

Project Title : Industry-specific intelligent fire management system

TEAM ID: PNT2022TMID07797

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<u>Journal Title</u>	<u>Author Name</u>	<u>Year</u>	<u>Technology Used</u>	<u>Existing System</u>	<u>Proposed System</u>
A survey of Internet of Things in fire detection and fire industries	S.R.Vijayalakshmi, S. Muruganand	2017	IOT	current system uses hard wired interconnection which is having disadvantage of cost expensive, long time consuming and disruptive. A hard wired system is also very difficult to maintain and too expensive to reconfigure when circumstances change, If the methods used at the design of the wireless system and the components employ revolve around a compromise between effectiveness, compactness, low power requirements and cost.	This paper review about the current research, technologies and applications of IoT in fire related industries. This paper done a survey of identifying research trends and challenges in fire industries and summarizes systematically. The fire IoT aims to connect different things over the networks related with fire. Service Oriented Architecture is applied to support fire IoT. In that layers interact each other for monitoring fire and products. This paper functionally realizes some of the layer required for fire monitoring and industry. Sensing layer is functionally realized with WSN node with sensors, RFID tagged device and Video node for fire and product monitoring. All things such as sensor network, mobile network are connected together in the network layer. Service layer and interface layer are used to realize Mobile node data, WSN node data display and graph display for the fire related parameters.

IoT-Safety and Security System in Smart Cities	El-Hadi Khoumeri, RabeaCheggou, and Kamila Farhah	2018	IOT and Digital Image processing	Fires, thefts or intrusions are undesirable events that could lead to a great loss of social wealth and human life. To avoid these losses, various alarm systems have been developed by the industry such as smoke detectors, temperature sensors, intelligent surveillance cameras, and this with the development of technologies at affordable prices	The solution proposed in our project, security and surveillance with Raspberry Pi consists of different systems: facial recognition, vehicle license plate recognition, fire detection with access control.
IOT-Based Fire Alarm System	Asma Mahgoub, Abdulla Al-Ali, Nourhan Tarnad, Rana Elsherif, Loay Ismail	2019	IOT	Fire alarm systems are essential in alerting people before fire engulfs their homes. However, Fire alarm systems today require a lot of wiring and labour to be installed. This discourages users from installing them in their homes.	The proposed system is an ad-hoc network that consists of several nodes distributed over the house. Each of these nodes consists of a microcontroller (ESP8266 nodeMCU) connected to smoke, temperature, humidity, flame, methane and Carbon Monoxide sensors that continuously sense the surrounding environment to detect the presence of fire. The nodes communicate with a centralised node implemented with a Raspberry Pi microcontroller integrated with a 4G module. Once fire is detected by the node, it sends a signal to a centralized node that is triggered to send SMS to the fire department and the user.

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Automatic Gas Fire Detection System Using IoT	Rupali Ramesh Shinde, Somnath B. Thigale, and Bhuvaneshwari C. Melinamath	2020	IOT	1) There are some existing methods for Gas and fire accident avoiding. It sends the only SMS to the user and fire officer. If they are near to the place, then they can stop the accident. Otherwise, they can't do anything even if they know about the incident. So, here only monitoring is possible and no automatic control. 2) The second existed method raise the only alarm whenever Gas is detected at any place. Due to this alarm, people create faired situation start to run haphazardly. As a result worker in the factory gets injured severely. Sometimes people do not realize the intensity of the fire, and they can't escape from the fire affected building quickly. Drawbacks in the existing system are The intimation is possible. Automation is not possible. Can't detect the intensity of the fire.	Here we are developing a system called gas fire detection system that smartly avoids fire as well as gas accidents by detecting fire and gas leakages and taking corrective action to avoid any accidents from happening. The system consists of gas fire sensors for detection purpose. If the system detects a gas leakage, the system first shuts off the gas supply and starts an exhaust fan. The system also has a fire sensor to detect fires.
A smart fire detection system using iot technology with automatic water sprinkler	Hamood Alqourabah, Amgad Muneer, Suliman Mohamed Fati	2021	IOT	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.	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. 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. The main feature of the proposed system is to minimize false alarms, which, in turn, makes this system more reliable.

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Mobile Fire Evacuation System for Large Public Buildings Based on Artificial Intelligence and IoT	HUIXIAN JIANG	2019	IOT and Artificial Intelligence	<p>Large public buildings are densely populated, with various structures and complex functions. In case of sudden disasters (fire, earthquake, gas leakage, etc.), the evacuation is inefficient due to the lack of effective evacuation guidance and panic psychological instructions.</p> <p>Firefighting facilities, such as fire hydrants, fire extinguishers, safety evacuation signs, fire sprinklers, fire pumps, smoke, temperature, and fire doors in buildings are not dynamically monitored and controlled.</p>	<p>The mobile terminal intelligent fire evacuation prototype system for large public buildings is implemented based on the construction of indoor maps and road network models, indoor positioning technology and dynamic evacuation model by ant colony algorithms, using ArcGIS Android SDK 10.1 to provide users with GIS spatial graphics expression interface, to design prototype system on Android platform. The system interface is designed with Material Design style.</p>