LITERATURE SURVEY

INDUSTRY SPECIFIC INTELLIGENT FIREMANAGEMENT SYSTEM

Domain : Internet of Things

Team id : PNT2022TMID20420

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Paper1:

TITLE: Fire detection and alarm system

Publication year:2019

Author name: Trung Luong

Journal name:HAMK Journal of Electrical and Automation Engineering

Summary:

The central target of this project was to study, analyse and design a fire detection and alarm system. This topic was suitable because it covered a basic and important aspect in our modern life. The objectives of the project were to provide information on fire alarm system in Vietnam and Finland, to show the similarities and differences with systems in both countries. For practical part, Arduino Uno was used as the control unit with other necessary components. Upon completing this project, the author has demonstrated how a fire detection and alarm system works and analysed the system standards in theabove-mentioned countries. Moreover,the fire alarm system using the Aurdino Uno was tested and found to work successfully.

Methodology: The project consist of smoke sensor, flame sensor, LED and Buzzer, Ardunio Uno as its primary components. The fire can be detected by theflame sensor and the smoke sensor also detect fires by sensing small particals the air.

Paper 2:

Summary:

Fire identifiers are utilized to recognize the fire or smoke at a beginning time and can help in sparing lives. Right now, IOT based alarm has been planned utilizing temperature and smoke sensor. By utilizing the temperature sensor, smoke sensor and there is a simple to advanced convertor, which changes over the simple signs got at the sensor end to computerized and afterward transmits themto a smaller scale controller and to the Arduino. The small-scale controller ismodified to turn on the ringer, when the temperature and the smoke arrive at an edge esteem. Simultaneously, Arduino sends the information to the Wi- Fimodule ESP8266. ESP8266 will then the accompanying information to the

IOT site, where, approved individuals can take fitting measure so as to checkthe fire. The gadget id is the one-of-a-kind id given to a gadget, which would enable the work force to get data identified with the area, where the fire is detected.

Methodology: Iot must be self-contained for searchoperation, decision making based on the real-time data orcurrent condition (object detection), intelligent decision(software program) for the immediate surrounding environment orcondition is to perform the task or mission.

Paper3:

Title: Developed Intelligent Fire alarm system

Publication year: 2012

Summary:

Alarm can be triggered by using detectors or by manual call point (Remotely). To alert/evacuate the occupants siren are used. With the Intelligent Building of the rapid development of technology applications, commercial fire alarm market demand growth, the key is to use the bus system intelligent distributed computer system fire alarm system, although installation in the system much easier than in the past , but still cannot meet the modern needs, the installation costs of equipment costs about 33% ~ 70. The suggested technique in Fire alarm system used the addressable detectors units besides using the wireless connection between the detector in zones as a slave units and the main control unit as the master unit. The system shall include a control panel, alarm initiating devices, notification appliances, and the accessory equipment necessary for a complete functioning fire alarm system.

Methodology: The project consist of smoke sensor, flamesensor, Ardunio Uno as its primary components. To the design of high reliability, strong anti-interference ability of automatic fire alarm system.

Paper4:

Title: Recent Advances in Fire Detection and Monitoring Systems

Publication year: 2020

Author name: RAFIK GHALI, MARWA JMAL, WIDED MSEDDI

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 are employed in terrestrial systems are vision or infrared (IR) camera, IR spectrometers and Light detection and ranging systems (LIDAR) [3, 4, 5].

Paper 5:

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.