INDUSTRY-SPECIFICINTELLIGENTFIRE MANAGEMENT SYSTEM

ABSTRACT:

House combustion is one of the main concerns for builders, designers, and property residents. Singular sensors were used for a long time in the event of detection of a fire, but these sensors cannot measure the amount of fire to alert the emergency response units. 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 property owners, emergency services, and local police stations to protect lives and valuable assets simultaneously. Fire safety systems are important means of prevention and are designed primarily to provide building occupants prompt warning and instruction to safely evacuate the premises if a fire occurs. When correctly maintained, operating fire safety systems are proven to be life saving devices that can get you out of a situation that would potentially turn into a tragedy.

LITERATURE SURVEY:

Abdul and Qureshi[1], proposed a model present work of fire detection is designed keeping in mind the necessary parameters needed for present circumstances. The design is carried out using a Raspberry Pi and Flame sensor. The circuit helps in controlling fire and as well send an alert

message when fire occurs. It also has features like sprinkling water on fire area, water can which stores water, buzzer etc.

Johnsaida, Noorbasha and Rahul, Lakkisetty V and Shalini, Tadi[2], designed a smart fire intelligent project is to reduce the loss in terms of life, cost… when the fire accidents occurs this system specifies the time and location using to address the problems in times of fire. In this project the flame sensor detects the fire and it activates the GPS which finds the current location of fire accident area. The location is stored in the cloud and activating message is send to the destination point by the GSM module.

Mani, Vignesh and Abhilasha, Gunasekhar and Lavanya, Suresh[3],they designed and reported, IoT Based Automated Temperature and Humidity Monitoring and Control system developed using raspberry pi. Pi receives the temperature as well as humidity values sensed and the same sent to the internet. This project however has resulted in prototype development of automated temperature and humidity control with good feasibility.

Wehmeier, Guido and Mitropetrosb, Konstantinos[4],they worked basis of four sections:

1. Active fire prevention.
2. Passive fire protection.
3. Repair and maintenance.
4. Discussion of worst-case scenarios

Find best solution the overall target is to minimize the risk and to reduce

the figures and severity of fire incidents by adjusting process safety, work place safety and preventive fire protection in a holistic way.

Zhang, Ying-cong and Yu, Jing[5], they studied about Fire IOT and told that Fire IOT specifically applied in firefighting field by firefighting facilities to perceive latent dangers of fire, detect and timely put out earlier fire disaster, and intelligently evacuate people during fire. Meanwhile, by the application of Fire IOT, any people can feel personally at any time the firefighting management around him, and make people have a good awareness of firefighting.

Schultz, Courtney A and Moseley, Cassandra[6], they studied and said that Collaborative governance is important at all system levels and for all aspects of fire management, including building fireadapted communities, given the implications of fire for health, safety, housing, and growth and collaboration's central role in promoting effective community response to disturbances and disasters .Solutions that embrace and navigate this complexity have the potential to improve fire management by building the governance processes and capacities necessary to translate policy goals into action.

Garcia-Martin, Roberto and Gonz-Briones, Alfonso and Corchado, Juan M[7], they designed and concluded that a novel platform has been presented for monitoring fire extinguishers in a building. The platform consists of a prototype that makes it possible to detect changes in

pressure in real time and record the environmental conditions in which they have occurred (temperature, humidity, etc.). The use of soft agents has allowed for communication between the SmartFire prototype and the platform. Moreover, it has made it possible to read the pressure values of each extinguisher at all times. The architecture on which the platform is based allows us to integrate new agents by monitoring new factors, including agents that implement big data techniques to predict when a fire extinguisher will Sensors fail before it is produced.

Wehbe, Rania and Shahrour, Isam[8], they studied and designed System which is based on the combination of several technologies and simulation tools and also said that IoT and smart technology are used to detect a fire early and reduce false detection. FDS is used to simulate fire scenarios and ABS for crowd simulation and evacuation path generation. Both FDS and ABS provide a database used for the smart selection of evacuation paths in real time using AI.

Harry Buck ,Salvy Vittozzi ,Jeff Cutler[9], they studied and concluded that several challenges and recommendations to improve system performance and minimise cost such as:

1. Having an open protocol system to reduce total cost of ownership of the system.
2. Install detectors with in-built drift compensation which have a longer lifecycle.
3. Place covers over MCPs and consider recessing into the wall

to the regulatory limit.

4. Exchanging smoke for heat detectors temporarily in areas which there is building work.

Thompson, Matthew P and MacGregor, Donald G and Dunn, Christopher J and Calkin, David E and Phipps, John[10], studied and concluded that fire managers better arrive at response strategies that reduce unnecessary exposure andincrease the probability of success is a primary motivation of this article. So too is helping fire managers better determine where, when, and how to propriately expand the footprint of fire—in the right places, at the right times, under the right conditions, for the right reasons.

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