



IJIRCCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 11, Special Issue 3, November 2023

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.379

 9940 572 462

 6381 907 438

 ijircce@gmail.com

 www.ijircce.com

GSM Based Fire Alert System With Call and SMS Notification Using Sim900A

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ABSTRACT: - Fire accident as an unplanned and undesirable event The vacuity of GSM technology is now incorporated into the fire alarm system in order to combat and help the imminence that could be caused by fire accident. This paper presents the design and perpetration of a cost effective and dependable automated GSM grounded fire alarm system. The device will be suitable to cover the temperature of the terrain, the bank position, shoot SMS alert to an inbuilt GSM number when necessary, and make loudnsound to alert inhabitants on pending peril. This was achieved by the fabrication of 12 V power force system that powers the device using step down motor, programming Arduino Uno Microcontroller using C programming Language in the Arduino software platform, and integrating the program med Arduino Uno Microcontroller with GSM SIM900 module.

KEYWORDS: - Fire Alarm System, Fire-Detector, GSM Network, Arduino Uno Microcontroller.

I.INTRODUCTION

A fire alarm system is number of bias working together to descry and advise people through visual and audio appliances when bank, fire,carbon monoxide or other extremities are present. These admonitions may be actuated automatically from bank sensors, heat sensors or may also be actuated via homemade fire alarm activation bias similar as homemade call points or pull station. Fire and bank that spread within a structure can be affected by colorful factors similar as the figure, dimension, layout and operation of the structure. In order to help fire accident in a structure, it's critical to descry fire at its early stage and nip it to the cub. In utmost cases, fire outbreaks are reported to the fire armies or authorities veritably late, frequently when the entire structure has been burnt down. This makes the case for design and perpetration of automated fire alarm system a necessity. Automated fire alert system is needed not only in artificial complexes but also domestic structures.

II. RELATED WORKS

A GSM-based fire alert system is designed to provide timely notification of fire incidents through the Global System for Mobile Communications (GSM) network.This project involves the use of temperature and smoke sensors connected to a microcontroller (like Arduino or Raspberry Pi). When a fire is detected, the system sends an SMS alert to predefined contacts using a GSM module. Various versions of this system have been developed, and you can find open-source project documentation and tutorials online.

III.EXISTING METHOD

The existing system might be a traditional fire alarm system that relies on manual operation and local alarms. It may not have any integration with mobile communication technology like GSM. Here are the key components and functionalities:

Smoke/Heat Detectors: Traditional smoke detectors and heat sensors are installed in the building or location.

Local Alarms: When smoke or heat is detected, the system triggers loud local alarms within the building to alert occupants

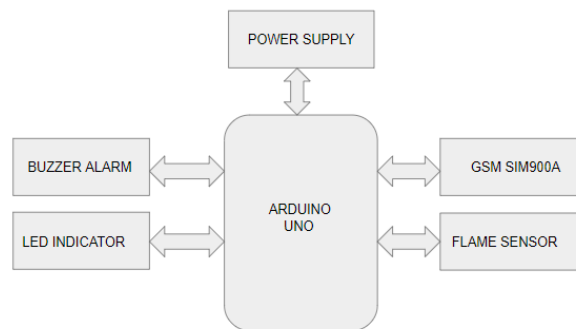
IV. PROPOSED SYSTEM

The proposed system is a more advanced and robotic result that leverages GSM technology for remote monitoring and alerting.

GSM Module - The control panel includes a GSM module that can shoot and admit data via the cellular network.

V. BLOCK DIAGRAM

A GSM- grounded fire alert system using Arduino Uno and the SIM900A module is a do- it- yourself design that allows you to make a simple, cost-effective fire discovery and alert system. Then is a general overview of how such a system might work Working Medium



Fire Discovery:-The system starts with a fire detector(bank sensor or heat detector) constantly covering for the presence of a fire or smoke.

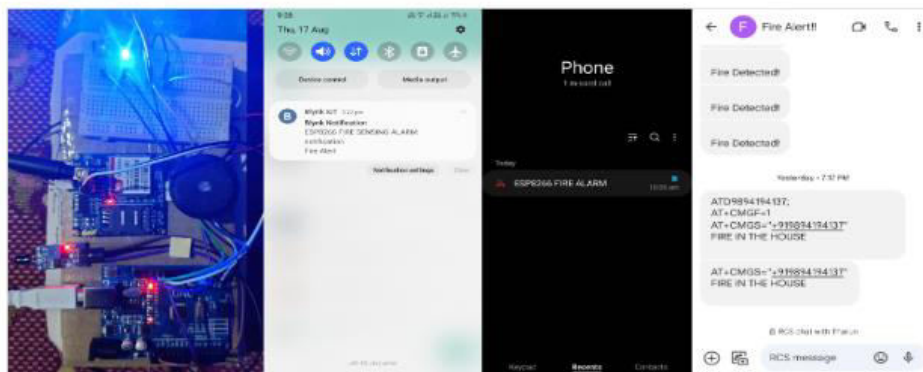
Sensor Activation:-When the fire detector detects bank or a significant rise in temperature, it sends a signal to the Arduino Uno indicating the presence of a fit Arduino Uno Processing The Arduino Uno,- acting as the central regulator, receives the signal from the fire detector. It processes this data and decides to spark an alert.

Alert Generation :-When the Arduino determines that a fire has been detected, it generates an alert signal to notify you or other designated contacts.

SIM900A GSM Module:-The alert signal from the Arduino is transferred to the SIM900A GSM module, which is connected to the Arduino via UART communication SIM Card and GSM Network The SIM900A module is equipped with a SIM card. It uses this SIM card to connect to the GSM network, allowing it to transmit and admit data.

VI. EXPERIMENTAL RESULTS

The fire's heat is detected by an honey detector. The GSM module will use SMS to shoot an alarm to the stoner's mobile phone. A warning communication will appear on the TV display and an SMS alert will be transferred to the stoner's phone when the temperature rises above 100C.



VII. FUTURE SCOPE

The unborn improvement of GSM- grounded fire alert systems will probably concentrate on perfecting their capabilities, trustability, and integration with arising technologies. Some implicit areas for improvement include

- Advanced Sensor Technologies Integration of advanced detectors that can descry fires more directly and snappily. This may include multispectral detectors, AI- grounded 28 image recognition, and new detector technologies that are more vulnerable to false admonitions.
- IoT Integration Enhancing the system's capability to connect with the Internet of effects(IoT) to give further real-time data, remote control, and bettered response times. This might involve integrating with smart structure systems and other IoT bias.

VIII. CONCLUSION

In this paper, it can be concluded that the proposed system can give a secure, safe, and effective way for precluding or combating fire accident. This was achieved by the fabrication of 12 V power force system that powers the device, programming Arduino Uno Microcontroller using C programming Language in the Arduino software platform, and integrating the programmed Arduino Uno Microcontroller with GSM SIM900 module. The GSM SIM900 module was incorporated in the system in order to shoot sms to the inhabitant of the structure on any impeding peril so as to combat the situation on time and to help losses

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