Literature survey

1. **IoT-Based Intelligent Modeling of Smart Home Environment for Fire Prevention and Safety:**
   (Paul, A., Rehman and Saeed F)
   Publication: Journal of Sensor and Actuator Networks.
   Year:2018

   The primary objective of the proposed work was to design an intelligent analysis of smart home for fire prevention. Two major flaws of the currently used systems are: (a) the fire prevention systems mostly use a single sensor for event detection but problems arise if the target sensor does not detect the event; (b) false alarms can be generated. Overall our proposed method provides a solution to these problems. We introduced an efficient technique to overcome these problems. We used multi-sensors for each region in smart homes. To reduce the false alarms, we used the GSM communication system. The purpose of GSM communication was to alert the user at the very initial time of the fire. Fire detection decisions were made by the main home sink connected with all the sensors wirelessly. The decision was made on the basis of the sensor's values or the user's response. We simulated fire in FDS that was designed by NIST, and the generated results of the simulation were analyzed by our proposed algorithm that we implemented in Visual Studio using C++ libraries programming language. The simulators were installed on a machine with the following specification: Intel(R) Core(TM) i5-3570 CPU @ 3.40 GHz 3.80 GHz, and RAM 16 GB. The energy consumption of the deployed sensors was also computed, and we noticed that it was within an acceptable limit. The results and other evaluations showed that our proposed work fulfills all the desired requirements. In the future, as we used multisensors for the detection of fire and the amount of data generated by the sensors during a fire was high, we will work to find a method that deals with this high amount of data efficiently.

2. **Fire Alarm System with location using IoT:**
   (M. Venkatesh and M. Hemanth)
   Publication: International Journal of Scientific Research in Computer Science, Engineering and Information Technology.
   Year: 2019

Fire alarm systems have become increasingly sophisticated and functionally more capable and reliable in recent years. They are designed to fulfil two general requirements: protection of property and assets and protection of life As a result of state and local codes, the life-safety aspect of fire protection has become a major factor in the last two decades. To solve the problems caused by the fires, several safety measures have been put in to place to reduce the number of fatalities and losses. So our idea is to develop a fire alarm system. The primary purpose of fire alarm system is to provide an early warning of fire so that people can be evacuated from the fire-affected place and immediate action could be taken to control the fire. The system will have a GPS module , Flame sensor to detect the flame , Smoke sensor to detect the smoke , Buzzers and led to alert the environment and GSM or wifi to send the notification to authorities. In addition this system reduces the occurrence of false positives with time delay.

3. **Industrial Gas and Fire Detection System:**
   (Ankitha S and Shreehari B V)
   Publication: International Journal of Advanced Research in Computer and Communication Engineering. **Year:** 2020

   With the advancement of technology, the availability of theinternet is supposed to be everywhere. We build anIndustrial Gas and Fire Detection System using the Internetof things technology. In this paper, we have proposed asystem that provides appropriate and efficient solutions forgas and fire detection. A NodeMCU 8266 prototype has beendeveloped which can detect fire and gas concentration. Real-time data from various sensors have been uploaded toUbidots. If the data obtained is found above the permissiblelimit, alerts are initiated. In addition to this, otherparameters like temperature and humidity are alsomeasured. The system can be further improved withautomatic aeration fan when the gas leakage is detected and se-activating water sprayers are used to avoid further fireexpansion.

4. **An Intelligent Fire Detection and Mitigation SystemSafe from Fire (SFF):**

(Md Abid-Ar-Rafi and Md Neamul Islam)

Publication: International Journal of Computer Applications (0975 - 8887)Volume 133 - No.6. **Year:** 2016

There is an immense need of implementation of automatic fire ex-tinguishing system to protect lives and assets from fire hazards.In this paper full fire protection system is explained. SFF takesmost of the preliminary initiative to prevent fire from spreadingand does all necessary activities. Hence it's a complete package of fire protection system. This type of system is absolutely necessaryfor the perspective of Bangladesh. Garments factories, industries,multi complex shopping malls, super shops, this type of systemis not only a requirement must be mandatory. Government shouldimpose rule that SFF or automatic fire extinguisher system mustbe installed. Hence, this noble system can be used in every smartbuildings and cities to protect invaluable lives and assets from fireand assure safety. Fire causes huge loss of lives and properties every year inBangladesh. Analyzing past fire incidents, facts are revealed. Someof the main causes are insufficient fire defense materials, electricshort circuit from faulty electrical wiring, presence of inflammablematerials, violation of fire safety and lack of adequate awarenessetc. Some factories and recent buildings have proper installationand fire safety arrangements such as fire alarm, fire extinguishers,water supply system etc. But the argument istheseconventional fireextinguishing systems are not enough to take prompt action duringfire and save life. Traditional manual system does not ensure 24/7monitoring from fire protection. Moreover, existing fire protectionsystem could spread panic inside the whole building since it doesnot announce the location of fire or intensity. It only raises alarmwhenever fire is detected at any place.