

LAZY HEROES

FIRE DETECTOR (ALARAM)

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Section D

Agenda

Fire detectors, essential components of building safety, act as vigilant guardians against the devastating impact of fires. Employing advanced sensor technologies like heat detectors, these alarms continuously scan their environment for early signs of danger. Upon detection, they unleash immediate auditory alerts, serving as a critical prompt for swift evacuation and enabling rapid emergency response. The 24/7 monitoring capability ensures a constant shield against potential fire threats, emphasizing the vital role these devices play in safeguarding lives and property.

Introduction

In the realm of fire safety, the fire detector, equipped with a piercing buzzer, emerges as a frontline defender against the silent menace of potential fires. Serving as a sentinel within buildings, this device relies on its intricate sensor mechanisms to detect early indicators of smoke or heat. Once triggered, the unmistakable sound of the buzzer pierces the surroundings, alerting occupants to the impending danger and prompting swift action. As an integral part of fire prevention systems, the fire detector with its distinctive buzzer stands as a crucial beacon in ensuring the safety of lives and property.

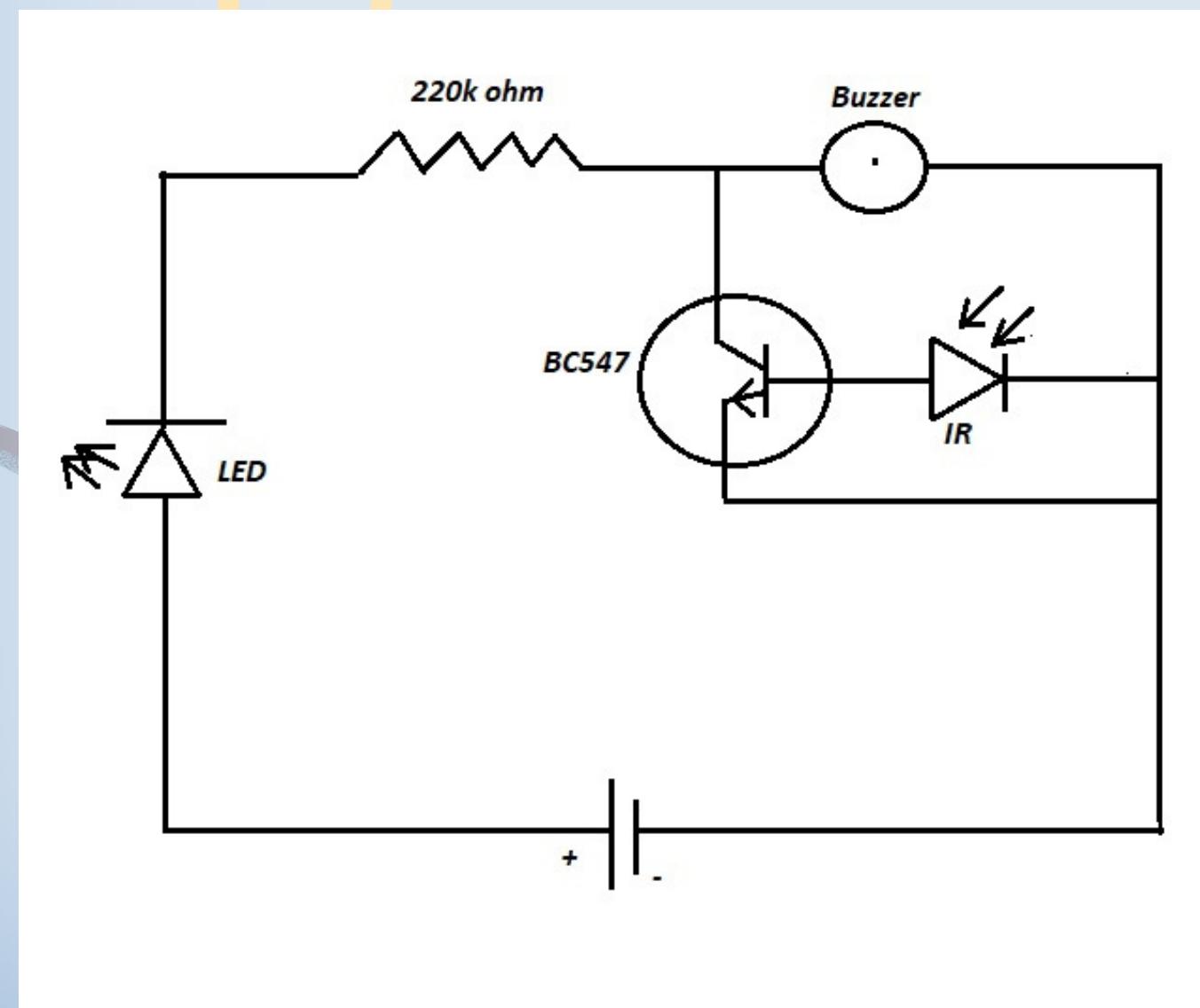
Aim of the Project

The primary aim of the project on a fire detector with a buzzer is to enhance fire safety measures within buildings and environments. By integrating advanced sensor technologies, specifically a buzzer as an auditory alert system, the project seeks to provide early detection of potential fire incidents.

Objective of the Project

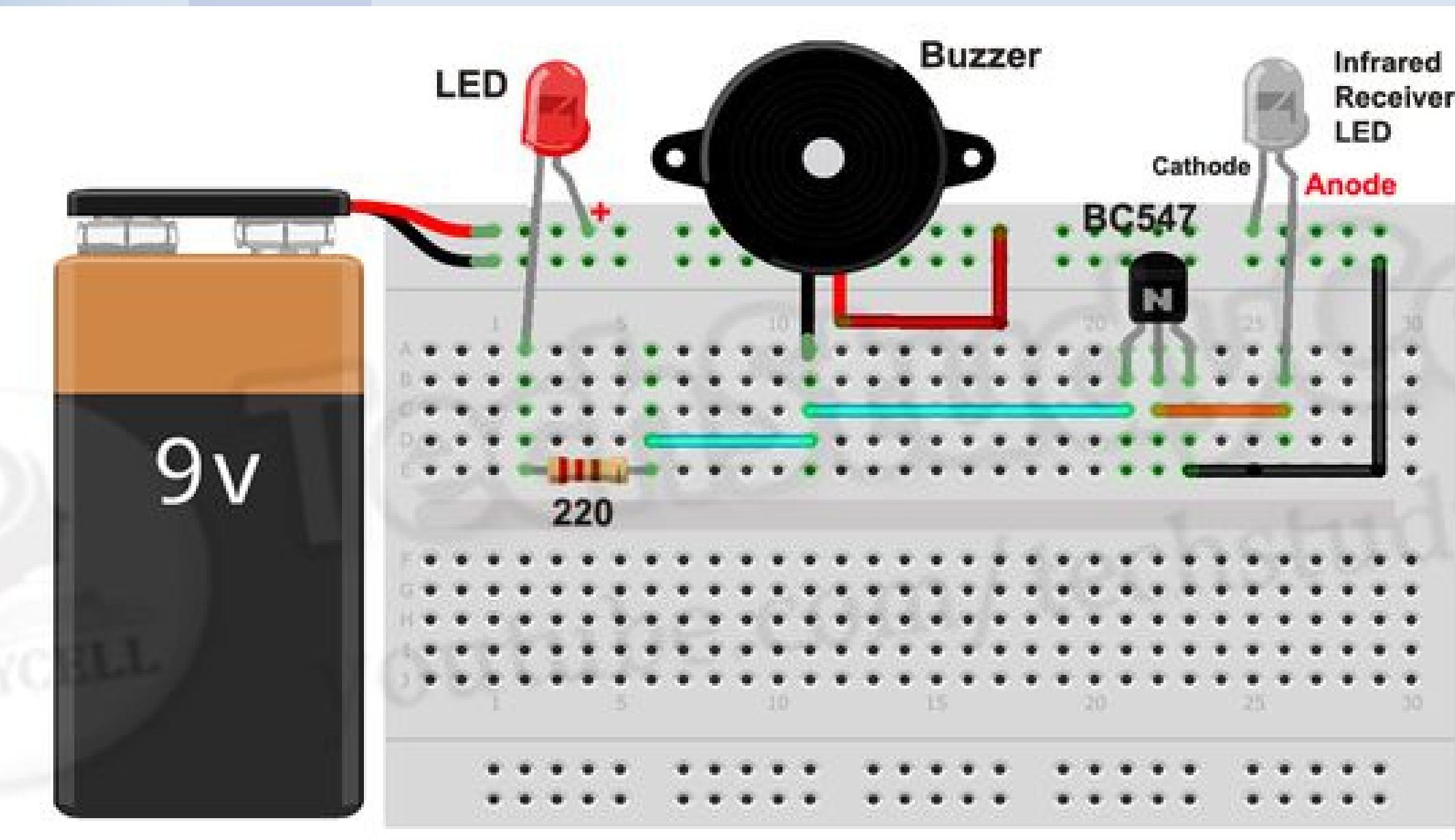
The project aims to develop a fire detector with a buzzer for swift and effective early warning in the event of a fire. The objective is to design a sensor-based system that detects smoke or heat and triggers the buzzer for immediate alerting of occupants. The primary goal is to enhance fire safety by providing a reliable and audible notification system, ensuring timely responses and mitigating potential risks.

Block diagram



In this fire alarm circuit, we have used an infrared detector LED. The infrared emitted from the fire is detected by the infrared LED and voltage across the infrared led changed. The Anode of the infrared LED is connected with the base of the BC547 NPN transistor. Due to the positive pulse in the base, the transistor turns on and current can flow in through buzzer → Collector → Emitter. If there is no fire then no positive pulse fed to the transistor base so the BC547 transistor remains in off mode. So that time current can not flow through the buzzer.

Circuit Diagram



Components

- 1.Bread Board
- 2.Jumper Wires
- 3.Infrared LED
- 4.Bc547 Transistor
- 5.Normal LED
- 6.Buzzer
- 7.220 k ohm resistor
- 8.9v battery

Result & Inference

The results of the fire detector project with a buzzer demonstrated successful integration of sensor technologies for timely detection of smoke or heat. The buzzer activation proved effective in promptly alerting occupants, contributing to enhanced fire safety measures. The inference drawn from the project is that the implemented system provides a reliable and audible early warning mechanism, crucial for swift responses and minimizing potential risks in the event of a fire.

References

ElectronicsHub. (2022). "Design and Implementation of a Fire Detector System with Buzzer." [Electronics projects]. [<https://easyelectronicsproject.com/miniprojects/fire-detector-alarm-using-bc547/>]

Thank

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