

Report

Fire Alarm Project

Title:

Fire Alarm Project

Subtitle:

A DLD Project Implementation

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3. Introduction

The Fire Alarm Project is designed to detect fire promptly and activate a warning system through the use of temperature-sensing components. This report provides an in-depth analysis of the project, detailing its objectives, components, working principle, and significance.

4. Project Description

The primary objective of the Fire Alarm Project is to detect fire early and trigger an alarm system, providing timely warnings for necessary actions. The project utilizes a 10K Thermistor, LM358 Operational Amplifier, potentiometer, and a buzzer to achieve its functionality.

5. Project Requirements

5.1 Component List

10K Thermistor

LM358 Operational Amplifier

4.7K Resistor

10K Potentiometer

5V Buzzer

Connecting Wires

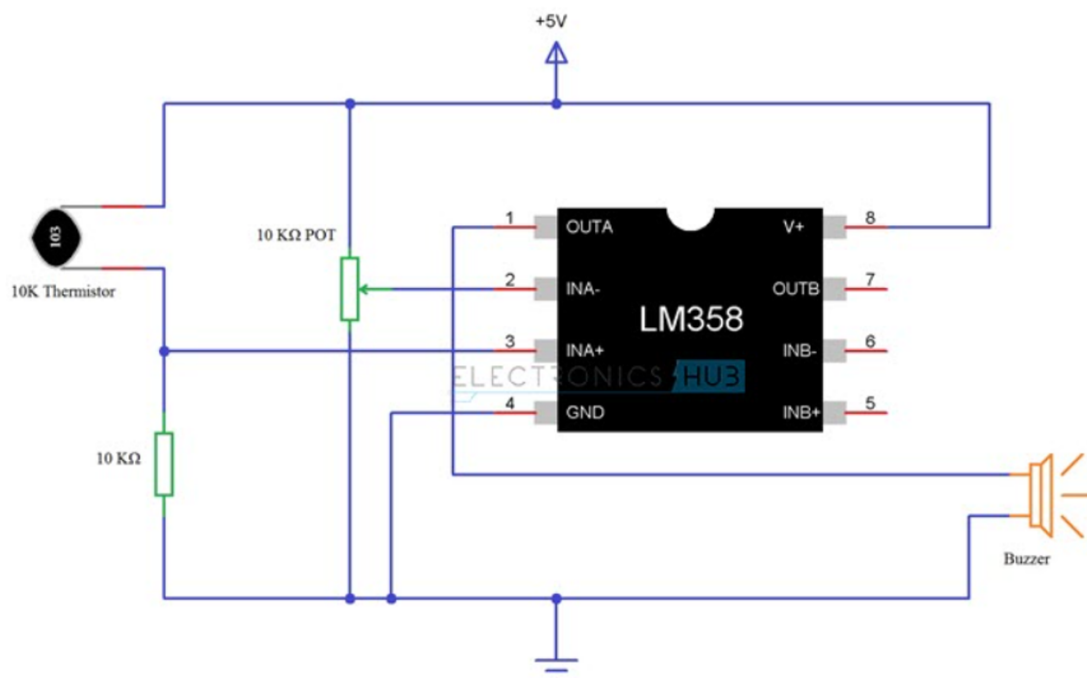
Breadboard

5V Power Supply

5.2 Working Principle

The 10K Thermistor acts as the heat sensor; when the temperature increases, its resistance decreases. The LM358 Operational Amplifier functions in comparator mode, and the potentiometer adjusts the temperature threshold for fire detection. The buzzer is activated when the temperature surpasses the set value.

6. Circuit Diagram



7. Hardware Components Specifications

10K Thermistor: NTC type thermistor with negative temperature coefficient.

LM358 Operational Amplifier: Dual Op-Amp IC used in comparator mode.

4.7K Resistor: Standard resistor to set up the voltage divider.

10K Potentiometer: Adjusts the temperature threshold for fire detection.

5V Buzzer: Converts electrical signals into audible alerts.

Connecting Wires: Ensure proper connections on the breadboard.

Breadboard: Provides a platform for prototyping.

5V Power Supply: Supplies power to the circuit.

8. Proteus Schematics

[Insert Proteus Schematics Image Here]

9. Conclusion

The Fire Alarm Project demonstrates the use of thermistors and operational amplifiers to create a reliable fire detection system. The ability to adjust the temperature threshold adds flexibility, making it applicable in various environments. Fire alarm circuits are crucial for early fire detection, minimizing potential damage to people and property.

10. References

<https://github.com/Umar-Waseem/BS-CS-Semester-2/tree/main/Digital%20Logic%20Design>