IDEATION PHASE

LITERATURE SURVEY

Team ID	PNT2022TMID30584
Project Name	Industry-specific intelligent fire management system
Maximum Marks	2 Marks

LITERATURE SURVEY

A Fire Detection System for Smart Home Based on IoT Data Analytics [1]: In this paper, an Internet of Things 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 Ardunio to get the fire event information in the surrounding more accurately.

A Wireless Sensor Network For Fire Detection and Alarm System [2]: This paper based on the wireless fire detection and control system is generally composed of a fire detection node, fire alarm node, and fire alarm control panel. The main module to make the entire system communicate wirelessly is the XBee module from Digi International, Inc. One feature of the XBee module that stand out most is the automation mesh network.

IOT- Based Fire Alarm System [3]: This paper based on IoT-based fire alarm system that is capable of detecting the presence of fire, communicating with the concerned parties by calling them when a fire is detected, and receiving and responding to SMS requests from the user. As an improvement, the sensing nodes could depend on a rechargeable battery source instead of a power supply.

The proposed wireless sensor network (WSN) consists of different sensors that share a single wireless network and used GSM. The proposed system results were tested in a smart home to reduce false warnings. Elias et al. also provided a solution using wireless sensor network that was embedded in a micro-controller board for fire hazard detection and fire monitoring purpose [4].

Yu et al. [5] collected the sensor readings for smoke intensity, humidity, temperature to use it in fire detection using Feed-forward neural network approach. The disadvantage of a Feed-forward approach is it demands high processing at the node level resulting in a large

amount of power consumption which reduces the lifespan of the node. Also, cluster head destruction in the fire badly affects the robustness of the system.

Information gathered from different sensors such as heat, humidity and CO density light, will be sent on the cluster head using event detection mechanisms. Multiple sensors used to detect fire probability and direction are embedded in each node to reduce the false alarm rate and improve the efficiency [6].

Robert et al. introduced a system using Arduino microcontroller and fuzzy logic technology in search of fire detection in automobile and to reduce its damage due to fire. Different sensors like temperature sensors, smoke sensors, and flame sensors were used. This system was tested on an average-sized car with 2 kg cylinder mounted behind the passenger's rear seats [7].

JH Park. [8] proposed an early fire detection system for smart cities with a multifunctional artificial intelligence framework. The artificial intelligent framework includes an adaptive fuzzy algorithm, machine learning algorithms and Direct-MQTT based on SDN.

REFERENCE

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