

Fire Outbreak Intimation to Fire Department Using IoT

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ABSTRACT: Fire is one of the widest spread causes of deaths by accident. This is due to lack of communication or delay of communication to the fire department. Instant alerting to the fire department is necessary to ensure immediate action; in such situation every minute can save many lives. So here we propose an automatic fire department alert system that instantly and automatically alerts the fire department and informs about the situation, so that immediate action can be taken. The system uses fire sensor along with IR sensor to efficiently detect fire and alert fire department. Then it uses temperature sensors in order to confirm fire outbreak. The system uses a Wi-Fi connection to access server and transmits data about the fire incident over internet. Here we use IoT platform to develop the web based IoT interface. As soon as IoT system receives the sensor data it checks the device id and displays the output. In addition to that simultaneously intimates the fire incident to the fire department over internet so that the fire department can take necessary action.

KEYWORDS: Fire accidents, Altering, Fire stations, TCP telnet terminal, Atmega 28 pins, IoT.

I. INTRODUCTION

Fire Alarm Systems are very essential for security purpose. It provides a means to detect and identify a fire or a potential fire outbreak in a building and warns about the fire. This potentially notifies emergency response to professionals. The main components of fire alarm system are sensors like smoke detector, heat detector, and gas detector.

The fire alarm systems we use today may involve smart sensors, intelligent control panels and integration with other building services.

II. LITERATURE SURVEY

[1] Dhruvajyoti Paul, Arnab Ghosh, Soumya Jyoti Banerjee, Debashis Jana "GSM Based Fire Sensor Alarm Using Arduino" International Journal of Scientific & Engineering Research, Volume 7, Issue 4, April-2016 259 ISSN 2229-5518

The approach to home and industrial automation and security system design is almost standardized nowadays. This standard can be increased by combining new techniques and developed a low cost home and industrial automated security systems. The design of simple hardware circuit enables every user to use this fire sensor, temperature sensor, gas sensor, smoke sensor at home and industries.

[2] Digvijay Singh, Neetika Sharma, Mehak Gupta, Shubham Sharma "Development of System for Early Fire Detection using Arduino" International Journal of Engineering Science and Computing, May 2017 10860

The Fire alarm systems are a real-time monitoring system that detects the presence of fire and captures images via a camera and display it on a screen. Using an automatic triggering by connecting one more Arduino along with relay the screen switching would be automated. The system will also alert the user by using a GSM

module. When the presence of smoke is detected, the system will display the live feed of the area under surveillance. The advantage of using this system is that it can detect early fire. The system is also power efficient as the screen will only be ON when fire is detected.

III. EXISTING METHOD

Whenever fire accidents occur in any place, the information about the incident is passed to the fire department (control room) by calling **101**. When people make call to 101 it reaches nearby control room from where the information is passed to the fire station. Then the fire fighters reach the location as directed by the fire department.

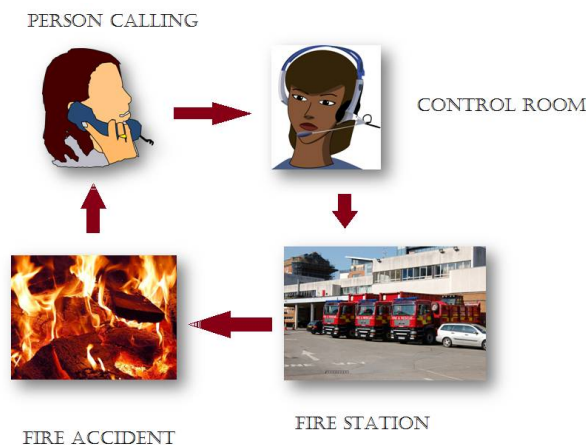


Fig 3.1 Process during fire accident

IV. PROPOSED METHOD

The news about any fire accidents is known to the fire department only if any person informs to them. Due to delay in the passage of information or no message about the accident there occurs a lot of damages to the property and loss of live. To overcome this, we have proposed a project that sends a automated message to the fire department wirelessly. For this we use three types of sensor and a WiFi module to transmit the data.

The microcontroller board is used for this system. The temperature sensor LM35 connected to the microcontroller senses the temperature in the environment. It is been programmed in such a way that when the temperature reaches above the threshold voltage it allows the fire sensor and IR sensor to transmit the data to the server if any flame or fire and human has detected respectively.

A software called TELNET TCP TERMINAL is been installed to the server. It gets connected to the Wi-Fi module of the circuit. If any fire outbreak occurs it displays the location (given as id name) with temperature, also any human and fire is detected or not. This method is easy, low cost and time consuming. It helps in saving the lives of human.

V. WORKING PRINCIPLE

The fire alerting system is real time monitoring system that detects the fire through the fire sensor. Once the fire sensor detects the fire outbreak, then the temperature sensor senses the temperature values in degree Celsius and obstacle sensor detects the presence of any human being.

When temperature value gets above 100°C the information is passed to microcontroller. The microcontroller transmits the information to the IoT server through the WiFi connection. IoT server gives the information to fire department and details are viewed in LCD display and the buzzer turned on.

VI. BLOCK DIAGRAM

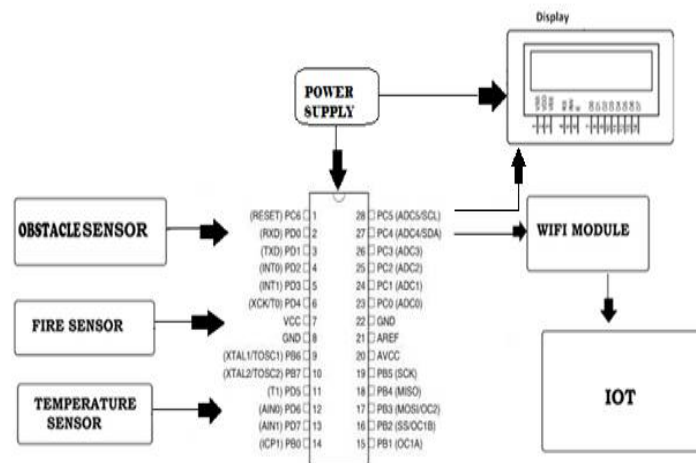


Fig 6.1 Block diagram of fire outbreak intimation to fire department using IoT

VII. OUTPUT



Fig 8.1 output of fire alerting system

VIII. CONCLUSION

In this real time security purpose system developed with simple hardware which simplifies the possibility of error free safety system. The system can be easily implemented with maximum reliability with is a special enhancement from the existing systems for home safety.

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