

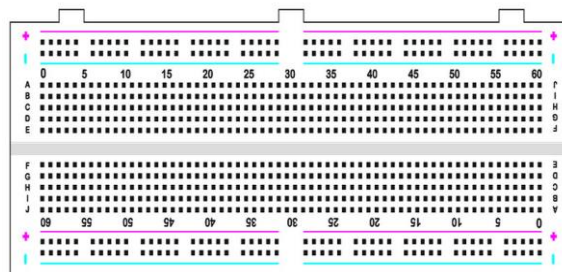
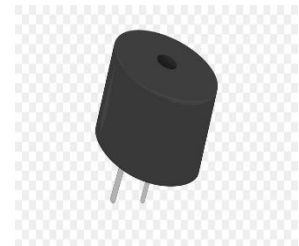
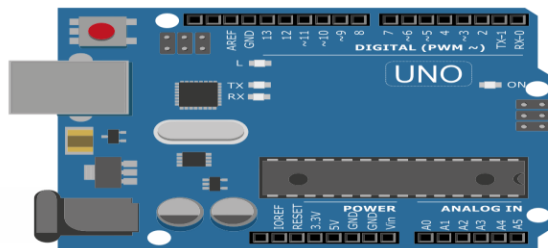
# Title: Fire Alarm System

## Objective:

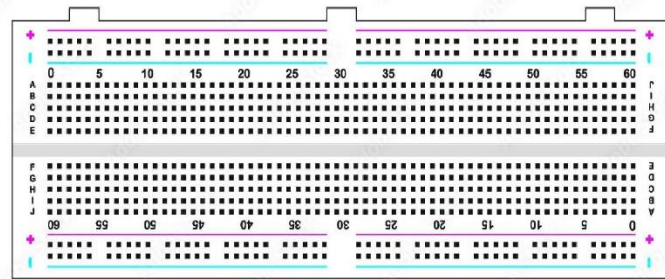
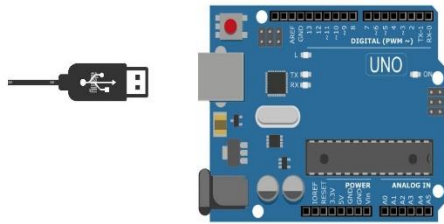
The objective of this project is to create a fire alarm system using an Arduino board and a flame sensor. The system should be able to detect the presence of flames and trigger an alarm to alert users about potential fire hazards.

## Apparatus:

- 1.Flame Sensor
- 2.Arduino UNO
- 3.Breadboard
- 4.Micro Buzzer
- 5.Arduino USB Cable
- 6.Jumper Cables
7. IDE



## Working Diagram:



## Code:

```
int firesensor;  
int buzzer = 7;  
void setup()  
{  
  pinMode(A1, INPUT);  
  pinMode(buzzer, OUTPUT);  
  Serial.begin(9600);  
}  
void loop()  
{  
  firesensor = analogRead(A1);  
  if(firesensor<900)  
  {  
    digitalWrite(buzzer, HIGH);  
  }  
  Else  
  {  
    digitalWrite(buzzer, LOW);  
  }  
}
```

## Result:

Upon uploading and running the code on the Arduino board with the necessary connections, the fire detection system using the flame sensor and buzzer is operational. The system continuously monitors the analog reading from the flame sensor.

During testing, the flame sensor's analog output is read and stored in the fire sensor variable. If the value falls below the threshold of 900, which indicates the presence of fire, the buzzer is activated by setting the buzzer pin to HIGH. When no fire is detected, the buzzer remains silent, and the buzzer pin is set to LOW.

The system responds promptly to changes in the flame sensor reading, enabling real-time fire detection. The Arduino's serial monitor can be used to observe the analog values from the flame sensor for monitoring and analysis purposes.

## Discussion:

The implemented fire detection system demonstrates a basic yet effective approach using an Arduino, flame sensor, and buzzer. The code continuously reads the analog output from the flame sensor and triggers the buzzer when the flame sensor value falls below the threshold.

The threshold value of 900 was used as a sample value, assuming it corresponds to the presence of fire based on the characteristics of the flame sensor. It's important to calibrate this value according to the specific sensor's specifications and sensitivity to achieve accurate fire detection.

This project serves as a starting point for fire detection applications, but it has limitations. It is a simplified implementation and may not be suitable for complex fire safety scenarios. Enhancements could be made by integrating additional sensors, such as temperature and smoke sensors, to improve the system's accuracy and reliability.

Moreover, the project could benefit from incorporating a visual or remote alert system, such as LED indicators or wireless communication modules, to notify users about fire detection from a distance.

Overall, the fire detection system implemented with the Arduino, flame sensor, and buzzer presents a proof-of-concept for basic fire monitoring applications. Further improvements and customizations can be made based on specific requirements and environmental conditions to enhance fire safety measures.