

Literature Survey

1. Prototype of fire symptom detection system

One of smart home function is fire alert detection. The symptom detection of fire in the house is important action to prevent the mass fire and save many things. This research applies the new system of fire detection using gas leak concentration to predict the explosion and fire earlier called fire predictor and the fire appearance detector. The fire predictor just show the gas leak concentration and make an alarm rang. The fire detector use fuzzy system to make the fire detector classification. The output simulation system can send the data to MFC, but the MFC reader cannot parse it in real time.

Authors: Oxsy Giandi, Riyanarto

Published in: 2018 International Conference on Information and Communications Technology (ICOIACT)

2. Raspberry pi based smart fire management system employing sensor based automatic water sprinkler

The smart fire management requires significant surveillance systems to detect and control the fire and fire causing agents automatically. This requirement has been accomplished in this proposed system by employing fire detection system and fire controlling system using Raspberry pi. The fire detection system entails flame detectors along with temperature sensors which reduces the false fire detection rate. The system also notifies the user by emailing the video of fire affected area and gives the updates of room temperature from time to time. A gas leakage sensor has been employed to detect various types of gases like ethane, methane, LPG etc. This proposed system can be installed in a hall of maximum area $126\text{ft} \times 21\text{ft}$ employing one Raspberry pi module.

Authors: Jaspreet Singh; Ekambir Sidhu Noorinder

Published in: 2017 International Conference on Power and Embedded Drive Control (ICPEDC)

3.Smart apparatus for fire evacuation — An IoT based fire emergency monitoring and evacuation system

According to the National Fire Protection Agency, 14,500 highrise fires occur every year causing 40 deaths and 520 injuries per year on average [1]. Many of these deaths and injuries can presumably be avoided if evacuees had knowledge of the location of the fire and a solid exit strategy. In an age of IoT devices, there are no such commercial products available to address this problem. We have developed a technology that can be used as a smart fire defense guidance system. The goal is to inform occupants and emergency services of the location of the fire and provide a real-time safe path of evacuation. It proposes to use a mesh network of smart fire alarms and path planning algorithms to provide these essential services.

Authors:Swarnadeep Majumder;Sean O'Neil;Ryan Kennedy

Published in: 2017 IEEE MIT Undergraduate Research Technology Conference (URTC)

4.Smart Fire Detection System in a Large Building Using Lora WAN

Nowadays, it has been an important issue to evacuate mass occupants for safety from large public buildings under emergency conditions. However, evacuation design in public buildings still remains in a static plan, which is difficult to deal with diverse types of hazards and problems of uneven personnel distribution. Thus, a set of guidelines for safety design of large public buildings, or even a set of dynamical emergency evacuation systems, is necessary. In this project, an emergency evacuation system for large public buildings is proposed based on intelligent building by means of embedded system the main objective is to reduce the fire accident in the high rise building. This system is to guide the user and updating the current scenario of the place via android app.

Authors:K. Gokulakrishnan;A.Mohammed Ashim,J.Manoj Kumar

Published in: 2021 International Conference on Artificial Intelligence and Smart Systems (ICAIS)

5.Implementation of Intelligent Residential Fire Extinguisher System

A new generation Intelligent fire extinguishing systems have been proposed to rescue humans and important documents which would be flamed. The Automatic Fire Extinguisher system can be controlled by Smartphones through Internet of things. It is a hardware-based model, accustomed automatically to extinguish the fireplace. Instructions may be given to the robot concerning its movement, turning on its water pump. It starts to manoeuvre within the direction with reference to fire intensity once when it senses the heat. The motor speed is adjusted with regard to the temperature range to pump the water. So that this robot pumps the accurate amount of water which is required to extinguish the fireplace. Proteus is used for Simulation of Fire Extinguisher and Python is used for coding in the Proteus.

Authors:C. Bhuvaneswari,M. Kavitha,W.Abitha Memala,M. Pushpavalli

Published in: 2022 4th International Conference on Smart Systems and Inventive Technology (ICSSIT)

6.FireDS-IoT: A Fire Detection System for Smart Home Based on IoT Data Analytics

Fire is the most widespread cause of death by accident. Fire affects thousand of residents each year, resulting in injury and loss of life. In this paper, an Internet of Things (IoT) based Fire Detection System (FireDS-IoT) is designed to prevent people from fire by providing an alert message in the emergency. The system is designed using MQ-135 (CO₂), MQ-2 (smog), MQ-7 (CO) and DHT-11 (temperature) sensors embedded with Arduino to get the fire event information in the surrounding more accurately. Therefore, it is used for classification, and if fire conditions arise then a safety message is sent to the registered mobile number using Python programming.

Authors: Sourav Kumar Bhoi,Sanjaya Kumar Panda,Biranchi Narayan Padhi,Manash Kumar Swain,Balabhadra Hembram,Debasish MishraChittaranjan Mallick,Munesh Singh,Pabitra Mohan Khilar

Published in: 2018 International Conference on Information Technology (ICIT)

