Fire Detection and Alarming System

Section : B
Chandradhar Rao - PES1UG19CS123
Dandu Satvik - PES1UG19CS128

Problem Statement

Detection and alarming of Fire breakouts in rooms and kitchens by interfacing Arduino with Temperature and Gas sensor in Tinkercad to avoid damage to lives.

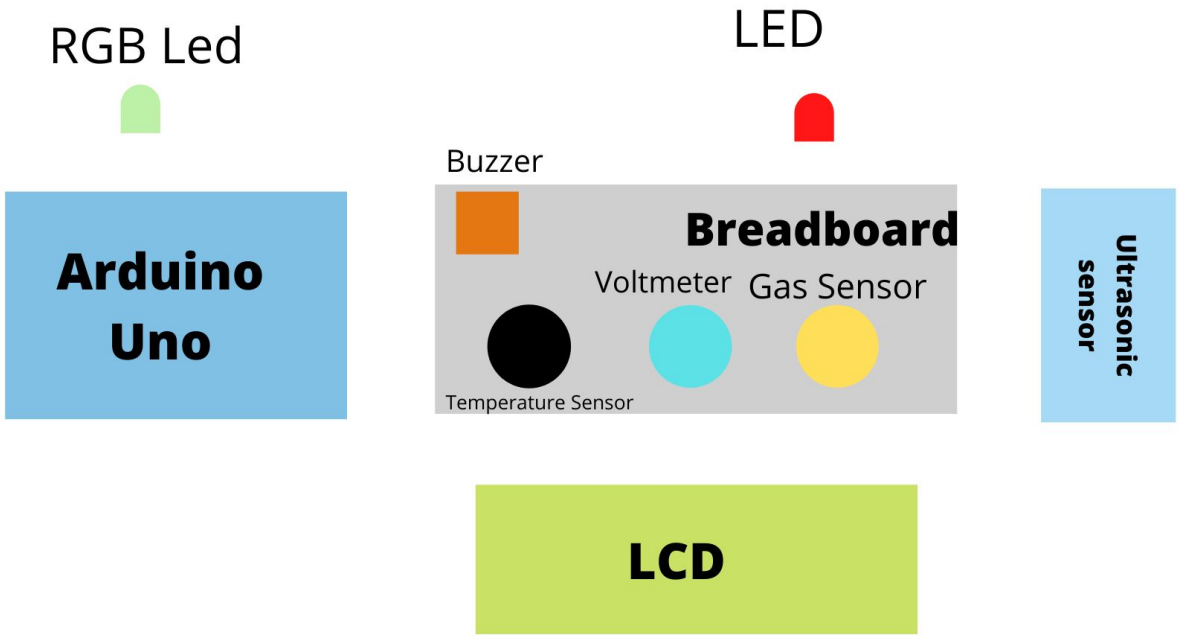
Introduction

1.This is a simulation circuit built in Tinkercad before the actual large scale circuits and devices are built.

2.Fire outbreak causes sudden spike in temperature and outbreak of gases such as methane.

3.This can be used to detect fire outbreaks and alarm people before the fire outbreak becomes more dangerous!

Block Diagram



Components Used

1.Arduino UNO Board

2.LM35 Temperature Sensor

3.Gas Sensor

4.Resistor

5.BreadBoard

6.LEDs

7.Piezo Buzzer

8.Jumper Wires

Project Description

Temperature > 65 celcius
Gas - Methane > 250 ppm

Detect Increase in temperature or presence of Gas

Green - normal
Red - Fire outbreak

Light up LEDs and buzz the piezo electric buzzer

Inform via LCD to exit and evacuate the area

Applications

Detect fire and alarm users in a Room,kitchen,hospital etc and prevent the outbreak of larger fire,thus preventing damage to lives and property.

References

Temperature sensor - https://bc-robotics.com/tutorials/using-a-tmp36-temperature-sensor-with-arduino/#:~:text=The%20TMP36%20temperature%20sensor%20is,making%20it%20a%20popular%20choice.
Gas sensor - https://www.instructables.com/How-to-use-MQ2-Gas-Sensor-Arduino-Tutorial/#:~:text=Introduction%3A%20How%20to%20Use%20MQ2%20Gas%20Sensor%20%2D%20Arduino%20Tutorial&text=The%20output%20is%20an%20analog,%2Calcohol%2C%20hydrogen%20and%20smoke.
LCD - https://www.arduino.cc/en/Tutorial/LibraryExamples/HelloWorld
Buzzer - https://www.youtube.com/watch?v=xBLYrbYIxLA