**AIM:**

To do a project with Arduino to detect fire and to send an emergency message to the user and to take precautions.

**APPARATUS REQUIRED:**

Arduino uno, LED display, buzzer, jumper wire, lm 35 temperature, gsm module.

**DESCRIPTION:**

 The objectives of this **fire detector** using arduino is to sense the surroundings for occurrence of fire with help of LM35 temperature sensor, and send 3 SMS alerts to two mobile numbers stored inside the arduino program if fire is detected (using GSM Module).

**WORKING**

We have developed a very good tutorial on [**how to interface GSM Module with Arduino**](http://www.circuitstoday.com/interface-gsm-module-with-arduino)and send/receive SMS using GSM module. Interfacing any device with a micro controller is the first step to building a useful system or project with that particular device. In this tutorial, we are going to build a very interesting project – a***Fire Alarm System which will send SMS to a set of Mobile Numbers*** when fire occurs in a particular location. We have seen many [**typical Fire Alarm projects**](http://www.circuitstoday.com/category/fire-alarm) which will alert with a siren or that activates an automatic shutdown mechanism.

**SOURCE CODE:**

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

SoftwareSerial mySerial(9, 10);

int sensor=A1;

float temp\_read,Temp\_alert\_val,Temp\_shut\_val;

int sms\_count=0,Fire\_Set;

void setup()

{

pinMode(sensor,INPUT);

mySerial.begin(9600);

Serial.begin(9600);

lcd.begin(16,2);

delay(500);

}

void loop()

{

CheckFire();

CheckShutDown();

}

void CheckFire()

{

lcd.setCursor(0,0);

lcd.print("Fire Scan - ON");

Temp\_alert\_val=CheckTemp();

if(Temp\_alert\_val>45)

{

SetAlert(); // Function to send SMS Alerts

}

}

float CheckTemp()

{

temp\_read=analogRead(sensor); // reads the sensor output (Vout of LM35)

temp\_read=temp\_read\*5; // converts the sensor reading to temperature

temp\_read=temp\_read/10; // adds the decimal point

return temp\_read; // returns temperature value in degree celsius

}

void SetAlert()

{

while(sms\_count<3) //Number of SMS Alerts to be sent

{

SendTextMessage(); // Function to send AT Commands to GSM module

}

Fire\_Set=1;

lcd.setCursor(0,1);

lcd.print("Fire Alert! SMS Sent!");

}

void CheckShutDown()

{

if(Fire\_Set==1)

{

Temp\_shut\_val=CheckTemp();

if(Temp\_shut\_val<28)

{

lcd.setCursor(0,1);

lcd.print("Fire Shut! SAFE NOW");

sms\_count=0;

Fire\_Set=0;

}}}

void SendTextMessage()

{

mySerial.println("AT+CMGF=1"); //To send SMS in Text Mode

delay(2000);

mySerial.println("AT+CMGS=\"+919544xxxxxx\"\r"); // change to the phone number you using

delay(2000);

mySerial.println("Fire in NEW ROOM!");//the content of the message

delay(200);

mySerial.println((char)26);//the stopping character

delay(5000);

mySerial.println("AT+CMGS=\"+919847xxxxxx\"\r"); // change to the phone number you using

delay(2000);

mySerial.println("Fire in NEW ROOM!");//the content of the message

delay(200);

mySerial.println((char)26);//the message stopping character

delay(5000);

sms\_count++;

}