Internet Of Things

FIRE DETECTION SYSTEM USING GSM

Group - 04

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Aim:

To develop an automatic Fire Detection system using the Arduino Uno board & GSM

Objective:

The main objective of this is to build an IoT based automated Fire Detection system that automatically send the information to the owner of the place via Phone call or SMS incase if - there is any fire detected in the corresponding location. This is one of the key components of the smart emergency alert system used very efficiently by most of the organizations.

Abstract:

As we have submitted the synopsis, in our project the automatic street lighting system, in which lights ON when needed and the light OFF when it is not needed. Currently, the whole world, enormous electric energy is consumed by the street lamps, which are automatically, turn ON when it becomes dark and automatically turn OFF when it becomes bright. This is the huge waste of energy in the whole world and should be changed. This project aims for designing and executing the advanced development in the embedded system for energy saving of electric street lights. Currently we have a manual system where the street lights will be switched ON in the evening before the sunset and they are switched OFF in the next day morning after there is sufficient light outside. But the actual timing for these lights to be switched ON is when there is absolute darkness. With this, the power will be wasted up to some extent. The project gives the

solution for electrical power wastage also the manual operation of the light system is completely eliminated. The proposed system aims to provide solution for the energy saving.

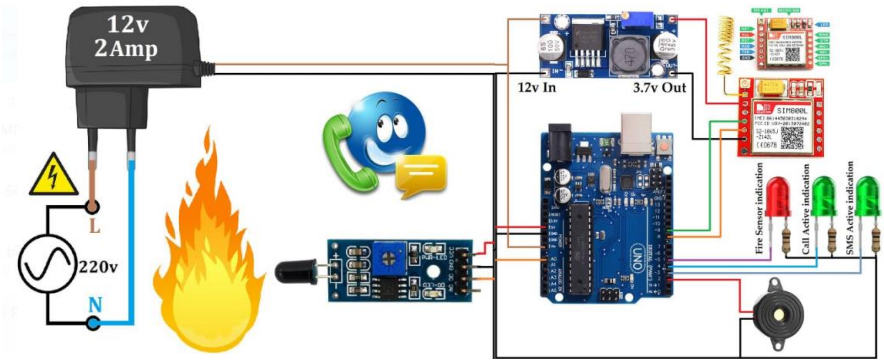
The main components used in our project are:

1. Arduino Uno board
2. GSM
3. Flame Sensor

Other components used are:

1. LED lights
2. Jumper Cables
3. Bread Board
4. Registers

Pin-out diagram



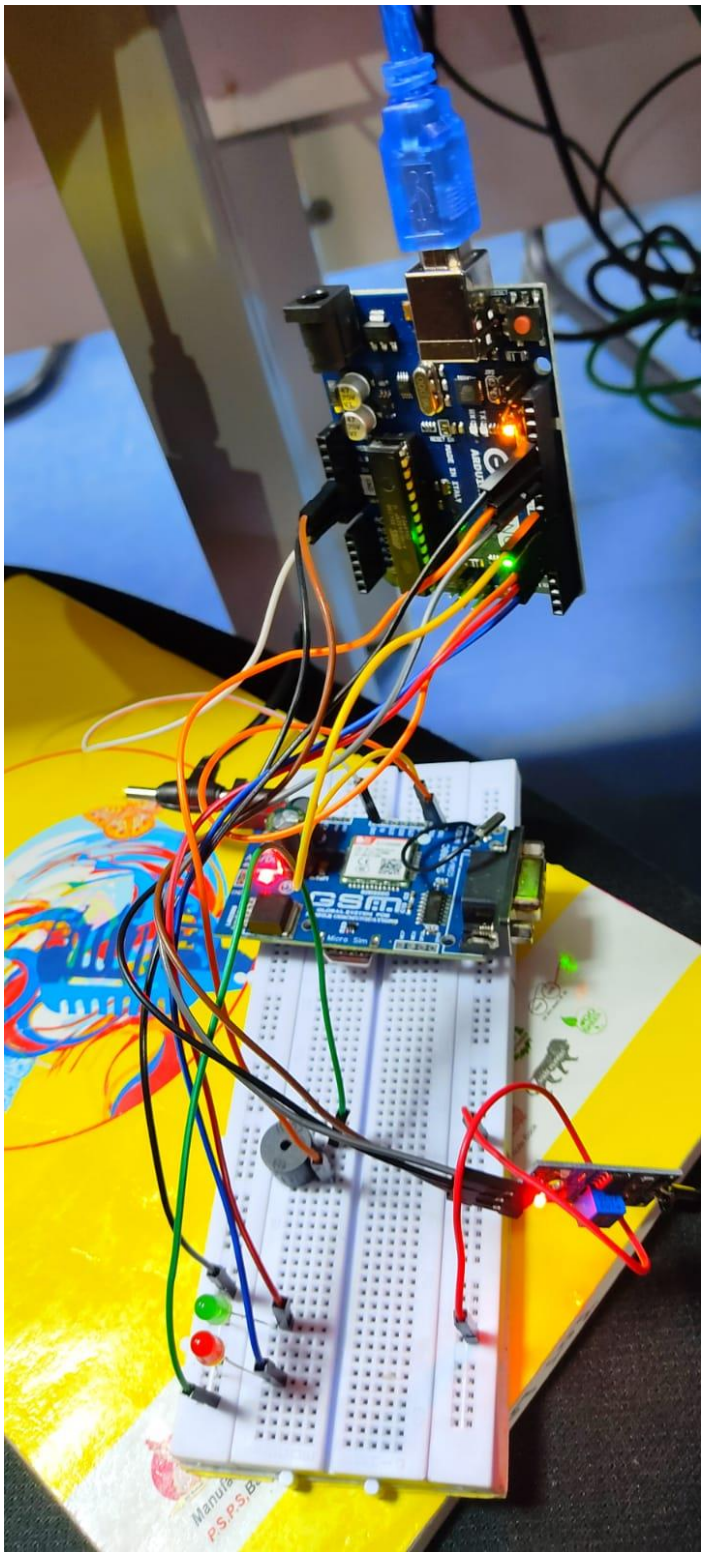
Program for our project

```
#include <SoftwareSerial.h>

SoftwareSerial SIM800(7, 8); // gsm module connected here

String textForSMS;


int FlameSensor = 11; // Flame Sensor

int Buzzer = 12; // Alarm/light can be connected with this Buzzer


void setup() {
```

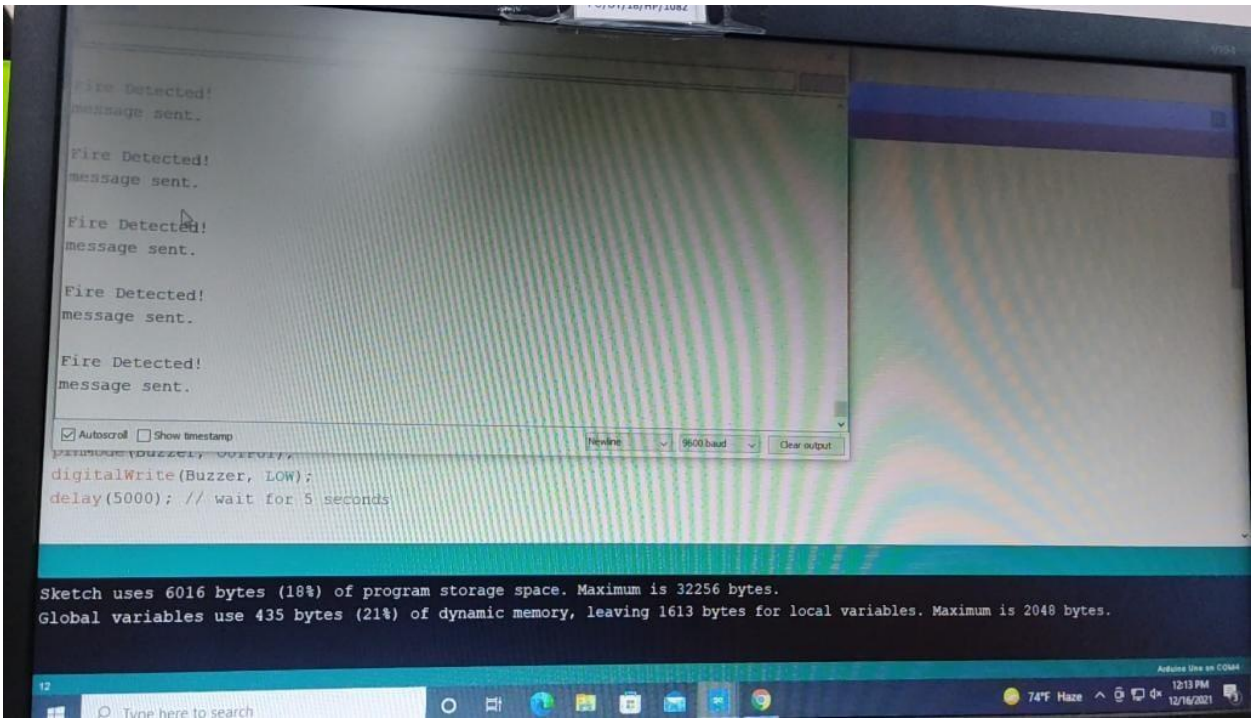
```
randomSeed(analogRead(0));
Serial.begin(9600);
SIM800.begin(9600); // original 19200. while enter 9600 for sim900A
Serial.println(" logging time completed!");
pinMode(FlameSensor, INPUT);
pinMode(Buzzer, OUTPUT);
digitalWrite(Buzzer, LOW);
delay(5000); // wait for 5 seconds
}

void loop() {
  if ( digitalRead(FlameSensor) == HIGH) //
  {
  textForSMS =  "\nFire Detected!";
  analogWrite(Buzzer, 200);
  sendSMS(textForSMS);
  Serial.println(textForSMS);
  Serial.println("message sent.");
  delay(8000);
  }
  if ( digitalRead(FlameSensor) == LOW) //
  {
  Serial.println("No Fire Detected");
  digitalWrite(Buzzer, LOW);
  delay(1000);
  }
}
```

```
void sendSMS(String message)

{

SIM800.print("AT+CMGF=1\r");          // AT command to send SMS message

delay(1000);

SIM800.println("AT + CMGS = \"+919916095818\""); // recipient's mobile number, in
international format

delay(1000);

SIM800.println(message);                    // message to send

delay(1000);

SIM800.println((char)26);                   // End AT command with a ^Z, ASCII code 26

delay(1000);

SIM800.println();

delay(100);                          // give module time to send SMS

}
```

The Complete picture of our Project



Output


Fire Detected!
message sent.
Fire Detected!
message sent.
Fire Detected!
message sent.
Fire Detected!
message sent.
Fire Detected!
message sent.
Autoscroll
Show timestamp
Newline
9600 baud
Clear output
digitalWrite(Buzzer, LOW);
delay(5000); // wait for 5 seconds
Sketch uses 6016 bytes (18%) of program storage space. Maximum is 32256 bytes.
Global variables use 435 bytes (21%) of dynamic memory, leaving 1613 bytes for local variables. Maximum is 2048 bytes.
Type here to search
74°F Haze
12:13 PM
12/16/2021