

| S.No | TITLE OF THE PROJECT   | ADVANTAGES   | DISADVANTAGES   | TECHNOLOGY USED               |
|------|--|--|---|-------------------------------|
| 1.   | LPWAN Based IoT Surveillance System for Outdoor Fire Detection                     | This paper presents a low-cost Internet of Things (IoT) prototype for fire detection in outdoor environments based on sensors and Low Power Wide Area Network (LPWAN), focused on the accuracy in the temperature and gas measurement at the moment a fire starts.   | It did not consider proprietary options that may be equally effective based on the know-how and the engineering support available but limited for developing because of factors associated with costs and their configuration restrictions. | Ardiouno, Php programming     |
| 2.   | Developed Intelligent Fire alarm system  | The primary advantage of a home fire alarm system is increased reliability and the ability to place alarms and bells exactly where needed. However, the reason most people have them is that they wanted a burglar alarm system and the cost of adding fire alarm features to a residential burglary system is relatively small. | It has little disadvantages of; System will be failed if the slaves' unit network has a failure.  | Embedded system               |
| 3.   | A Smart Fire Detection System using IoT Technology With Automatic Water Sprinkler. | The proposed approach obtained an average response of 5 seconds to detect the fire and alert the property owner. Meanwhile, the water pump activated to suck   | The enhancement directions is integrating machine learning with the system to predict the potentiality of fire based on the collected data from   | Ubidots platform,GSM network. |

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|    |  | water from the tank and release it into the water sprinkler to minimize the fire until the property owners and emergency services reached.   | different sources. Machine learning may help the operators find and overcome the vulnerabilities in their building to prevent fire instead of detection only.  |  |
| 4. | An Intelligent Fire Warning Application Using IoT and an Adaptive Neuro-Fuzzy Inference System | The system more efficient, robust and reliable; and reduces false alarms; the proposed system used easily available, lightweight and cost-effective sensors and is more reliable than conventional fire detection systems. This system can be used at the commercial level and results are reproducible. | This system is particularly designed for indoors, as the flame sensor is sensitive to sunlight and, secondly, the reading and training data may differ in open areas.  | Adaptive neuro-fuzzy interference system (ANFIS) |
| 5. | IOT ENABLED FOREST FIRE DETECTION AND EARLY WARNING SYSTEM                                     | The system thus intend is powerful to expose the mixture variations, daring gases and fire event through the sensors in an diligence and powerful to update the complaint to the style expert through the IOT fulfill secondhand MQTT policy.  | The system is meant for a sincere opinion news only. As a tomorrow aggravation, several-decision company through the IOT landing is study a object and the exploration is being done to effectuate this enormous toil. | Wireless Sensor Networks, Data Transmission.     |
| 6. | Fire Detection System using Raspberry Pi.  | IoT is very useful way to detect fire and to detect fire by  | The algorithm that are design until now are not  | Raspberry Pi.                                    |

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|    |   | using computer vision. The idea is that is to give a camera a power of human eye and to detect fire when it starts but that is not a easy job.   | able to detect fire completely but they also detect some other objects in the color combination of fire and generate a false alarms or notification.   |                                       |
| 7. | IOT BASED FIRE PREVENTING SYSTEM                                | New advancements in programmed starting gadgets utilize IoT and PC calculations to look at obvious impacts of flame and development in ways in which other discovery gadgets can.  | The fireside anticipation frameworks generally utilize a solitary sensor for occasion identification yet issues emerge if the target sensor doesn't detect the event   | ESP32 microcontroller, IOT.           |
| 8. | Efficient Fire Detection for Uncertain Surveillance Environment | Fire detection approaches of complex and huge-sized CNN models such as AlexNet, SqueezeNet, and GoogleNet. First, our method is based on light-weight deep neural networks with no dense fully connected layers, making it computationally inexpensive. Second, the size of the resultant model is approximately 13 MB, which is easily deployable on mobile devices with embedded vision. | Early detection of fire is very important to disaster management systems for which several CNN based fire detection methods using edge intelligence are presented to date. These methods have reasonable accuracy and execution time and are applicable to only certain environment. In case of uncertain environment having fog, smoke, and snow, their | CNNs, Embedded Vision, 5G, mobileNet. |

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|     |  |  | performance is limited.  |                                 |
| 9.  | Automatic Fire Detection and Alert System      | By adopting the proposed system, we can alert the surrounding people and also inform the firemen regarding the accident along with the accurate location of accident area specified.   | The percentage of life loss and property loss are considerably high. This is due to the lack of communication or due to the delay in informing and getting the services of the fire rescue or emergency help personnel during an accident. | NodeMCU, Arduino IDE, Blynk app |
| 10. | FIRE DETECTION USING DEEP LEARNING AND OPENCV. | The proposed system uses advanced Deep learning and Convolutional Neural Networks technology to detect the fire and OpenCV technology to capture the images. CCTV cameras at places which will reduce the cost of the system as well as maintenance. | the supplementary features to colour, including texture, shape, and optical flow, can be the false detections.   | Deep learning.                  |