Paper 1:

Title : Industrial Internet of Things for Safety Management Applications

Author: Sudip Misra, et al.,

Published Year: 27 July 2022

Description: Industrial Internet of Things (IIoT) aims to achieve higher operational and management efficiencies by bridging machinery, equipment, human resources, and all other actors involved in an industrial environment. This bridging enables data flow over an often complex and heterogeneous communication network. It enables timely decision-making, which affects various aspects of the organization such as business, operations, maintenance, safety, stock, and logistics. Despite the plethora of works in the domain of IIoT dealing with the above aspects, very few works deal with safety in industries. Industrial safety, especially whenever it is intertwined with the safety of humans, is a critical domain and holds much scope for improvement in the context of IIoT-based solutions for industrial safety management. Through this survey, we provide a comprehensive overview of the safety issues prevalent in the industries. Subsequently, we classify and provide an in-depth analysis of the safety aspects in various application areas of IIoT such as healthcare, transportation, manufacturing, and mining. Finally, we examine the research gaps in various domains and recommend future research directions. We discuss diverse forms of technologies, prototypes, systems, models, methods, and applications to ensure the safety of individuals and the risks associated with them. The primary aim of this work is to analyze and synthesize the existing researches and acknowledge the applicability of these research works towards safety management using IIoT.

Paper 2:

Title: Application of NB-IoT in Intelligent Fire Protection System

Author : T. Li and P. Hou

Published Year: 2019

Description: NB-IoT refers to a cellular-based narrowband Internet of Things, which has become an important part of the Internet of Things. NB-IoT is a new technology emerging in the field of Internet of Things in recent years. It has obvious advantages in technology and application. In addition, the application of narrowband Internet of Things (NB-IoT) technology in the field of fire protection can fundamentally enhance the combat capability of fire fighting forces, avoid fire and reduce the loss of life and property of the people. This thesis analyses and introduces an intelligent fire-fighting system based on the new industry standard, and a smoke-fire detection and alarm device based on the Internet of Things (IoT) platform and Nb-IoT technology. It also puts forward corresponding solutions to the problem of smart smoke, such as the value, advantages and future expectations of the solution.

Paper 3:

Title : A Study on the Fire IOT Development Strategy

Author: Zhang ,Ying-cong

Published Year : 2013

Description:

Internet of Things (IOT) has become a strategic apex for a new round of economic and technology development at present, and its development is significant for promoting economic development and social progress. In compliance with the spirit of Outline of the Twelfth Five-Year Plan for National Economic and Social Development and Decision of the State Council on Accelerating the Fostering and Development of Strategic Emerging Industries, On Dec. 8, 2011, the Ministry of Industry and Information Technology issued the Twelfth Five-Year Plan for IOT Development, and among its seven major tasks are “accelerating the building of standard system” and “actively launching application demonstration”. Fire IOT belongs to the application of IOT in firefighting industries. The three main characteristics of IOT are “fully perceivable, reliable transmission and information processing”, which precisely matches the “fire disaster surveillance, alarming and disposal” practiced in firefighting management, so IOT can be used to be built into a “firewall” of social security, propel the “four capacities” building of social entities in technology and assure the urban firefighting security and maintain social stability..

Paper 4:

Title : An IoT Based Efficient Fire Supervision Monitoring and Alerting System

Author: B. Prabha

Published Year : 2019

Description:

The industry's dynamic nature presents special challenges to fire management and occupational welfare. High infrastructure concentration and stored inventory have increased fire risks with massive losses. Internet of Things (IoT) is a framework of multiple concurrent devices that are embedded and able to function for data transmission across the Internet. It consists of all world wide web-enabled devices responsible for gathering, transmitting and functioning on information extracted from the surrounding atmosphere by utilizing sensors, detectors and computing hardware. In industrial security and control, IoT plays a major role. This research work presents a new device capable of detecting fire and providing a warning to users. To monitor the integrated devices with several sensors and a cameras, the Raspberry Pi 3 has been used. The sensors continuously sense and actually begins to broadcast values over a Wi-Fi association to the online digital server. Whenever fire is sensed, the camera starts to record the image as well as the device starts to send the message with the affected spot images. Once the explosion is sensed by the fire transmitter, this will stimulate the smoke alarm and activate a sprinkler motor. For sensor information the database can be configured by the administrator and monitored anywhere.