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21 RP 08363

PROJECT: SMOKE AND FIRE DETECTOR

A smoke and fire detector project is an electronic device designed to detect the presence of the smoke or fire and alert individuals in the vicinity to take appropriate action, such as evacuating the premises and calling emergency services. The device typically consists of a smoke sensor and alarm system.

The advantages of smoke and fire detector projects are numerous. First and foremost, they can help save lives by providing early warning of a potential fire. This can give people enough time to evacuate a building before the fire become too dangerous to escape.

In addition, smoke and fire detector projects can help prevent property damage by alerting individuals to a fire before it has a chance to spread. This can be particularly important in commercial or industrial setting where fires can quickly become catastrophic.

Finally, smoke and fire detector projects are relatively easy to install and maintain, making them a cost effective way to improve fire safety in homes, businesses and other settings. By investing in these devices, individuals can help protect themselves, their loved ones, and their property from the devastating of a fire.

THE MATERIALS TO BE USED IN THIS PROJECT

1. Arduino UNO: is a microcontroller board based on the ATmega328P microcontroller. It is popular choice for hobbyists, students and professionals looking to create electronic projects.

It has variety of digital and analog input/output pins that can be programmed using the Arduino software.

In this project, it will help us to be programmed and give command to the buzzer and fan to give the signals needed when the smokes exist

1. MQ Sensor: this is a type of the gas sensor that detects the presence of different gases in the air. MQ sensors come in a variety of types each designed to detect a specific gas. So, here the MQ sensor will help us to detect the smoke that will surround anywhere.
2. Breadboard: is a type of prototyping board used to build and test electronic circuits. It allows you to easily connect electronic components together without needing to solder them. Here, it will help to connect some components together in this project
3. Jumper wires: are electrical wires with connectors at each end that can be used to connect electronic components together on a breadboard or other prototyping board. Here, in this project it will help us to connect all components needed.
4. LCD Display 16×2: this is a type of a display that uses liquid crystals to create images and text. LCD display are commonly used in electronics, here it will help us to read data from microcontroller if the conditions is normal or abnormal.
5. Buzzer: this is electronic component that is used to make buzzing or beeping sound when activated. It is often used to provide an audible alert in electronic circuit, here it will help us to give sound when the MQ Sensor detects that there is a smoke in that area.
6. Fan: is a type of electrical component that moves air or other gases. Here, fans will help us to remove the smoke to give the flesh air.
7. Connecting wires: these are the electrical wire that are used to connect different components together in electronic circuits. It is often used with breadboards and prototyping boards to create temporary connections between components.

HERE ARE THE CODES FOR THE PROJECT

#include <LiquidCrystal.h>

LiquidCrystal lcd (12,11,5,4,3,2);

int buzzer =8;

int smoke =A0;

int sensorThes =100;

void setup ()

{

pinMode(buzzer,OUTPUT);

pinMode(smoke,INPUT);

Serial.begin(9600);

lcd.begin(16,2);

}

void loop (){

int analogsensor = analogRead (smoke);

Serial.print("pin A0:");

Serial.println(analogsensor);

lcd.print(analogsensor-50);

if (analogsensor-50 > sensorThes )

{

lcd.setCursor(0,2);

lcd.print("Alert.....!!!")

tone(buzzer,1000,200);

}

else

{

lcd.setCursor(0,2);

lcd.print("......NORMAL......");

noTone(buzzer);

}

delay(500);

lcd.clear ();

}

HERE IS BLOCK DIAGRAM OF THE PROJECT

Dc fan

MQ Sensor

Microcontroller

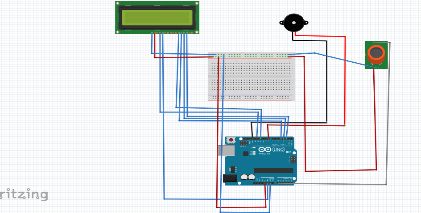
Buzzer

LCD Display

WORKING PRINCIPLE OF THIS PROJECT

The MQ sensor will detects if there is smoke in the building or the other place then after detecting the signals will be sent to the microcontroller which will help to control the buzzer and the fan to act, the in the case of the smoke happens the buzzer will beep to make people come around to stop the fire and also the fan in that moment will help us to remove the smoke temporarily , the LCD Display will help us to show on the screen if the conditions is normal or abnormal then the operators know what to do in that time.

CIRCUIT DIAGRAM



Link: <https://youtu.be/WytbucWp6nw>