

**Ideation Phase**  
**Literature Survey**

Date	20 October 2022
Team ID	PNT2022TMID51665
Project Name	Industry-Specific Intelligent Fire Management System
Maximum Marks	4 Marks

**Paper 1:**

**Title:** Fire Detection, Monitoring and Alerting System based on IOT

**Published year:** 2019

**Author name:** Shreya Gosrani, Abhishek Jadhav, Krutika Lekhak D Chheda

**Journal name:** International journal of engineering applied science and technology

**Summary:**

Internet of Things refers to connecting things and people through internet, it has imposed itself as the new business practices in different sectors. To make quick and efficient response in real time, IoT enhances the way and provides emergency managers with the necessary information and communication to make use of those assets. In this paper it is proposed that a quick response for fire hazards is evaluated and examined by using IoT based model. Fire is one of the major reasons of accidental deaths in the world. To implement this proposed system a low-cost Wi-Fi module, gas detection sensor, Flame detection sensor, buzzer to alert and temperature sensors are used. The sensors detect and alerts the local emergency with the data collected by the system, and alerts organizations like fire departments, police stations and hospitals by sending the exact location to both user and operator through module which all are well connected with.

## **Methodology:**

IoT framework concentrates on public safety and livelihood service sector. The fire detecting system with IoT standardized design methods. The spark Detection sensor PT333B is used to sense the spark, the Flammable gas sensor MQ6 is used to detect the gases like LPG/LNG and the GPS module is to obtain device location. These sensors along with Wi-Fi micro-controller are connected via Internet.

## **Paper 2:**

**Title:** Recent Advances in Fire Detection and Monitoring Systems

**Publication year:** 2020

**Author name:** RAFIK GHALI, MARWA JMAL, WIDED MSEDDE

## **Summary:**

Wildfires are one of the most impacting natural disasters, leading to a huge devastation of humans and the environment. Due to the rapid development of sensors and technologies as well as the success of computer vision algorithms new and complete solutions for automatic fire monitoring and detection have been exposed. However, in the past years, only few literature reviews have been proposed to cover researches until the year 2015. To fill this gap, an up-to-date comprehensive review on this problem. we expose vision-based methods for fire detection. Our main focus was on techniques based on deep convolutional neural networks (CNNs). **Methodology:** Traditional ground systems, also called terrestrial systems, are based on human supervision. Fire detection and monitoring is performed by supervising regions locally or by analyzing data provided from local sensors such as flame, smoke and heat detectors, and gas sensors. In order to increase systems efficiency and detect the exact location of fires, ambient sensors were also integrated. These sensors are used during the day and night to detect fire and smoke and identify their characteristics. The main sensors employed in terrestrial systems are vision or infrared (IR) camera, IR spectrometers and Light detection and ranging systems (LIDAR) [3, 4, 5].

### **Paper 3:**

**Title:** IoT Based Forest Fire Detection System using Arduino and GSM Module

**Publication year:** 2021

**Author name:** Debasis parida

### **Summary:**

Forest fires are common hazards in forests that cause a lot of harm to Wildlife as well as the Environment. It could be avoided if a robust system could be deployed in forest areas to detect the fire and alert to Fire extinguishing authority to take immediate action. In this project, the intention is to build a Forest fire detection system using IoT which would detect the fire and send an emergency alert to Authority through IoT. Here a GSM/GPRS module is used to communicate with IoT sever as usually in forest areas network bandwidth is very low or not available. Hence a 2G network is preferable to communicate with the server.

### **Methodology:**

The project consists of flame sensor Arduino Nano & SIM800L GSM/GPRS module as its primary components. The fire can be detected by the flame sensor which gives a digital output that corresponds to the Fire status and is received by the Arduino Nano. Arduino compares the signal and triggers the SIM800L in case of fire incidents. Through AT commands, SIM800L communicates with thing speak server.