RRRR M   M    |
AMNA SIDDIQUI   406130       |  F   I R  R E     A  A L   A  A R  R M M M M   |
AHMAD
NASIR    409959       |  FFFF I RRRR EEEE   AAAAA L   AAAAAA RRRR  M M M
 |
|  F   I R R  E     A A L   A  A R R M   M   |
|  F   I R  R EEEE   A  A LLLLL A  A R   R M   M   |
*/
const int buzzerPin = 9;
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void setup()
{
Serial.begin(9600);
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}
```

CODE LINK

https://github.com/hanzlakamboh/ejwlthe/blob/main/Arduino-Fire-Sensor-%40Hanzla%20Amna%20Ahmad.ino

CONCLUSION

- **This is a low-cost system that is used to detect fire as well as smoke which may be dangerous some time .**

- **This circuit is very low cost and easily available in local markets**

- **This circuit has its own importance in our daily life**

- **Fire alarm is useful In the area where we live or work i.e. our homes and offices.**

- **Cheap as well as useful in our daily life.**