INDUSTRY SPECIFIC INTELLIGENT FIRE MANAGEMENT SYSTEM

Paper 1: Urban Fire Risk Evaluation Based on 2-tuple AHP—Taking the 8th Division with Shihezi City for Example

Author: Caihong Yin; Kaixuan Qi; Kunze Li; Qiangling Duan; Lijing Gao; Jinhua Sun
Year: 2019

Abstract:
The evaluation of urban fire risk was an important gist of scientific and effective urban firefighting management, planned and constructed. This study, took the 8th division with Shihezi city (Shi-City) as an example, an evaluation index system of urban fire risk was first built through analyzing the influential factors of fire risk in urban areas, which contained four first-class indexes and twenty-two second-class indexes. Then, to overcome the weaknesses of the analytic hierarchy process (AHP), 2-tuple fuzzy linguistic representation model was incorporated into AHP to calculate the weights of indexes. After that, an urban fire risk evaluation model was proposed. Finally, the developed model was applied into the fire risk evaluation of Shi-City and the fire risk rating of Shi-City was derived as slightly higher than medium, which offered significant guidance for fire control and safety management.

Paper 2: Fire Safety Management in Transportation of Municipal Wastes with the Use of Geographic Information System

Author: O.P. Savoshinsky; A.A. Zakharova; A.V. Pak
Year: 2018

Abstract:
Fire safety management is one of the main tasks in the field of waste safety. The transportation of municipal waste was a complex management task that

requires a highly skilled decision maker. The current management technique is based on the approach to the construction of systems based on the analysis, by assessing the set of initial factors, which does not allow to achieve the management goal. The proposed approach based on synthesis was devoid of this drawback. The application of the system was shown by the example of the use of geoinformation systems to the problem of fire safety in the transportation of municipal waste.

Paper 3: Application of PHM Technology in the Design of Tank Fire Control System

Author: Jing Xu;Yang Lei;Bin Liu;Chao Ji;Lijun Nan
Year: 2018

Abstract:
Combined with the process of Prognostics Health Management (PHM), the technology and application of armored vehicle fire control system PHM were discussed. The architecture of the health management system for tank fire control system was researched. According to the information characteristics of tank fire control system, the dual redundant bus transmission technology of FLEXRAY and CAN was applied, and the corresponding software and hardware systems were designed. Through the vehicle test, it was proved that the health management system will be effective for locating the fault, comparing the aim and assisting the soldier training. The data and video collected by this system were convenient for both maintenance and further study as the basic data.

Paper 4: Fire incidents Management System in the city of Manila through Geo-Mapping

Author: Maricor Y. Ingal;Ralph Louisse T. Tolentino;Mico J. Valencia;Francis F. Balahadia;Arlene R. Caballero
Year: 2016

Abstract:
Fires had become a concern in recent years in the city of Manila, posing a threat to the entire community. Manila Fire District was facing problems in their internal transactions between different sub-stations. The study served as an automated fire incidents management system that can provide a chart and a summary based on the input data of each sub-station and can provide a map of all the fire incidents through geo-mapping in districts of Manila. This study, Manila Fire District implemented appropriate programs and lead awareness campaign to the community to help lessen fire incidents and mitigated its damages.

Paper 5: Discussion of Society Fire-Fighting Safety Management Internet of Things Technology System

Author:Wang Jun;Zhang Di;Liu Meng;Xu Fang;Sui Hu-Lin;Yang Shu-Feng

Year: 2014

Abstract:
IOT is regarded as another information industry wave following computer, Internet and mobile communication network, and had become one of strategic dominant positions of new economic and technological development all over the world. The society fire-fighting safety management was an important application field of Internet of Things (IOT) technology. This paper combines application features of IOT technology according to fire-fighting business requirement to discuss the fire-fighting IOT systematic frame, plan society fire-fighting safety management IOT technology system, and proposed priority development points of society fire-fighting safety management IOT technology, thereby provided reference for technology research and development of IOT technology in society fire-fighting safety management field.

Paper 6:Fire Safety Management Information System Design for Key Social Organizations

Author:Xu Fang;Zhang Di;Wang Jun

Year: 2014

Abstract:
Aimed at the actual fire safety management needs of key social organizations and units, this paper introduced the design and implementation of the fire safety management information systems of the networked key organizations and units, provide information sharing and services on fire-fighting facilities' operating conditions, fire alarm information, and fire management information to the networked users, fire maintenance enterprises, and the fire supervision and administrative authorities so as to improve the fire safety management efficiency for these organizations and units, offered a scientific tool to the organizations to improve their fire safety management level, extended the functions of fire remote monitoring control system, and promoted fire prevention and controlled capability of the whole community.

Paper 7: A System design of the Tahe's forest -Fire -preventionManagement System

Author:Xindan Gao;Nihong Wang;Jun Li
Year: 2010

Abstract:
This article paper aimed to introduces how a system was designed for Tahe's forest-fire-prevention management in Northeast China after a brief introduction to the overall functional characteristics, the overall function flow chart and the operating environment of the forest -fire -prevention management system. firstly, and then This system design consists of seven function modules, which were geographic information system module, fire-risk each function module of the system in detail, including geographic information system module, fire forecast module, forest -fire -alarm receiving module, blazes fire-put-out-aided decision-making module, forest-fire-put-out troops sending module, loss evaluation module, forest -fire -prevention office and information management module and as well as GPS real-time monitoring module. Among all modules, the geographic information system module was the core of those fire -prevention -management system, and other various modules were carried out various functions through links with the core module, based on its function, realized link. In conclusion, that this paper

summarized the whole system design work done by this paper and as well as the advantages and disadvantages of this system.

Paper 8: Automatic fire alarm and fire control linkage system in intelligent buildings

Author:Wang Suli;Liu Ganlai
Year: 2010

Abstract:
This paper described a comprehensive program of an office building intelligent systems Fire Control Linkage System subsystem design, At the same time, it described the following: the idea of the system design, the system components, selecting equipment, the linkage of alarming and controlling gas extinguishing, and the technical features. Projects under this program have been completed, can realize the intelligent prediction of fire, automatic fire alarm and linkage functions.

Paper 9:Building fire rescue with evacuation management information system and its application

Author:Xu Tao;Mao Guozhu;Li Xin;Zhao Lin
Year: 2009

Abstract:
Building Fire Rescue with Evacuation Management Information System (BFREMIS) was established. And the evacuation model of BFREMIS was analyzed and presented in this paper. Based on the constructed network model, the evacuation of the teaching building in the university was analyzed by using the software EVACNET4. The analysis items included: the total evacuation time, the floor clear time, evacuation bottleneck, and the visual path of the evacuation on MAPGIS platform. BFREMIS was valuable in building safety assessment and building fire rescue.

Paper 10: Forest Fire Management at Aggtelek National Park Integrated Vegetation Fire Management Program from Hungary

Author:AgostonRestas

Year: 2006

Abstract:

Szendro Fire Department is located in the northeastern part of Hungary. The main task was to fight against wildfire and mitigate the impact of fire at the Aggtelek National Park - which belongs to the UNESCO World Heritage list. In 2004 the Fire Department started a project named Integrated Vegetation Fire Management (IVFM). The IVFM consist of two main parts: Peripheries and Modules. The Modules are: Tower based environment monitoring and fire detection system, Mobile command control unit and Static and dynamic decision support system. The Tower based environment monitoring and fire detection system addressed the Fire Department by hot information. The Static and dynamic decision supported system was based on robot reconnaissance aircraft (UAV-RRA)- dynamic parts; and the GIS - static parts. The data supplied by the robot reconnaissance aircraft was combined with the GIS based fuel model and other information to predict the fire activity. The environment monitoring and fire detection system and the Dynamic part (UAV-RRA) of Decision support system based on remote sensing.

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