DECLARATION OF ACCURACY

I, David Baldwin, declare the following:

1. I am over 18 years of age and competent to make this declaration.

2. I am a qualified Japanese to English translator.

3. I have prepared the attached document identified as JPH09-311869.

4. I affirm that the translated text has been translated and edited to the best of my ability and knowledge to accurately reflect the content, meaning, and style of the original text and constitutes in every respect a correct and true translation of the original document.

5. I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

I hereby certify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Dated and signed on March 5, 2020.

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(Translator's Signature)

David Baldwin

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(Translator's Printed Name)

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(22) Date of Filing	May 24, 1996 (Heisei 8)	(72) Inventor Haruhiro Kurosawa c/o Toshiba Headquarters Office 1-1-1 Shibaura, Minato-ku, Tokyo-to
		(74) Agent Hidekazu Miyoshi, Patent Attorney (and 3 others)

(54) [Title of Invention] INTERNET SEARCH SERVER

(57) [Abstract]
[Problem] To realize a search server that can obtain desired information from a plurality of URLs and deliver a report thereof simply by inputting search conditions from a client.
[Resolution Means] When this internet search server is sent a search request from a client 3, a search webpage listing unit 12 first lists a search webpage in the client, search conditions are written, the search conditions are analyzed with a search condition element extraction unit to extract search condition elements, and a URL search unit 14 accesses a URL database 11 and extracts URLs providing corresponding information. Then URL information gathering units 16 and 17 sequentially list respective URL addresses of the extracted URLs, gather information from corresponding URLs, edit the gathered results using an editing unit 18, and send them to the client.
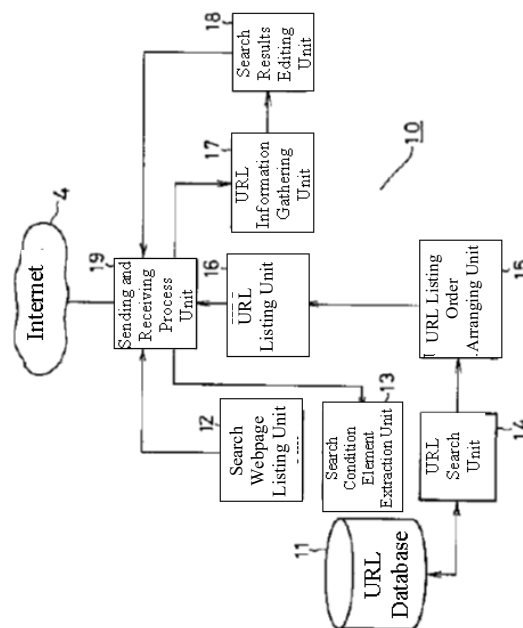
[Scope of Patent Claims]

[Claim 1] An internet search server, comprising: a search webpage listing unit for listing a search webpage to a client,

a search condition receiving unit for receiving a search condition written to the search webpage by the client,

a search condition element extraction unit for analyzing the search condition received by the search condition receiving unit and extracting a search condition element,

a URL database referencing a URL respectively corresponding to various search condition elements,

a URL search unit for accessing the URL database and searching for a corresponding URL for the search condition element extracted by the search condition element extraction unit,

a URL information gathering unit for sequentially listing a respective URL address and gathering information from a corresponding URL based on search results of the URL search unit, and

a URL information sending unit for sending the URL information gathered by the URL information gathering unit to the client.

[Claim 2] The internet search server according to claim 1, wherein the URL search unit comprises a URL listing procedure determination unit for determining an address listing procedure for a plurality of searched URLs based on a prescribed priority condition and passing these in order to the URL information gathering unit.

[Claim 3] The internet search server according to claim 2, wherein the URL information sending unit comprises a function for editing the URL information gathered by the URL information gathering unit to a prescribed format.

[Detailed Description of the Invention]

[0001]

[Technical Field of the Invention] The present invention relates to an internet search server.

[0002]

[Conventional Art] In recent years, the internet has been rapidly spreading, and general users of a computer can easily use a browser to access the world wide web (WWW) to read various webpages listed on the WWW and obtain necessary information.

[0003] FIG. 8 illustrates the configuration of a conventional connection system between the internet and a company LAN. The company LAN 1 has a company server 2 and a plurality of clients 3 connected to the company server that also have a WWW browser function, and this is connected to an external internet 4 via a gateway 5 having security. A WWW server 6 provides a WWW service outside the company.

[0004]

[Problem to be Solved by the Invention] Due to the spread of the internet, many WWW servers are connected around the world, the respective WWW servers open individual webpages, and a uniform resource locator (URL) must be designated to access these webpages.

[0005] However, as illustrated in FIG. 9, there are numberless webpages listed on the WWW, and when a certain client 3 accesses the WWW and attempts to obtain information that is absolutely necessary, it is difficult to define the URL that provides the necessary information on the WWW at first, and for example, a method must be taken wherein a webpage H1 on one WWW server 1 is first accessed, then additional lower level, related webpages H11, H12; H121, H122; H1221, … and the like that are connected to the webpage H1 in the form of a hyperlink are accessed, or a webpage on another WWW server 2, server 3, … is transitioned to.

[0006] Therefore, because it takes a long time to actually gather the required information by accessing the WWW in such a so-called fumbling or haphazard method, a method is taken wherein the URL is picked by first referring to a so-called yellow pages that is commercially available, then the URL is accessed, or a method for first accessing the URL of a webpage of a search service provided on the WWW, finding the URL that provides the information that the individual requires on that webpage, and then again accessing the URL that was found.

[0007] However, even in this case, there is the problem of requiring time and effort to gather the required information because the client must individually search for the URLs of webpages that seem like they would provide the information that the individual requires, pick out the URL, and respectively access them.

[0008] There is also no appropriate means for selecting and gathering only the information actually required from the information on the opened webpage.

[0009] In light of the conventional problems above, an object of the present invention is to provide an internet search server that lists a search webpage for a search request from a client to input a search condition, has the client write the search condition on the search webpage, and after receiving this search condition information, automatically extracts a search condition element from the search condition, utilizes a URL database provided by the server itself to extract a URL, automatically accesses respective URL addresses and sequentially and automatically gathers information, takes a procedure for sending search results to the client, and makes it possible to have a detailed search information service based on the client's request.

[0010]

[Means for Solving the Problem] The internet search server according to the invention of claim 1 is provided with: a search webpage listing unit for listing a search webpage to a client, a search condition receiving unit for receiving a search condition written to the search webpage by the client, a search condition element extraction unit for analyzing the search condition received by the search condition receiving unit and extracting a search condition element,

a URL database referencing a URL respectively corresponding to various search condition elements, a URL search unit for accessing the URL database and searching for a corresponding URL for the search condition element extracted by the search condition element extraction unit, a URL information gathering unit for sequentially listing a respective URL address and gathering information from a corresponding URL based on search results of the URL search unit, and a URL information sending unit for sending the URL information gathered by the URL information gathering unit to the client.

[0011] In the internet server according to the invention of claim 1, when a search request is sent from the client via the internet, the search webpage listing unit first lists a search webpage to the client and has the client write a search condition.

[0012] If the client writes to the search webpage, the search condition receiving unit receives the written search condition, the search condition element extraction unit analyzes the search condition and extracts a search condition element, and the URL search unit accesses the URL database and extracts a URL providing related information for the search condition element extracted by the search condition element extraction unit. The URL information gathering unit sequentially lists a respective URL address of the URL extracted by the URL search unit, gathers information from a corresponding URL, and sends the gathered results to the client using the URL information sending unit.

[0013] In this manner, when there is a search request from a client, search conditions thereof are written by the client to the webpage thereof, the search condition elements thereof are analyzed, URLs providing corresponding information are extracted, these URLs are automatically accessed to gather information, and the results thereof can be provided to the client. This makes it possible for the client to obtain desired information simply by designating search conditions, and it becomes extremely simple to gather information using the internet.

[0014] The invention of claim 2 is the internet search server of claim 1, wherein the URL search unit is provided with a URL listing procedure determination unit for determining an address listing procedure for a plurality of searched URLs based on a prescribed priority condition and passing these in order to the URL information gathering unit.

[0015] In the internet search server according to the invention of claim 2, the listing procedure determination unit determines an address listing procedure in compliance with a prescribed priority order determination condition for a plurality of URLs searched for by the URL search unit, and the URL information gathering unit sequentially accesses the corresponding URLs to gather information in accordance with the determined URL address listing procedures.

[0016] This therefore makes it possible to gather information more efficiently than when accessing all searched URLs in no particular order.

[0017] The invention of claim 3 is the internet search server according to claim 2, wherein the URL information sending unit is provided with a function for editing the URL information gathered by the URL information gathering unit to a prescribed format.

[0018] In the internet search server according to the invention of claim 3, a plurality of URL information gathered by the URL information gathering unit can be edited to a prescribed format in the URL information sending unit and sent to a client, and it can be delivered to the client in a form matching the search conditions wherein it is easy to see only required information.

[0019]

[Embodiments of the Invention] Embodiments of the present invention will be described in detail below with reference to drawings. FIG. 1 illustrates the system configuration of one embodiment of the present invention, wherein a company LAN 1 is configured connecting a plurality of clients 3 to a company server 2. The company LAN 1 and the internet 4 are connected via a gateway 5 for security. The company LAN 1 is also equipped with a WWW server 6.

[0020] A characteristic of the present invention is that a search server 10 is also connected in such an internet system. This search server 10 is configured by a computer having the functional configuration illustrated in FIG. 2.

[0021] The search server 10 is provided with a URL database 11 made up of a comparison table having a plurality of keywords that are search condition elements, and URLs relating to these keywords. The content shown in FIG. 5 and FIG. 6 is one example. FIG. 5 is a keyword table 21 and lists keywords used in the URL table 22 illustrated in FIG. 6. Therefore, anything that is not listed in the keyword table 21 cannot be searched for. The URL table 22 illustrated in FIG. 6 is a comparison table of a plurality of URLs and keywords related thereto. For example, the URL http://www.tokyo.co.jp/sibaden is a mass marketer in Shibuya, Tokyo that also carries out mail orders, and their product line covers general computer-related products. Furthermore, it also shows that a price list is listed.

[0022] Furthermore, the URL
http://www.osaka.co.jp/sakaden
is a mass marketer of household electric appliances in Nakanoshima, Osaka that also handles computer-related products, also carries out mail orders, and shows that a price list is also listed.

[0023] The search server 10 must regularly update the URL table 22 of the URL database 11, and this is currently carried out using various automatic search tools called an internet web crawler.

[0024] The search server 10 is also provided with a search webpage listing unit 12 for describing the search request process to the user and listing search webpages

for inputting search conditions, a search condition element extraction unit 13 for analyzing search conditions input from the client 3 via the search webpage listed by the search webpage listing unit 12 and extracting search condition elements, a URL search unit 14 for referring to the keyword table 21 of the URL database 11 and the keyword list of the URL table 22 to pick out a URL in which a matching keyword is listed, and a URL listing order arranging unit 15 for determining the order of which URL to list based on preset priority conditions for a plurality of URLs picked by the URL search unit 14.

[0025] The search server 10 is also provided with a URL listing unit 16 for sequentially listing the URLs of the plurality of URLs that the URL listing order arranging unit 15 has ordered and accessing the webpages of the corresponding addresses on the WWW, a URL information gathering unit 17 for gathering information of the respective webpages that have been accessed by the URL listing unit 16, a search results editing unit 18 for editing the gathered URL information and sending to the client 3, and a sending and receiving processing unit 19 connected to the internet for controlling the sending and receiving of signals.

[0026] Next, the operation of the internet search server configured as described above will be described. As illustrated in FIG. 3, when the URL of the search server 10 is designated and accessed by the client 3 via the company LAN 1, the search webpage listing unit 12 of the search server 10 lists a search webpage (web page) and sends to the client 3 (step S1).

[0027] In the client 3, the user reads the process description on this search webpage and inputs search conditions in accordance with the designated procedures. Here, it is assumed that the search conditions input from the client 3 have the content illustrated in A1 of FIG. 4. That is, "I would like to purchase a B company computer in the A region, and would like to know the price at each store." If search conditions are received from the client 3 in the search condition element extraction unit 13 of the search server 10 (step S2), the search condition elements are extracted (step S3). Here, the elements "A area," "B company computer," and "each store price" are extracted.

[0028] The URL search unit 14 then extracts keywords included in the search condition elements from the keyword table 21 of the URL database 11, and picks out URLs having the extracted keywords listed therein from the URL table 22 (step S4). Here, URL 1 to URL X are picked as optimal URLs (A3).

[0029] Then, in the URL listing order arranging unit 15, the listing order of the URL addresses is determined based on fixed priority conditions to make efficient searching possible for the number of URL 1 to URL X picked by the URL search unit 14 (step S5). When determining the priority order, a method for giving priority to URLs having a number of keywords that most closely match the

search condition elements of the client 3 is suitable. However, a method can also be adopted for setting priority conditions in advance such as prioritizing area, prioritizing technical field, or prioritizing country name, or checking priority conditions when search conditions are input from the client 3 and setting priority order based on this. A4 shows the listing procedures determined in this manner.

[0030] Afterward, the URL listing unit 16 sequentially lists the URL addresses for all URLs listed in accordance with the determined listing procedures, accesses the webpages thereof, and the information on these webpages is sequentially accumulated in the URL information gathering unit 17 (step S6 and A5 in FIG. 4).

[0031] When information gathering up to the final URL 3 has been completed in accordance with prescribed address listing procedures, the search results editing unit 18 edits the gathered information in the form of a prescribed report and sends to the client 3 (step S8 and A6).

[0032] The following is a more detailed description of the operation of the internet search server configured as described.

[0033] It is assumed that a search condition is written from the client 3 that they would like to know the selling price of each store for a B company computer in the Tokyo area on the listed search webpage of the search server.

[0034] In the search server that has received this, the search condition elements "Tokyo area," "computer," "B company," and "price" are extracted by the search condition element detecting unit 13, and when the URL search unit 14 receives these, URLs having "Tokyo," "Shinjuku," and "Shibuya" listed therein as areas included in the "Tokyo area" are extracted as candidates, URLs having "computer" or "personal computer," "calculator," and "electronic calculator" listed as keywords relating to "B company computer" are extracted as candidates, and URLs having "price" listed are also extracted as candidates. It is assumed that only URL a and URL b are picked from the table 22 in FIG. 6.

[0035] Next, it is determined which of URL a and URL b is to be prioritized in the URL listing order arranging unit 15. In this example, a priority order is not particularly given because the number of matching keywords is equal and the areas are close, information is gathered in the order extracted, the address of URL a is listed first, the information on the webpage thereof is gathered, and the address of URL b is then listed and the information thereof is gathered.

[0036] After this, the search results gathering unit 18 edits to a report format such as that illustrated in FIG. 7 and sends to the client 3. Note that "store i" here is the name of a store having its webpage open at the address of URL

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