INDUSTRY-SPECIFIC INTELLIGENT FIRE MANAGEMENT SYSTEM

INTRODUCTION:

Industrial intelligent fire management system that can control security and safety of the industry intelligently within the minimum time and the design of a system using wireless sensor networks, fire alarm sensor, and human detecting sensor to address the problems with existing disaster emergency response systems in times of fire hazard. To address this problem, this study aims to implement a smart fire detection system that would not only detect the fire using integrated sensors but also alert industry owners, emergency services, and local police stations to protect lives and valuable assets simultaneously. The proposed model of our project employs different integrated detectors, such as heat, smoke, and flame. The signals from those detectors go through the system algorithm to check the fire's potentiality and then broadcast the predicted result to various parties using GSM modem associated with the system. To get real-life data without putting human lives in danger, an IoT technology has been implemented to provide the fire department with the necessary data. Finally, the main feature of the proposed system is to minimize false alarms, which, in turn, makes this system more reliable.

LITERATURE SURVEY

The related work of the existing solutions were studied in the various technical papers and referred in the Research Publications.

[1] Ahmed Imteaj et.al. studied the problems faced by factory workers in times when fire breaks out. They proposed a system using Raspberry Pi 3 which is capable of detecting fire and providing information about area of fire. The Raspberry Pi controls multiple Arduino boards which are connected with several motors and cameras to capture the fire incident. In their proposed model, they discussed about the modern technology that can be used to reduce extremely unfortunate accidents caused by fire; designed the whole system and calculated its effectiveness.

[2] Ondrej Krejcar proposed a model for location enhancement and personnel tracking using Wi-Fi networks. The project has represented the control system concept that is used in handling

information of location and control unit operations. The location of the user present in the building, is obtained through Wi-Fi access points. From this points, it is to understand the usability of the Wi-Fi networks in live tracking and then have utilized this functionality to track fire and give information about location of fire to various devices intimating people about the mishap.

[3] "Design and Implementation of a fire detection and control system for automobiles using fuzzy logic" is used to get the safety features in home and industrial areas. They have designed new model using WSN. Not only have they incorporated temperature and humidity sensors but also included fire and smoke sensors while developing the model. They present a preceding study of WSN is able to detect fire alarm. It is for setting up a wireless sensor network with three sensors. An application was developed for getting home information

[4] Azka Ihsan Nurrahman, Kusprasapta Mutijarsa have proposed a prototype for a centralized management system for homes or offices which helps better in managing the safety features. In this, home management system is required. This system controls the room lights by turning on and off automatically, it keeps the record of use of electronic device status, turning on and off the ac regulator automatically, it displays the room temperature in home. If fire is detected in the house, it turn on sprinkler at home, it supervises at home via surveillance cameras, take photos and store them including recordings of surveillance at home, it detects the movements of people at home, and provide notification when someone enters the house

[5] An efficient smart emergency response system for fire hazards using IoT is explained in detail which provide a quality public safety and security services to adopt leveraged data driven emergency response systems with urban IoT design standards.

[6] An intelligent fire detection and mitigation system safe from fire is being specified in detail with proper safety system.

[7] The design and Implementation of a fire detection and control system for automobiles using fuzzy logic is given with early detection and exact fire location detection using fuzzy logic.

[8] The efficiency increase for electrical fire detection and alarm systems through implementation of fuzzy expert systems is explained with high efficiency detection system.

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