

Design of Sensor Network Public Opinion Information Integration System based on Intelligent Framework

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Abstract: Nowadays, with the rapid development of the internet, network public opinion can enable people in all fields to respond to the hottest events in a timely manner and express their views freely through the internet. Therefore, in order to maintain the harmonious and stable development of the internet, it is necessary to conduct integrated management of network public opinion information. In addition, network intelligence not only greatly improves the efficiency of the network, but also enhances the flexibility and adaptability of the network. Sensor network based on intelligent framework combines sensor technology and computer network technology, and it is a more complete and efficient information processing system. Based on this, this paper introduces a network public opinion management system supported by smart sensor network.

Keywords: Intelligent; Sensor network; Network public opinion; Information integration

1. Introduction

The network public opinion management system needs to meet the following functions [1]: ①cross-platform, support the common operating systems, like Windows / Linux, and connect B / S and C / S mode ; ②It can realize the integration and screening of complex and various data on the internet, and analyze the current hot and difficult points in depth independently, so as to grasp the potential change rules of online public opinion; ③Users can download various online public opinion data resources through the internet, such as various forms of picture, audio, video and so on; ④The network public opinion management system should also have the function of strengthening the supervision of internet information, so as to manage all functional modules and users uniformly; ⑤It can combine the big data that is currently being discussed. For example, in particular, data mining using distributed configuration servers, information collection, enable multiple distributed servers using storage and management mode. It can cooperate and configure together, becoming an independent server cluster in the end; ⑥A set of trust system is established between the internet and users to regulate and control the online public opinion environment ; ⑦Capture and classify content on the internet and store it in the database.

2. Demand Analysis

The intelligent sensor network is a kind of computer network composed of many automatic devices which are

irregularly distributed in the virtual space, and it is a wireless distributed intelligent network system which is composed of a large number of small sensor nodes with mutual communication and autonomous selection in a certain area and can autonomously complete a task according to a specific environment and scene through autonomous organization. The distance between each node of the intelligent sensor network is usually very short. Because each node is wireless communication, the remote node usually uses multihop wireless for communication. Sensor networks can operate independently, independent of any carrier in an environment, and it can also be accessed over a gateway to the internet, so that users can have multiple remote accesses.

Sensor networks combine sensor technology, but sensor networks are more reliable than sensors, and embedded computing technology processes information through embedded systems. It can also monitor and collect the information of various environments and objects in real time directly or indirectly through each sensor network node, and transmit the perception information to the user terminal randomly and autonomously through a relay method of the wireless communication between nodes. Thus the concept of universal computing is realized.

3. System Framework

The network public opinion information system stores some public opinion information collected from the internet into the public opinion database. At this time, the data is the original data without any processing. For example, the data collected from Weibo comments are

directly copied. Afterwards, the collected public opinion data are indexed by intelligent public opinion search engine, that is, the data is classified.

The analysis of online public opinion is responsible for the intelligent analysis and processing of the data collected and stored in the public opinion database. For some negative public opinion, the system automatically filters [2]. There is some similar information to filter. The sensor node performs an ordered transmission of compliance data along other sensor nodes, and the data can be processed by the transfer node during the transmission. After a period of time, the data will reach the sink node and finally reach the management node with the help of the internet. Therefore, sensor network system includes sensor node, sink node and management node, which is the basis of information collection in sensor network. The core nodes of a large number of sensors are randomly arranged in or near the scope and then constitute the sensor network by means of autonomous organization. The network public opinion management system publishes the filtered and transmitted final public opinion data in the database to various Web interfaces and presents them to users.

Finally, user can configure and manage the sensor network through the management node, publish tasks, and collect the transmitted data. That is, users can view public opinion information through relevant platforms of network public opinion.

4. Overall Design

Analyze the above functional requirements, the system functions mainly include network public opinion information collection, public opinion database retrieval and network public opinion statistical analysis management. System flow: network public opinion information collection uses the communication in the intelligent sensor network to capture text information from user-monitored web sites and store it in the web public opinion database, and preprocess the data from the online public opinion database, mainly on a variety of unstructured public opinion data. Title, website address and some other information should be extracted from these data to analyze, and then they are converted into systematic and comprehensive data. Structured data results should be stored in the network public opinion database and output to the full-text retrieval system. The full-text retrieval system first sorts and filters the data, then publishes and creates them. The index is stored in the index database, and then the data in the index database is retrieved according to the user's collection instructions to form a full-text search database. Through full-text search API, analyze and process the data of full-text search database according to user requirements, and full-text search databases can also be used. The data is retrieved twice and the results are fed back to the user

interface. The system is configured, managed, and presented to the user through an interface.

5. Systematic Design

5.1. Network public opinion information collection module

The collection of public opinion information is mainly the structured storage of information on internet web pages: face. This behavior is similar to the crawling of a web page by a computer search engine. Firstly, the user sets up the initial set of pages, and the collector begins to gain from the initial set and analyze the Web content; secondly, separate the URL from the content: store the URL outside the collection queue, then use the FIFO rule and utilize the URL to skip to a new page, and repeat the first step; finally, end the collection until all pages have been collected. At the same time, in order to improve the collection efficiency, the user can also set the number of collection layers to reach the number of collection layers set by the user, or terminate the collection in advance. To be efficient, you can design multiple collectors and use multithreading techniques to enable the collector to crawl multiple Web pages at the same time and store the Web page source code [3].

Through the mutual communication between sensor network nodes, the network public opinion information acquisition component preprocesses and stores the qualified information such as text, pictures and tables in the web page in the data collection database. First, search and process the lyrics data, then parse the resources, and finally output the task requirements.

Collection intelligent processing, the network public opinion management system should conduct intelligent information processing based on the understanding and transformation of Chinese information and Chinese language, so as to integrate the latest research results of artificial intelligence, information retrieval and text understanding, and automatically classify the collected web pages according to the content. Without manual intervention, the accuracy rate is more than 85% ;

Provide intelligent classification training tools, the user sets the classification structure according to the classification requirements and data characteristics, and generates the feature template; The automatic learning ability of the machine and the comprehensive classification of the system need to be taken into account at the same time, and reflect the two ways in the process of intelligent classification, making the automatic classification more convenient to maintain; It also supports multi-level classification, including providing automatic learning of classification training supporting multi-level classification, and realizing multi-level classification operation in the internet, Support weight removal function based on web, generate Web page

summary and extract the keywords in the Web page automatically.

5.2. Network public opinion database retrieval module

The retrieval module of network public opinion database is mainly divided into two parts: document index part and full-text index part. After receiving the public opinion information, the module first classifies and indexes the webpage content and title in the index part, and then outputs the index result to the retrieval part according to the keyword information inquired by the user. The search outputs qualified results to the user interface.

The indexes of this module are automatically processed by the intelligent processor, and input the collected data into different file indexes according to common characteristics, so that each file index can also be correlated and understood according to its own theme, thus integrating more effective network public opinions. In full-text search, file index system can also automatically integrate and distinguish the same or different information, so that it can retrieve more comprehensive and reliable information through a file index of a term, and then store it in the full-text search database.

5.3. Network public opinion statistical analysis management

The purpose of collecting public comments is to download a piece of text or image from another web page to your own database or other storage format. This process needs to be configured as follows: download the text from the web page, convert it into the data form stored within a web page, then analyze the data and correct the incorrect data, and finally output the results. This series of transformation is carried out under the management of smart sensor network. If the data meets your requirements, you can omit the calibration results. Once the configuration is complete, the configuration form task (which is described in XML format) is published to the public comment collection server group, the collection crawler works according to the task description, and the final collected results are stored in the result store server. Then, the information processing system of the public opinion analysis system can retrieve data from the result storage server as its own data source. On the basis of information collection and analysis, information is provided to editors and users. From the task information issued by users to the accurate result received by users, it is strictly carried out under the monitoring of public opinion information, ensuring the efficiency and reliability of information. The functions of network public opinion statistical analysis management include independent information

classification and network public opinion screening, discovery of hot words automatically, function of intelligent correlating related hot words, public opinion tracking and statistical analysis information.

5.4. System safety design

System and data security is always the main consideration of modern management information system. The more complex system will have more comprehensive function, but it will have more problems. This leads to too many links in the system. How to ensure the safety and normal work of each link becomes more and more difficult. At the same time, the deeper the dependence on the modern management system, the more prominent its importance becomes, because you have to think about how to defend against an attack from the outside [4]. In addition, the impact of some force majeure factors on the system cannot be ignored.

6. Conclusions

Modern people relying on the internet is not less than some basic human survival things, while the internet brings people happiness, it may also bring negative effects, so the supervision and management of the internet is becoming more and more important to ensure that people are not affected by the bad information on the internet. It is extremely urgent to establish a network public opinion monitoring system.

This paper first discusses the social background of the network public opinion monitoring system, and then analyzes the characteristics of the network public opinion monitoring system at home and abroad, and also analyzes its design and development concept in depth, so that it can be used in the design. Then, following the advanced technology trend in the world, introduce the technology used in the system in more details. Combined with the actual characteristics of the project, analyze the user's needs, forming comprehensive, organized demand analysis report. According to the user demand report, the main framework of the system is designed in combination with relevant technologies of the network public opinion monitoring system. This paper introduces the technology of public opinion information collection, and gives the technical implementation plan. This paper focuses on the analysis of the public opinion orientation. Therefore, the technical principle, technical composition and technical relations in the analysis of public opinion are given in the system design. The test system has basically achieved the results required by its analysis, but the system is still not perfect, and some modules need to be improved. The information obtained in the process of information collection technology is still not smart enough. Intelligent information extraction is based on the structure of web pages, and it adaptively extracts the

content in HTML, meanwhile it also focuses on extracting topics and comments; Another advantage of information extraction intelligence is that in the information collection stage, it can automatically identify useful and useless topics and comments, so as to filter out a large number of useless voices, reduce the burden of subsequent processing and improve the efficiency of the system; Due to the flexibility and complexity of the language, there is still room for further improvement in the accuracy of the text orientation analysis in this paper. Finally, combined with the limitations of information collection and language analysis, the subsequent data volume is very high, which puts forward higher requirements for the classification efficiency of subsequent document clustering. More

effective text clustering technology is still the direction of further exploration.

References

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