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Research on the Construction of Search Database Patent Platform for Intelligent Industrial Robots

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Abstract

Since the 20th century, 90 years, the number of patent applications for intelligent industrial robots worldwide continues to grow rapidly, new technical items are emerging, related technology more and more attention by the world, related research and development is rapidly developing. Patent literature is a very important source of scientific and technological information, whether it is to apply for patents, declare the subject, or the development of new products, dealing with patent infringement disputes, are inseparable from the patent literature search. With the continuous development of network technology, patent search system after another. Ordinary users want to accurately select the database, fast, comprehensive and accurate access to the required patent information, need to master the scope of the respective database included and understand the advantages and disadvantages of each database. Intelligent industrial robots patent search platform in the field of patent data in the screening, cleaning, finishing, processing, to form a database of thematic patents. The patent database includes basic data, enhanced data and technical field data, and with the software platform to install the service to the local.

Keywords: Intelligent Industrial Robots; Patent search; Database platform; Patent database; Basic data; Enhanced data;

1. Introduction

Currently, the use of patent data from all over the world to build patent database has become the hotspot and trend of domestic patent information service. The national intellectual property bureau system and social patent information service agencies have taken the initiative to develop or commissioned by the user developed a variety of thematic patent database platform system.

The majority of the existing national thematic patent databases are patent databases based on the extraction and collation of the basic patent data of the seven countries and two organizations. Compared to foreign commercial patent database and supporting related services, they generally have the following problems:

1) The quality of the patented data source is poor, lack of high-level deep processing patent database, the lack of dynamic real-time data maintenance, data integrity and reliability are not guaranteed.

2) The database was not planned before, the integration of information resources is not high. After the completion

of the database information resources are still scattered, Low-level duplication of databases, and cross-building in serious condition, it is not conducive to comprehensive and quick access to competitive intelligence information.

3) Because the retrieval and analysis system function is backward, therefore can not satisfy the specialized retrieval analysis request. Due to the lack of advanced search technology and auxiliary translation software, the ordinary technical personnel to search for patent information caused great obstacles.

4) The platform can not really achieve long-term operation of rolling development goals due to the operation mode of the IP information service platform is not clear.

5) Because of the lack of "one-stop" patent information service model, can not effectively guide our enterprises to face their own types of intellectual property issues to find a suitable solution.

2. To solve the key technology

1) This platform uses the Internet network technology, the user logs on to the Web through the network. And then send a service instruction to the central server of the system software. Online users are more cases, such as more than 50 users, will have a greater load on the server, and take up a larger server space and transmission bandwidth. Select the appropriate network architecture and programming methods to achieve faster response and processing power, and the center server bandwidth resources in the case of limited, able to handle a certain user's request instructions, at the same time must ensure the accuracy and stability of the treatment.

2) Different databases of raw data collection, statistics, norms is a major difficulty. There are a large number of garbage patents and patents with the family due to the advanced level of technology and the different application mechanisms. Combined with the actual demand of intelligent industrial robots, screening and collection of patent data worldwide. The difficulty of project implementation is to ensure that check the whole, accurate and the basic processing of these data, classification and so on. So the data collection capacity and processing capacity will directly affect the platform to promote the industrialization and service capabilities. The use of the world's authoritative organizations and service agencies of the database and processing tools, such as the European patent database, PatBase database, can reduce the risk of data collection, improve data integrity and compatibility and to better ensure that the patent information is correct and authoritative.

3. Database platform construction situation

Intelligent industrial robots patent search platform in the field of patent data in the screening, cleaning, finishing, processing, to form a database of thematic patents. The patent database includes basic data, enhanced data and technical field data, and with the software platform to install the service to the local.

3.1. Technical field decomposition

Intelligent industrial robots patent search platform technology is divided into three levels. This section shows Level 1 and Level 2. The details are shown in Table 1.

No.	Level 1 technical branch	Level 2 technical branch
1		Base
2		Joint
3	Manipulator	Mechanical arm
4	(the main mechanical unit)	End effector
5		Connections between components
6		Reducer
7	Control System	Control hardware
8		Control software
9		Cylinder
10	Drive mechanism	Oil cylinder
11		Motor

3.2. The basic data

Fundamental data refer to information on the world patent base. The relevant patents in the database are collected and collated from the world patent foundation information. In addition to the basic data include patent bibliography, abstract and full text, but also includes the relevant patent family information, citation information, map information, legal status information, etc. The fields of the basic data are shown in Table 2.

Table 2 Basic data fields

No.	Field Name	No.	Field Name
1	patent name	12	application date
2	abstract	13	publication/bulletin number
3	main claim	14	publication/announcement day
4	applicant	15	primary classification number
5	inventor	16	classification number
6	application number	17	applicant state/province
7	applicant 's address	18	international application no.
8	agency	19	international filing date
9	agent	20	international publication no.
10	patent families	21	international publication day
11	cited patents	22	into the national stage
		23	priority

3.3. Enhanced data

Enhanced data used Basic data that with the combination of computer and artificial way and processing complete according to a series of data processing and processing rules. Some of the enhanced data is a direct replacement for the unprocessed basic data, to enhance the basic data of the comprehensive, accuracy and normative; Some are attached to the base data, adding a number of additional information for your convenience. The main content and application modalities for enhanced data. See Table 3 for details.

Table 3 The main content and application of Enhanced data

No.	Data type	Data specification	Application
1	standardize data	On the basis of the data integration, selection, impurity removal, exclude duplicates, classification, data fields more complete and more standardized.	replace
2	legal status specification	Legal status information in the basic data to standardize, translate and classify. In Chinese and in graphic form for better readability, and support the screening of legal status according to different categories, applied in an alternative manner. The legal status in the base data is the original information, and different national languages and patent offices to deal with the different and not the same. Such as 013: EXP this original information, to be processed, changed to "due to failure to pay annual fee", it becomes easy to read and understand. And can be in accordance with the "failure" sorted out.	replace
3	patent classification standard	And adjust and correct the error information of the patent classification part in the basic data. And add an easy-to-read Chinese description.	replace & append
4	patent family extension	In accordance with the extended family of standards, the patent family information is expanded based on the priority, increased coverage of patent families.	replace
5	claim information	Textualized entitlement entries are created based on the full text of the patent, increasing the association between independent and dependent claims.	append

6	the description information	Based on the full text of the patent to establish sub-sections, sections of the manual information.As with the claims, they can be directly involved in retrieval and online reading.	append
7	the appended drawings information	Based on the full text of the patent to establish a number of independent drawing information,changed the invention and utility model can only browse the history of a single map.	append

3.4. Software system

Intelligent industrial robot patent search database platform adopts the distributed Internet application structure, which is based on XML three-tier B / S architecture. Including the presentation layer, business layer, data access layer, database layer.Three-tier distributed architecture is shown in Fig. 1.

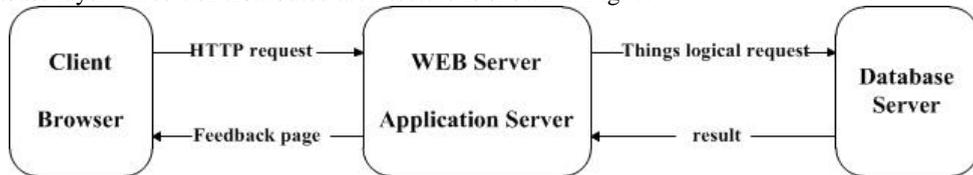


Fig. 1. Three - tier distributed architecture

The first tier of the three-tier distributed architecture is the client presentation layer (client layer),just the graphical representation of the entire application system.In the second layer of the application service layer consists of one or more servers.One of the Web server is mainly responsible for the centralized management of client applications,that is, transaction processing.In the third layer is the data center layer,contains a set of database systems,is mainly responsible for data storage and organization, distributed management of the database, database backup and synchronization, etc.

At the same time, the platform according to the different user permissions to select the interaction between the various modules.For ordinary users can access the interactive module, the administrator also has the appropriate permissions of the part.

In addition,the platform mainly provides users with WEB-based services, but can also be installed on the server according to the needs of users to carry out services.Platform network topology to switch (firewall) as the basis,each user through the browser to access the WEB server for operation.The overall network deployment structure is shown in Fig. 2.Table 4 shows the main functions of the platform software.

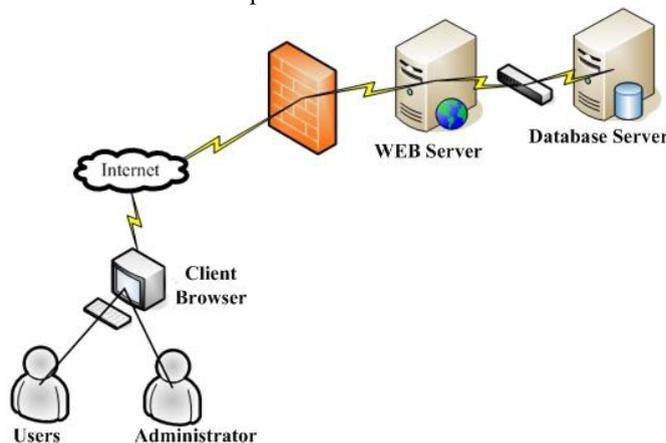


Fig. 2. Overall network deployment structure

Table 4 Platform software main function

Function module	function item	function point	note
Retrieve module	Graphic retrieval	Graphic retrieval	To display in the form of graphical, interactive form of intelligent industrial robots in the field of technology classification distribution, geographical distribution, patent applicants and the time scale of the layout of the situation, and guide users to carry out the search according to their own intentions. While providing a higher rating of hot patent information for the user reference.
	Guided Style Find Fields	Guided Style Find Fields	It provides a guide-type search portal, which guides users to quickly search and search for major searches including technologies, products, countries, regions, time periods, enterprises and patent numbers. At the same time according to the user's personal characteristics, may provide interested in the search direction for reference.
	Advanced Search	Form Search	All searchable fields are provided as a search entry, in the form of a table to provide the user input search conditions and to carry out the search.
		Expression retrieval	Provides the user to enter search expressions according to the set rules and perform searches.
		Search history	Record the search history that a user retrieved using an expression, allow management, then view, and allow reference in expression retrieval.
	Retrieval tool	Technology category labels	According to the data contained in the classification of intelligent industrial robot technology to set up labels, provide a list of labels, labels and search for labels related to the search and other operations.
		International patent classification	Provide a complete international patent classification table, allowing users in the classification table in accordance with the classification code or code description query the appropriate classification.。
		Country code table	Provide complete country code table, allows the user to country code in the table or the state of Chinese and English name query the corresponding name and code of the state.
		Chinese provinces and cities	Provide complete code table of Chinese provinces and cities, allowing users to use provinces and cities in the table name or code query the corresponding code and name.
		Code table	
Display module	resource list	resource list	List the main fields and related information of all patents to be displayed (eg, search results) in tabular form.
	Resource details	Resource details	Show all the details of a particular patent, including all the basic data and enhanced data.It also contains graphical representations of legal status, patent families, citations, citations and drawings, showing that the graphics are interactive.
	Resource contrast	Resource contrast	Allowing users to simultaneously display two to many patents for detailed information, to facilitate comparison.
	Resource tools	Resource selection	Allows users to filter patents in the list of resources by one or more of the legal status, patent type, and country. Screening is reversible.

Analysis module	Quick analysis	Quick statistics	It provides quick ranking statistics of common fields such as patent applicants, applicant country or area, patented country or area, date of application, publication date, IPC classification, technology classification label in the resource list. Allows the user to perform a reversible filtering operation based on the statistics.
		Resources collection	Allows users to add patents of interest to their personal collections. To set up a personal collection of folders which can exist multiple folders.
		Resources download	Allows the user to download the patent of interest to the local. Resource downloads include regular downloads (non-full-text) and full-text downloads.
		Resource analysis	Allows the user to perform an analysis of each item for the patent of interest. See the analysis module for details.
		Track resources	Allowing the user to track the determined search strategy, and is notified when the number of patents involved or the content of the patent changes.
		Resource indexing	Allowing users to be concerned about the patent to join the index library. Set the indexing field of the indexing library, and carry out the indexing work. See the indexing module for details.
		Quick analysis	Provides several types of analysis commonly used, allows the user to analyze without having to manually select the analysis field.
	custom analysis	Individual analysis	Provides a list of all parsable fields. Allows the user to select one and analyze it.
		Portfolio analysis	Provides two lists with all parsable fields. Allows the user to select one respectively and perform a combinatorial analysis of the two selected fields.
		data table	List the results in a tabular format.
analysis result	analyzed pattern	The analysis results are listed graphically (Such as: histograms, pie charts, line charts, bar charts, radar charts, bubble charts, etc.)	
	Results download	Allows users to download data tables and analyze graphs. And allows the user to select a different download file format.	

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