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(54) INFORMATION PROCESSING APPARATUS AND METHOD, AND RECORDING MEDIUM

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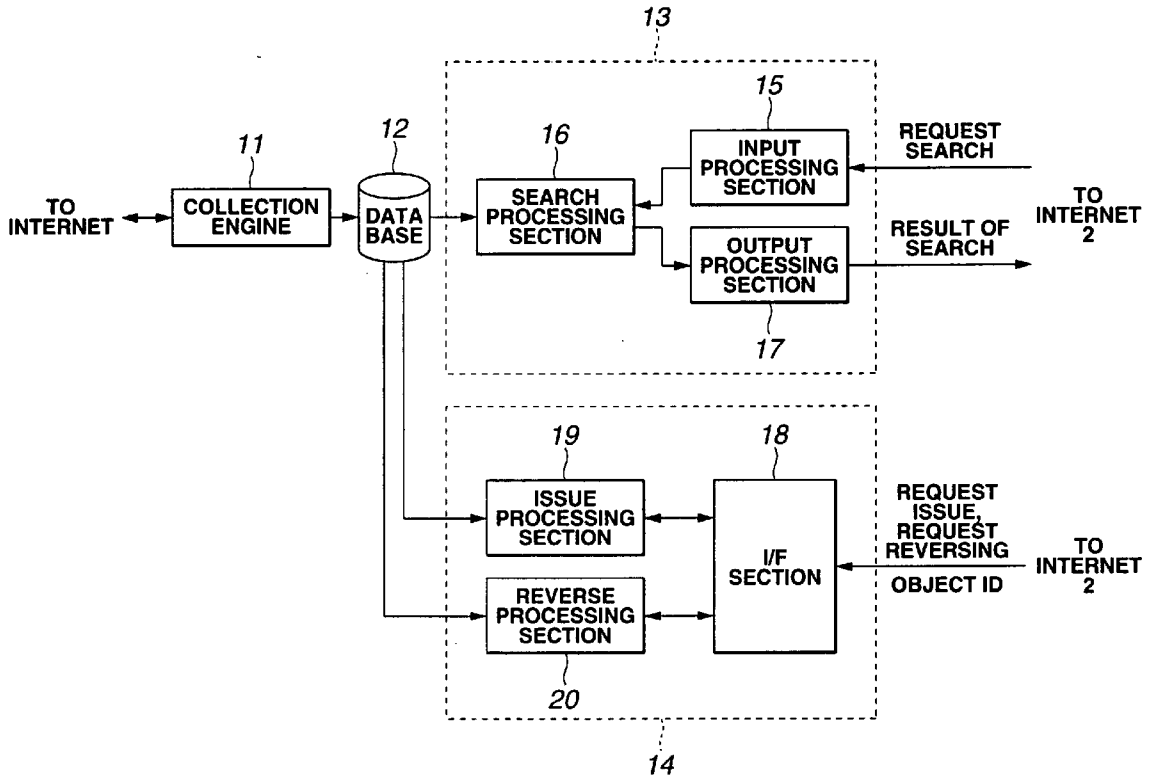
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(57) **ABSTRACT**

The home page provided by a WWW server is described using <IDTAG> tag for assigning an object ID to objects such as a text, an image, and voice constituting the home page; in a search server, URL of the home page having the object and the object ID assigned to the object corresponded are stored; and when the object ID is received from the user terminal, URL of the home page corresponded to the object ID is searched and transmitted to the user terminal.



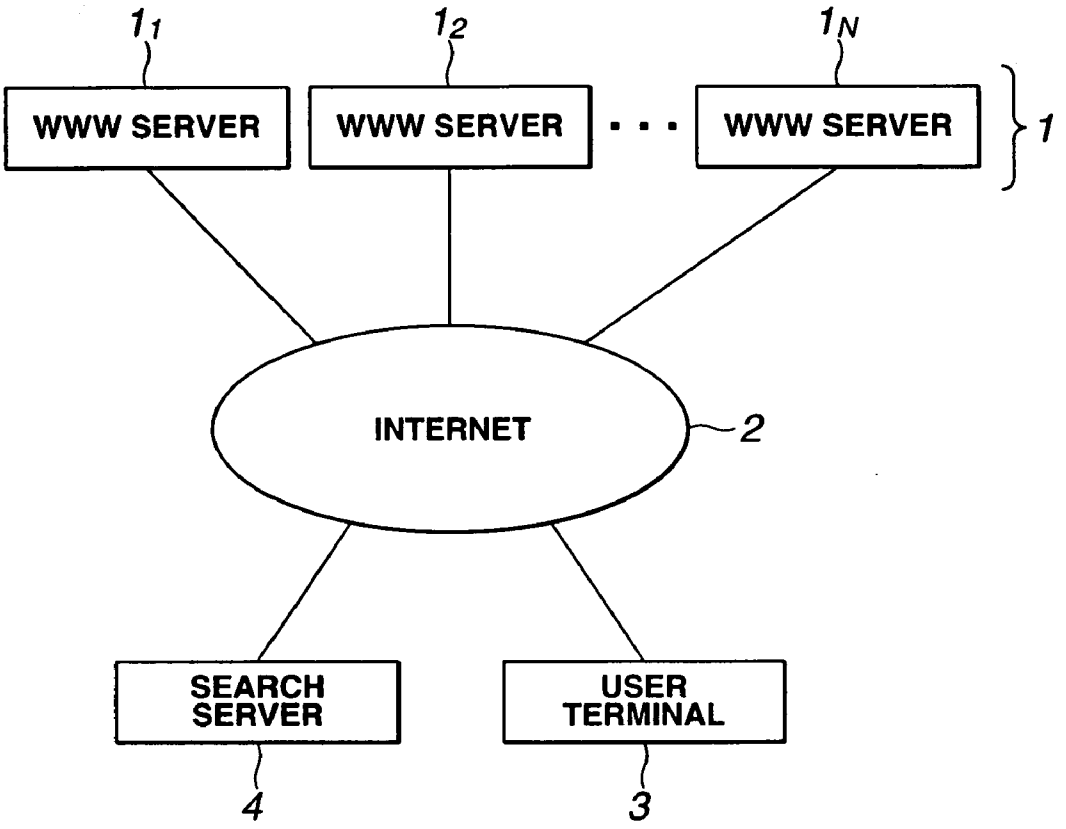
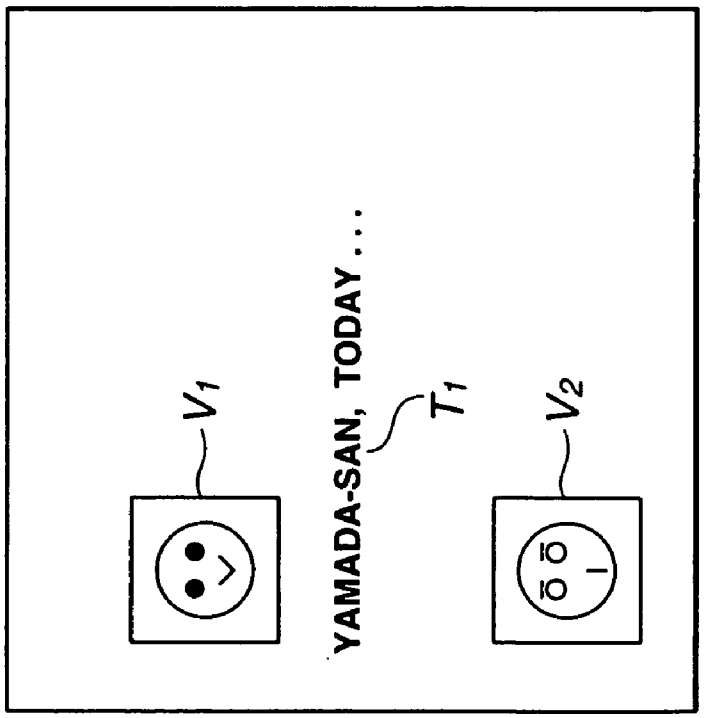

1₁
1₂
1N
WWW SERVER
WWW SERVER
WWW SERVER
1
INTERNET
2
SEARCH SERVER
USER TERMINAL
4
3

FIG.1



HOME PAGE

http://www.aaa/sample.html

```
〈HTML〉
〈HEAD〉
〈TITLE〉 OBJECT ID 〈/TITLE〉
〈/HEAD〉
〈BODY〉
        〈IDTAG ID=1111111 Date=1999/01/01 10:00
        Make="TARO"Att="SABURO"
        Key="ERASER"Kind=Gif〉
            〈IMG SRC="YAMADA-SAN.gif"〉
        〈/IDTAG〉
        〈IDTAG ID=1111111 Date=1999/01/01 10:00
        Make="TARO"Att="SABURO"
        Key="ERASER"Kind=text〉
            〈P〉 YAMADA-SAN, TODAY . . .
        〈/IDTAG〉
        〈IDTAG ID=1234567 Date=1996/01/23 13:00
        Att="NANAKO"〉
            〈IMG SRC="KAWABATA-SAN.gif〉
        〈/IDTAG〉
〈/BODY〉
〈/HTML〉
```

SOURCE FILE

FIG.2A

FIG.2B

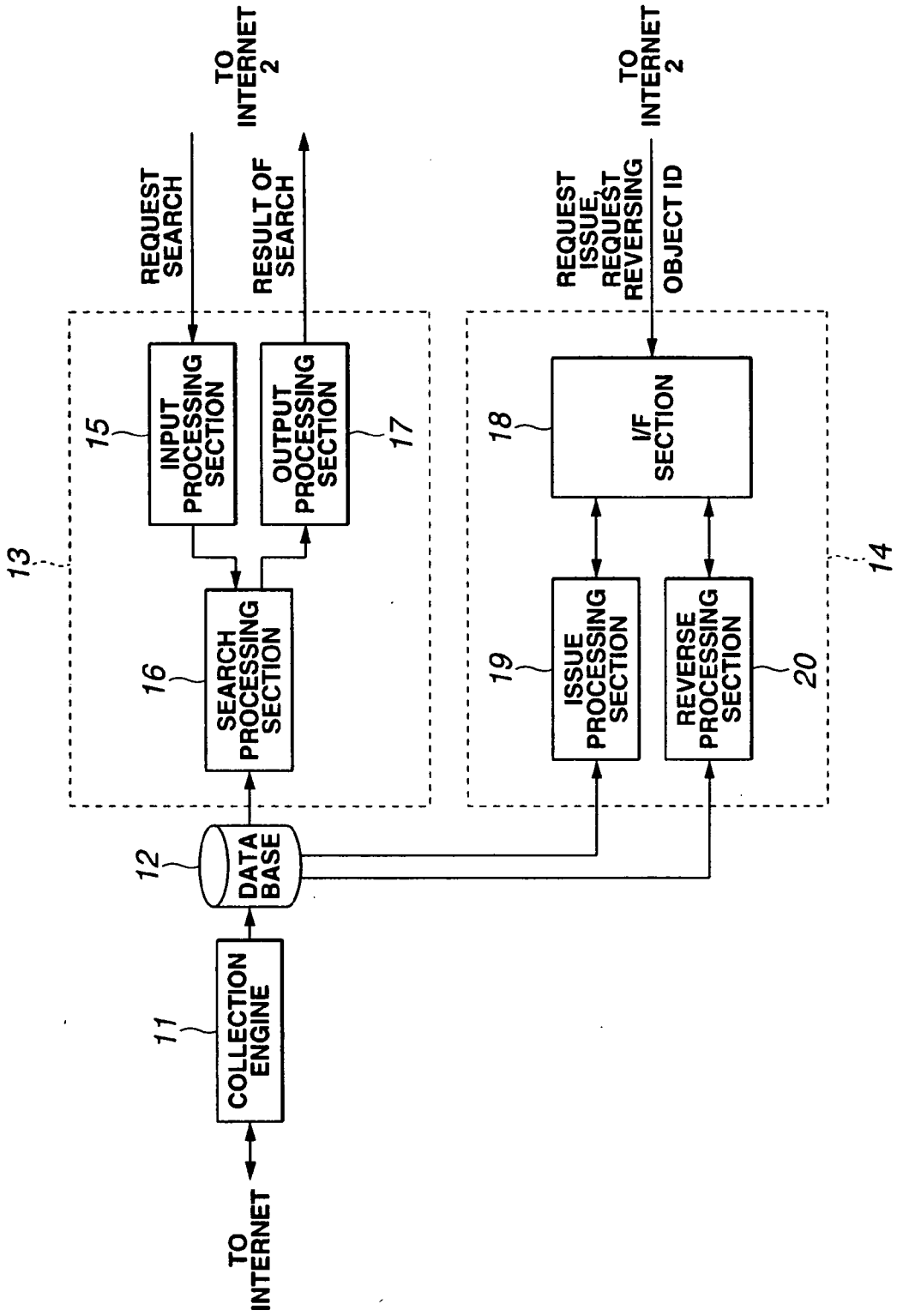

TO INTERNET 2
REQUEST SEARCH
RESULT OF SEARCH
TO INTERNET 2
REQUEST ISSUE, REQUEST REVERSING
OBJECT ID
13
15
INPUT PROCESSING SECTION
OUTPUT PROCESSING SECTION
17
18
I/F SECTION
14
16
SEARCH PROCESSING SECTION
19
ISSUE PROCESSING SECTION
REVERSE PROCESSING SECTION
20
12
DATA BASE
11
COLLECTION ENGINE
TO INTERNET

FIG.3

OBJECT ID	LOCATION INFORMATION (URL)	ID ATTACHED DATE	ID PREPARER	ID ATTACHER	KEY WORD	OBJECT-KIND	OTHERS-FOR EXPANSION	IMPORTANCE DEGREE
1111111	http://www.aaa/sample.html	999/01/01 10:00	TARO	SABURO	ERASER	IMAGE		98
1111111	http://www.aaa/sample.html	998/01/01 10:00	TARO	SABURO	ERASER	TEXT		88
1111110	http://www.c/sample.html	996/04/01 10:00	TARO	JIRO	STATIONARY	VOICE		70
2222222	http://www.222/sample.html	999/05/01 10:00	HANAKO	MOMOKO	GAME	PROGRAM		80
...								

FIG.4

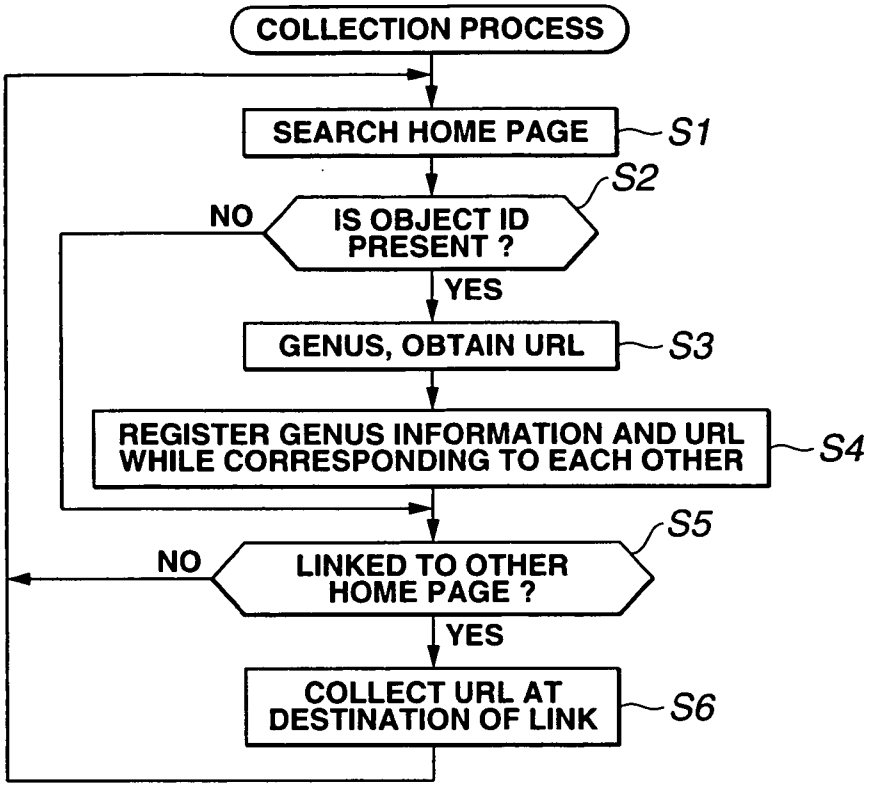

COLLECTION PROCESS
SEARCH HOME PAGE
S1
S2
NO
IS OBJECT ID PRESENT ?
YES
GENUS, OBTAIN URL
S3
REGISTER GENUS INFORMATION AND URL WHILE CORRESPONDING TO EACH OTHER
S4
S5
NO
LINKED TO OTHER HOME PAGE ?
YES
COLLECT URL AT DESTINATION OF LINK
S6

FIG.5

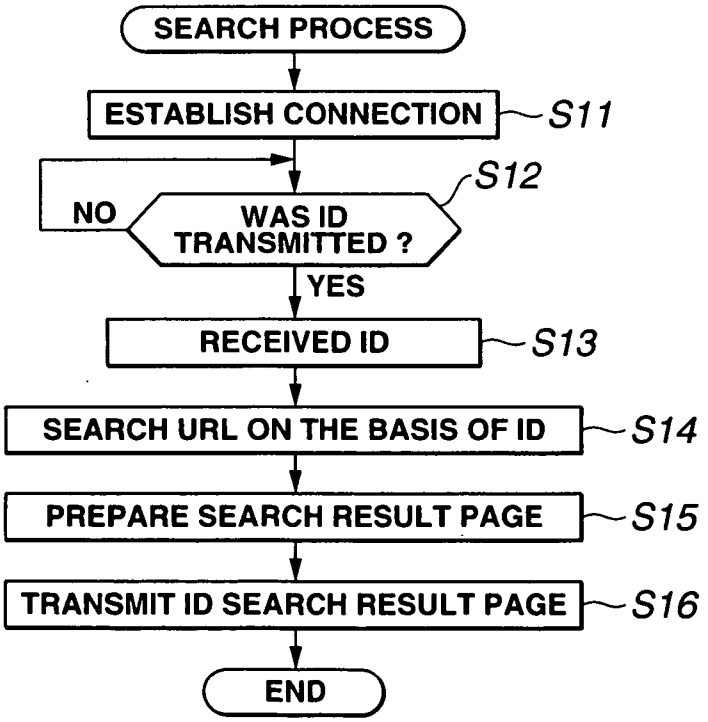

SEARCH PROCESS
ESTABLISH CONNECTION
S11
S12
NO
WAS ID TRANSMITTED ?
YES
RECEIVED ID
S13
SEARCH URL ON THE BASIS OF ID
S14
PREPARE SEARCH RESULT PAGE
S15
TRANSMIT ID SEARCH RESULT PAGE
S16
END

FIG.6

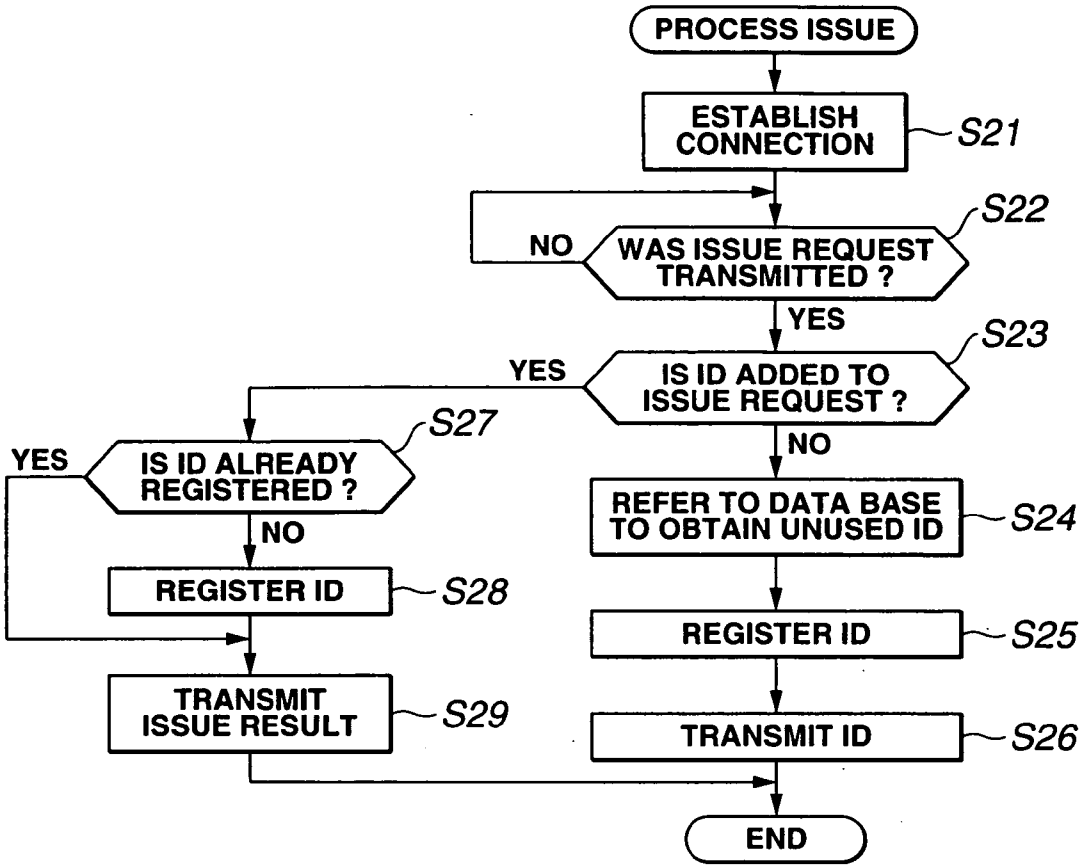

PROCESS ISSUE
ESTABLISH CONNECTION
S21
S22
NO
WAS ISSUE REQUEST TRANSMITTED ?
YES
S23
YES
IS ID ADDED TO ISSUE REQUEST ?
S27
YES
IS ID ALREADY REGISTERED ?
NO
NO
REFER TO DATA BASE TO OBTAIN UNUSED ID
S24
REGISTER ID
S28
REGISTER ID
S25
TRANSMIT ISSUE RESULT
S29
TRANSMIT ID
S26
END

FIG.7

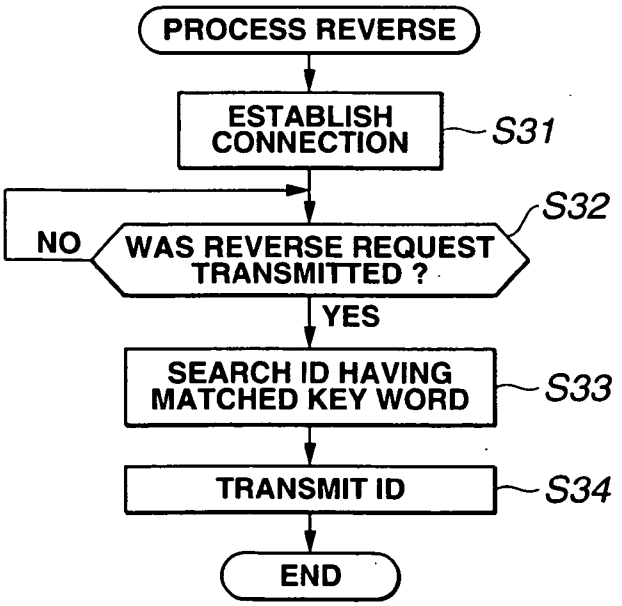

PROCESS REVERSE
ESTABLISH CONNECTION
S31
S32
NO
WAS REVERSE REQUEST TRANSMITTED ?
YES
SEARCH ID HAVING MATCHED KEY WORD
S33
TRANSMIT ID
S34
END

FIG.8

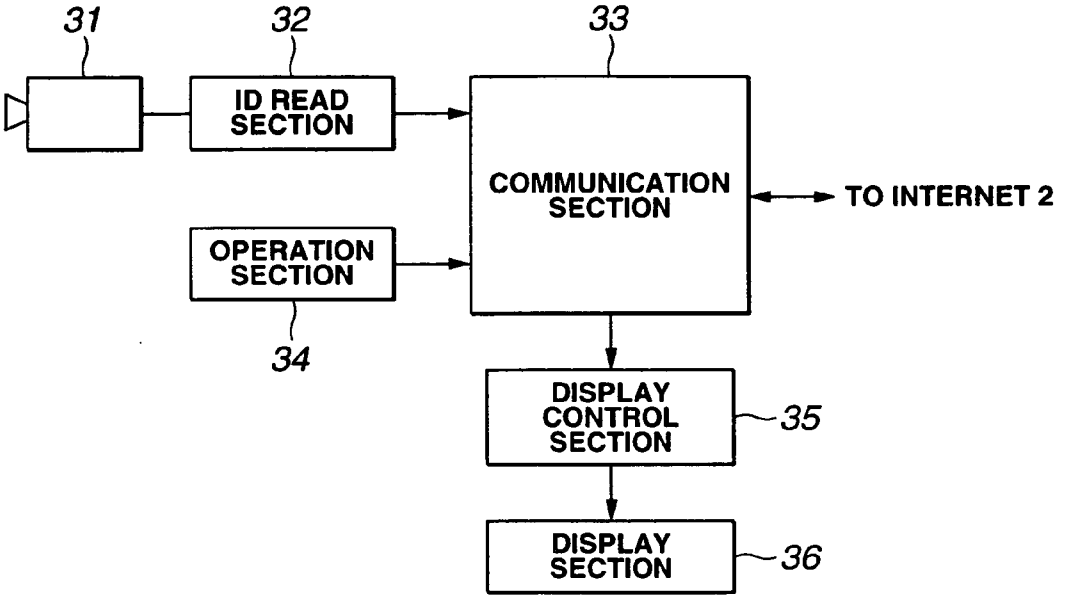

31
32
33
ID READ SECTION
COMMUNICATION SECTION
TO INTERNET 2
OPERATION SECTION
34
DISPLAY CONTROL SECTION
35
DISPLAY SECTION
36

FIG.9

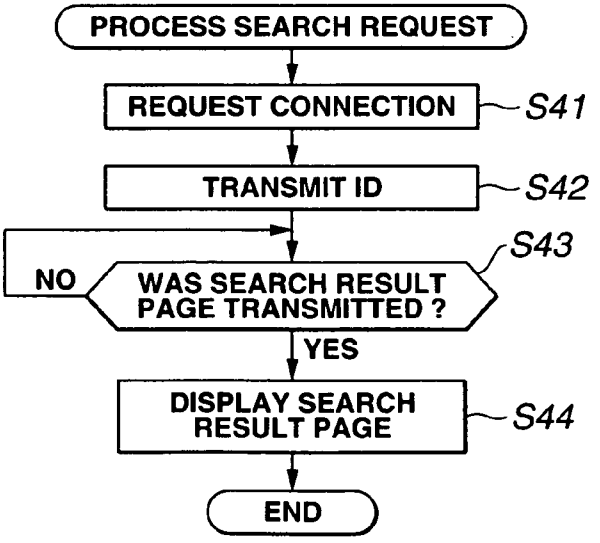

PROCESS SEARCH REQUEST
REQUEST CONNECTION
S41
TRANSMIT ID
S42
S43
NO
WAS SEARCH RESULT PAGE TRANSMITTED ?
YES
DISPLAY SEARCH RESULT PAGE
S44
END

FIG.10

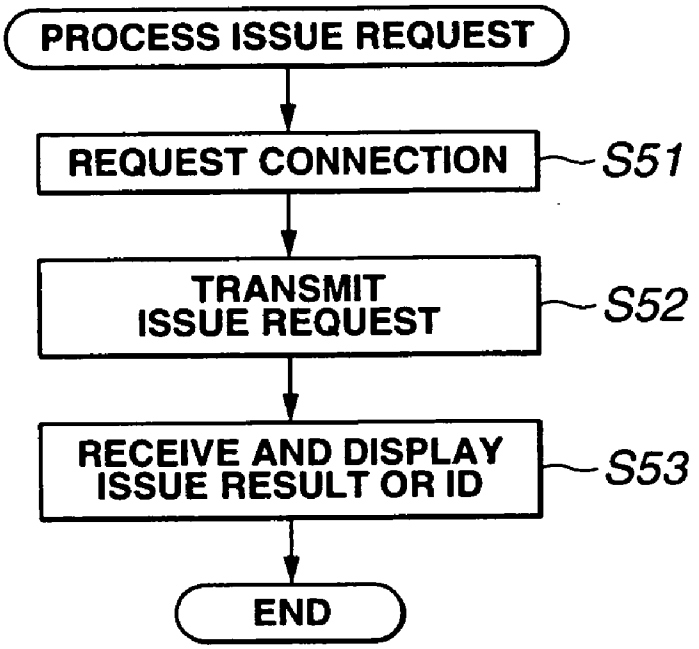

PROCESS ISSUE REQUEST
REQUEST CONNECTION
S51
TRANSMIT ISSUE REQUEST
S52
RECEIVE AND DISPLAY ISSUE RESULT OR ID
S53
END

FIG.11

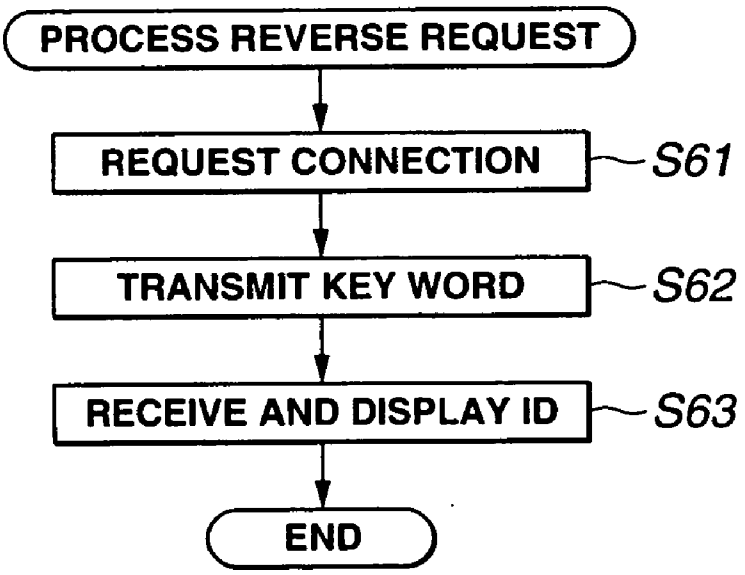

PROCESS REVERSE REQUEST
REQUEST CONNECTION
S61
TRANSMIT KEY WORD
S62
RECEIVE AND DISPLAY ID
S63
END

FIG.12

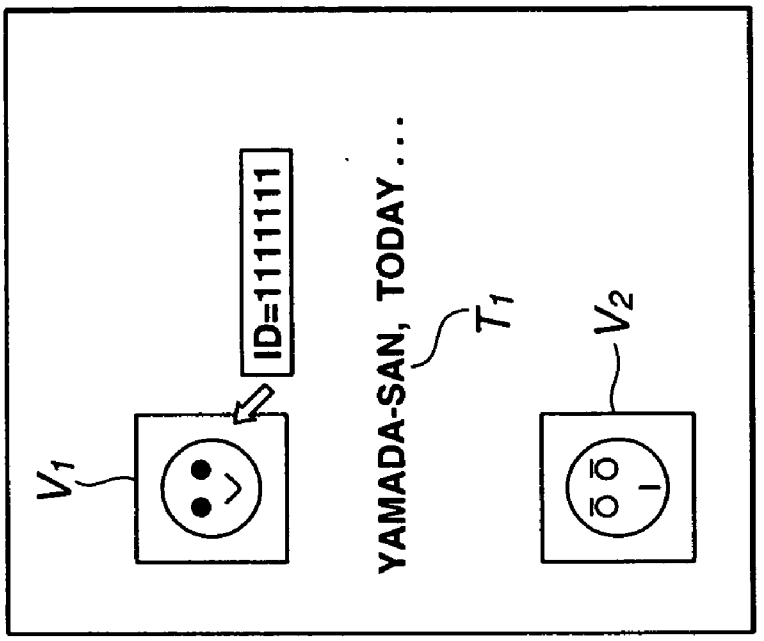


FIG.13B

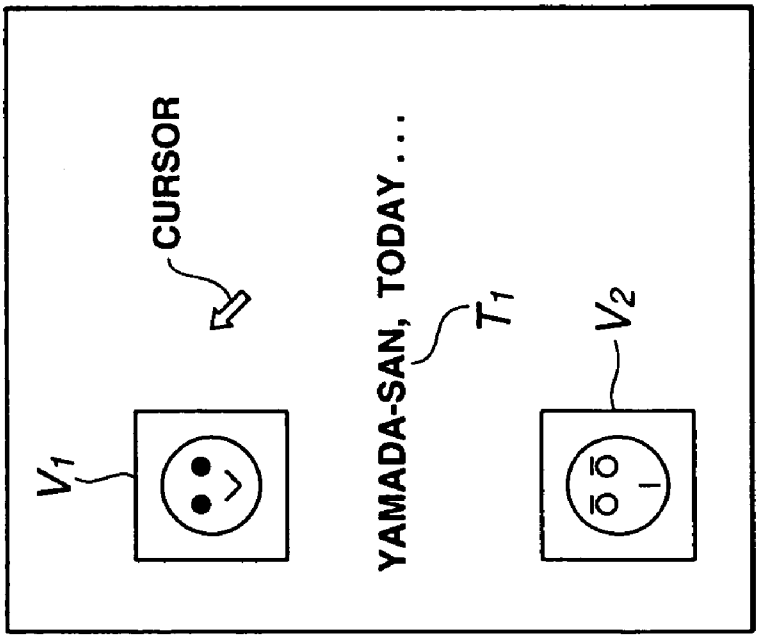


FIG.13A

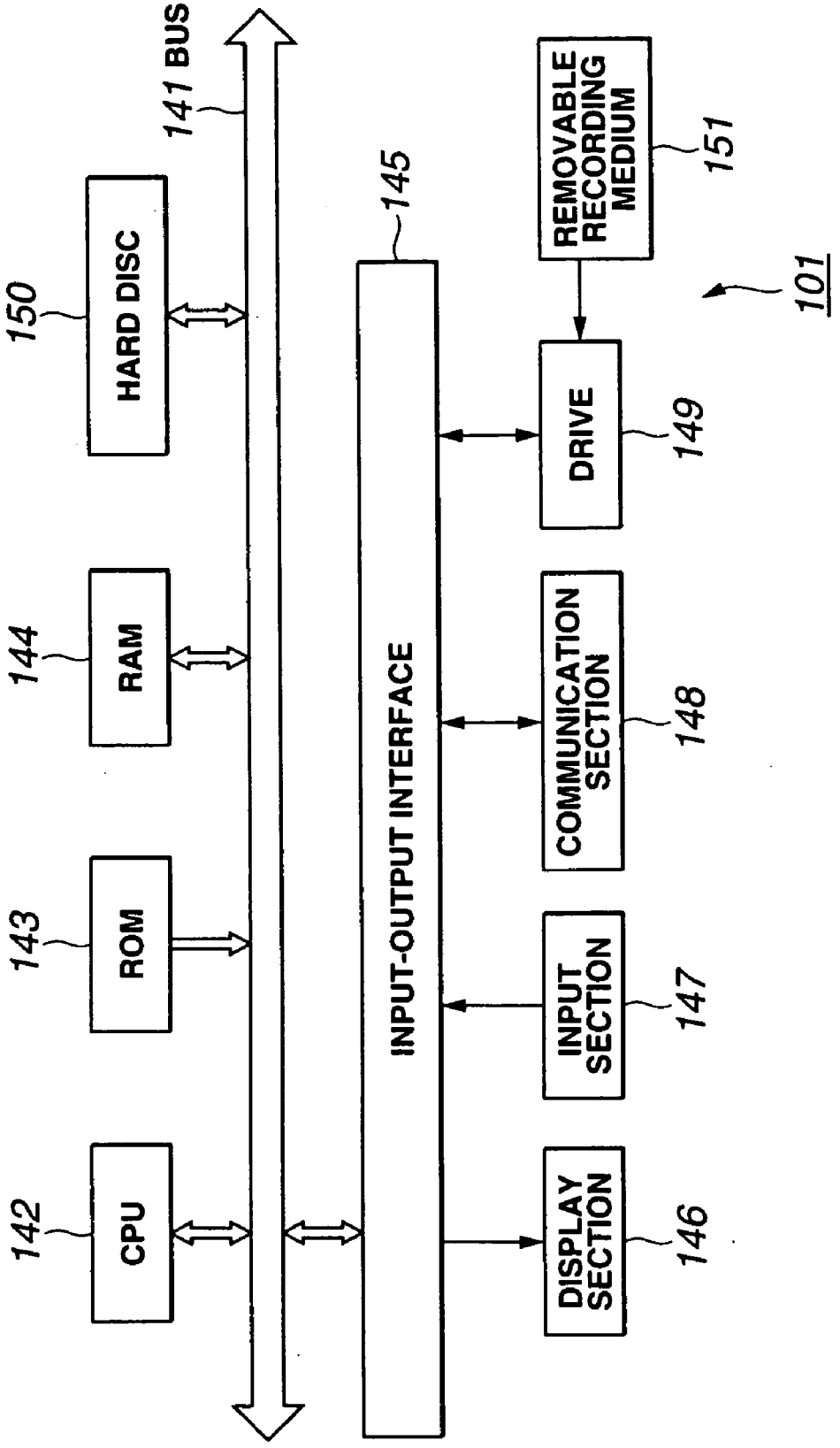

141 BUS
150
HARD DISC
144
RAM
143
ROM
142
CPU
145
INPUT-OUTPUT INTERFACE
REMOVABLE RECORDING MEDIUM
151
101
DRIVE
149
COMMUNICATION SECTION
148
INPUT SECTION
147
DISPLAY SECTION
146

FIG.14

INFORMATION PROCESSING APPARATUS AND METHOD, AND RECORDING MEDIUM

RELATED APPLICATION DATA

[0001] This application claims priority from Japanese Patent Application No. P11-282644 filed Oct. 4, 1999 and International Application No. PCT/JP00/06916 filed Oct. 4, 2000. All of the forgoing applications are incorporated herein by reference to the extent permitted by law.

BACKGROUND OF THE INVENTION

[0002] 1. Technical Field

[0003] The present invention relates to an information processing apparatus and method, and a recording medium, and particularly relates to an information processing apparatus and method, and a recording medium capable of easily obtaining desired information by a user.

[0004] 2. Background Art

[0005] In the internet having been popularized rapidly, recently, information can be easily provided by WWW (World Wide Web). That is, it is possible for WWW to provide information according to a so-called hyper text by a file described in a page description language called HTML (Hyper Text Markup). The file described in HTML is generally called the home page, and a location on the internet where the home page is present is expressed by position information called URL (Uniform Resource Locator). Further, the home page (HTML file) is interpreted and displayed by WWW browser, but the home page interpreted and displayed by WWW browser is designated by URL thereof.

[0006] Incidentally, the internet is a network of a world scale, and an enormous number of home pages are present, thus making it difficult for a user himself to find the desired home page out of such an enormous number of home pages. So, the home page called a search engine is present on the internet, and in such a home page as described, when a key word is input, a list of URL for home pages on which words matched to the key word are described is provided in the form of the home page. For example, in a server having a function as a research engine for carrying out full sentence matched type search, URL for home pages and key words used for search for the home pages are corresponded and registered in the data base. When a key word is input, URL corresponded to the key word is searched to provide a list therefor.

[0007] Accordingly, in the conventional search engine, for example, when a person's name is input as a key word, URL for the home page on which the name is described is searched. Therefore, URL for the home page on which the other person of the same family and personal name as a person the name input as a key work is sometimes included in the home page on which a list of URL is displayed as a result of search. In this case, it is necessary for a user to see, from a list of URL displayed, comments on URL, that is, generally, comments displayed on the home page together with URL as a result of search for URL and representative of an outline of the home page specified by URL displayed to find the desired URL of the home page, failing to carry out easy search.

[0008] Further, in the conventional search engine, search for URL is carried out for a text described in the home page as an object, that is, search is carried out according to whether or not a key word transmitted from a user is included in the text described in the home page, and it is difficult to carry out search with images and voices constituting the home page as objects. As the search result, a user is sometimes impossible to obtain the desired URL for the home page.

DISCLOSURE OF THE INVENTION

[0009] The present invention has been accomplished in view of the circumstances as described above. It is an object of the present invention to provide an information processing apparatus and method, and a recording medium useful for use with these apparatus and method, capable of easily obtaining the desired information through a communication network.

[0010] An information processing apparatus according to the present invention proposed for achieving such an object as described includes receiving means for receiving discrimination information assigned to an object constituting information transmitted from a terminal; discrimination information assigned to the object constituting information; search means for searching position information corresponded to the discrimination information from the terminal from a data base for storing the discrimination information assigned to the object constituting information and position information on the discrimination information; preparing means for preparing a list of position information searched; and transmission means for transmitting the list of the position information to the terminal.

[0011] The data base for storing the discrimination information and the position information corresponded can be further provided on the information processing apparatus.

[0012] Further, collection means for collecting, from information present on a network, discrimination information of an object constituting the information, and position information of the discrimination information to register the collected discrimination information and the position information corresponded in the data base can be further provided on the information processing apparatus.

[0013] In the collection means, related information in relation to an object is collected, and the position information and the related information are corresponded to the discrimination information and registered in the data base.

[0014] The related information may include a key word used to search the discrimination information assigned to the object. In this case, the receiving means receives also a key word transmitted from the terminal, the search means also searches also the discrimination information corresponded to the related information including the key word received by the receiving means, and the transmission means transmits also the search result of the discrimination information.

[0015] In the information processing apparatus, adding means for adding an importance degree to the object can be further provided. In this case, the preparing means may prepare a list of the searched position information on the basis of the importance degree. Further, in the information processing means, issuing means for issuing discrimination information not registered in the data base in response to a request from the terminal can be further provided.

[0016] Here, for information, a file described in a predetermined description language can be used. As the predetermined description language, HTML (Hyper Text Markup Language) can be used, and for the position information, URL (Uniform Resource Locator) can be used.

[0017] An information processing method according to the present invention includes receiving step for receiving discrimination information assigned to an object constituting information transmitted from a terminal; search step for searching position information corresponded to the discrimination information from the terminal from a data base for storing the discrimination information assigned to the object constituting information and position information on the discrimination information; preparing step for preparing a list of position information searched; and transmission step for transmitting the list of the position information to the terminal.

[0018] Further, in a recording medium according to the present invention is recorded a program including a search step for searching position information corresponded to discrimination information from a terminal, from a data base storing discrimination information assigned to an object constituting information transmitted from a terminal and position information of the discrimination information corresponded, and a preparing step for preparing a list of the searched position information.

[0019] In the information processing apparatus and method according to the present invention, the position information corresponded to the discrimination information corresponded to the discrimination information from the terminal is searched from the data base storing the discrimination information assigned to an object constituting information transmitted from a terminal and the position information of the discrimination information corresponded, and the list of the searched position information is prepared.

[0020] Another information processing apparatus according to the present invention includes transmission means for transmitting the discrimination information assigned to the object constituting information to the server; receiving means for receiving a list of position information with respect to information constituted from the object to which the discrimination information is assigned transmitted from the server corresponding to the transmission of the discrimination information; and display control means for displaying the list of position information.

[0021] Another information processing apparatus further comprises input means for inputting discrimination information to be transmitted to the transmission means.

[0022] Another information processing apparatus further comprises request means for requesting the issue of discrimination information to the server.

[0023] Another information processing apparatus further comprises request means for requesting the search of discrimination information by a key word to the server.

[0024] The information can be placed in a file described in a predetermined description language.

[0025] Here, also, for information, a file described in a predetermined description language can be used.

[0026] Another information processing method according to the present invention includes transmission step for transmitting the discrimination information assigned to the object constituting information to the server; receiving step for receiving a list of position information with respect to information constituted from the object to which the discrimination information is assigned transmitted from the server corresponding to the transmission of the discrimination information; and display control step for displaying the list of position information.

[0027] Another recording medium according to the present invention has a program recorded therein, the program including transmission step for transmitting the discrimination information assigned to the object constituting information to the server; receiving step for receiving a list of position information with respect to information constituted from the object to which the discrimination information is assigned transmitted from the server corresponding to the transmission of the discrimination information; and display control step for displaying the list of position information.

[0028] In another information processing apparatus and method according to the present invention shown herein, the discrimination information assigned to the object constituting information is transmitted to the server, and the list of position information with respect to information constituted from the object to which discrimination information transmitted from the server corresponding to the transmission is received and displayed.

[0029] Another information processing apparatus according to the present invention further includes first receiving means for receiving discrimination information assigned to an object constituting information transmitted from a terminal; search means for searching position information corresponded to discrimination information from the terminal, from the data base storing discrimination information assigned to the object constituting information and position information with respect to the information corresponded; preparing means for preparing a list of position information searched; first transmission means transmitted to the terminal; second receiving means for receiving a list of position information with respect to information constituted from an object to which discrimination information is assigned transmitted from the server corresponding to the transmission of discrimination information; and display control means for displaying the list of position information.

[0030] In another information processing apparatus and method according to the present invention shown herein, discrimination information assigned to the object constituting information transmitted from the terminal is received; position information corresponded to discrimination information from the terminal is searched from the data base storing discrimination information assigned to the object constituting information and position information of the discrimination information corresponded; and the list of position information of the searched position information is prepared and transmitted to the terminal. On the other hand, the discrimination information assigned to the object constituting information is transmitted to the server, and the list of position information with respect to information constituted from the object to which the discrimination information transmitted from the server corresponding to the transmission is received and displayed.

[0031] Other objects of the present invention and the concrete advantages obtained by the present invention will become further apparent from ensuing description of the embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0032] **FIG. 1** is a block diagram showing one example of the network system to which the present invention is applied.

[0033] FIGS. **2**(A) and (B) are respectively views showing the home page described using ID tag.

[0034] **FIG. 3** is a block diagram showing the search server constituting the network system shown in **FIG. 1**.

[0035] **FIG. 4** is a view showing the stored contents of the data base shown in **FIG. 3**.

[0036] **FIG. 5** is a flow chart for explaining the collection processing by the search server.

[0037] **FIG. 6** is a flow chart for explaining the search processing by the search server.

[0038] **FIG. 7** is a flow chart for explaining the issue processing by the search server.

[0039] **FIG. 8** is a flow chart for explaining the reverse processing by the search server.

[0040] **FIG. 9** is a block diagram showing the user terminal constituting the network system shown in **FIG. 1**.

[0041] **FIG. 10** is a flow chart for explaining the search request processing by the user terminal.

[0042] **FIG. 11** is a flow chart for explaining the issue request processing by the user terminal.

[0043] **FIG. 12** is a flow chart for explaining the reverse request processing by the user terminal.

[0044] FIGS. **13**(A) and (B) are respectively views showing display examples of the home page described using ID tag.

[0045] **FIG. 14** is a block diagram showing one example of the computer for executing a program recorded in the recording medium to which the present invention is applied.

MODE FOR CARRYING OUT THE INVENTION

[0046] The information processing apparatus and method, and the recording medium according to the present invention will be described in detail.

[0047] First, one example of the network system to which the present invention is applied will be described with reference to **FIG. 1**.

[0048] In the network system shown in **FIG. 1**, WWW servers $\mathbf{1}_1$ to $\mathbf{1}_N$ (will be hereinafter described as WWW server **1** as long as WWW servers $\mathbf{1}_1$ to $\mathbf{1}_N$ need not be discriminated) store HTML file, and image data, voice data, programs and so on constituting the home page. WWW server **1** transmits, for example, when URL is transmitted from a user terminal **3** through an internet **2**, HTML file specified by URL, HTML specified by URL and so on to the user terminal **3** through the internet **2**. In this case, in the WWW browser of the user terminal **3**, HTML file is interpreted and displayed.

[0049] Here, in the home page displayed as the result that WWW browser interpreted HTML file, texts, image data, voice data, programs and so on as occasion demands. In the following description, elements constituting the home page sch as texts, image data, voice data, programs and so on as described above are suitably called the object.

[0050] The user terminal **3** is constituted, for example, by a computer and so on, in which WWW browser for perusing the home page is installed. The user who peruses the home page starts WWW browser installed in the user terminal **3** to input URL. The input URL is transmitted to the WWW server **1** through the internet **2**. In the WWW server **1**, HTML file specified by URL from the user terminal **3** as described above is transmitted to the user terminal **3** whereby in the WWW browser of the user terminal **3**, HTML file is interpreted and displayed.

[0051] The search server **4** provides the home page as a search engine (will be hereinafter suitably called the search page). Accordingly, the user terminal **3** is able to get access to the search page similarly to getting access to the ordinary home page to thereby enable searching URL, That is, the search server **4** searches, when receives a search request of URL, searches URL matched to the request so as to transmit a list thereof in the form of the home page to the user terminal.

[0052] In the present embodiment, in the home page provided in the WWW server **1** is described, as occasion demands, object ID (Identification) assigned to the object constituting the home page.

[0053] That is, in the present embodiment, the tag of HTML is expanded so that the object ID may be described, and ID tag <IDTAG> is newly defined as such a tag as described. The object ID can be assigned to the object by the ID tag.

[0054] **FIG. 2**(A) and **FIG. 2**(B) show the home page described using the ID tag.

[0055] **FIG. 2**(A) and **FIG. 2**(B) show the home page in a state that the HYML file is interpreted and displayed by the WWW browser, and the source for the home page (actual described contents of the HTML file), respectively.

[0056] In the embodiment of **FIG. 2**(A), the home page is constituted by three objects in total: images V_1 and V_2 with a face as a motif, and a text T_1 comprising [YAMADA-SAN, TODAY . . .].

[0057] In the present embodiment, the tag of HTML is expanded so that the object ID may be assigned to the object, as described above. That is, in the source file of HTML shown in **FIG. 2**(B), <IDTAG> tag (ID tag) is also used in addition to the existing <HTML> tag, <HEAD> tag, <TITLE> tag, <BODY> tag, <IMG> tag, and <P> tag. A tag without/is a start tag, and a tag with/is an end tag.

[0058] The <IDTAG> tag is the tag for assigning the object ID to the object, and ID, Date, Make, Att, Key, and Kind can be described as genus thereof.

[0059] Genus ID is used to designate object ID assigned to the object described between the start tag <IDTAG> and the end tag </IDTAG>. Genus Date is used when a date having the object ID assigned to the object is described. Genus Make is used when a name for discriminating a preparer who

prepared the object is described. Genus Att is used when a name for discriminating a person by who assigned the object ID is described. Genus Key is used to describe a key word when the object ID is searched. Genus Kind is used to designate a data form of the object (for example, data are a text, an image or voice; and an image is JPEG form, GIF form, etc.).

[0060] Out of the above-described genera, description of ID is indispensable, but description of other genera is optional.

[0061] **FIG. 3** shows the search server **4** constituting the network system shown in **FIG. 1**. A collection engine **11** collects information of the home page controlled by the WWW server **11** on the internet **2** by carrying out collection control described later, and registers the object assigned to the object constituting the home page and other information, and URL of the home page including the object corresponded in the data base **12**. The data base **12** with the object ID and so on supplied from the collection engine **11** and URL corresponded is stored.

[0062] That is, **FIG. 4** shows data stored in the data base **12**.

[0063] In the data base **12**, stored in each record are the object ID with respect to the object, and presence information, an ID attached date, an ID preparer, an ID attacher, a key word, a kind of object, other data, and an importance degree corresponded.

[0064] URL of the object is described on the column of the presence information. Information in accordance with the genera Data, Make, Att, Key, and Kind of the <IDTAG> tag described in **FIG. 2**(B) are described on the column of an ID attached date, an ID preparer, an ID attacher, a key word, and a kind of object. The column of data for expansion is the column for describing, when the genus of the <IDTAG> tag is expanded in future, information of the expanded genus and so on. The importance degree of the object is described on the column of the importance degree.

[0065] The importance degree of the object is computed on the basis of the genus of the <IDTAG> tag in the collection engine **11**. That is, the collection engine **11** sets the importance degree to a higher value, for example, as the date described in the genus Date is close to the present time. Further, the collection engine **11** sets, for example, where the names of the genera Make and Att are coincided, the importance degree higher than that of the different case.

[0066] Out of the records of the data base shown in **FIG. 4**, the record in the first line from top is prepared with respect to the image V_1 as the object shown in **FIG. 2**, and the record in the second line is prepared with respect to the text T_1 as the object shown in **FIG. 2**. In **FIG. 2**, URL of the home page is http://www.aaa/sample.html. Returning to **FIG. 3**, the search engine **13** carries out search processing for searching the data base in response to the request from the user terminal **3**.

[0067] That is, the search engine **13** is constituted by an input processing section **15**, a search processing section **16**, and an output processing section **17**. The input processing section **15** receives the search request of URL of the object, which is transmitted through the internet **2** from the user terminal **3**, that is, URL of the home page constituted including the object, to supply it to the search processing section **16**. The search processing section **16** searches the data base **12** in accordance with the search request from the input processing section **15** to supply URL as the search result to the output processing section **17**. The output processing section **17** processes such that a list of URL as the search result from the search processing section **16** may be displayed in the form of the home page (prepares HTML file of such a home page) to transmit it to the user terminal **3** having transmitted the search request through the internet **2**.

[0068] The control engine **14** comprises an I/F (Interface) section **18**, an issue processing section **19**, and a reverse processing section **20**, which sections carry out the issuing processing and the reverse processing described later.

[0069] That is, the I/F section **18** receives an issue request and a reverse request supplied through the internet **2** form the user terminal **3**, supplies them to the issue processing section **19** and the reverse processing section **20**, respectively, and transmits the object ID supplied from the issue processing section **19** and the reverse processing section **20** to the user terminal **3** through the internet **2**.

[0070] The issue request termed herein means a request for the issue of the object ID assigned to the object. The reverse request means a request for the research of the object ID assigned to the object.

[0071] The issue processing section **19** refers to, when receives the issue request from the I/F section **18**, the data base **12** to recognize the object ID not used and return the object ID to the I/F section **18**. The reverse processing section **20** searches, when receives the reverse request from the I/F section **18**, the object ID assigned to an object and return it to the I/F section **18**.

[0072] Next, the collection processing carried out in the collection engine **11** of the research server **4** will be described with reference to the flow chart of **FIG. 5**.

[0073] In the collection processing, first, in Step S**1**, a home page (a home page controlled by the WWW server **1**) on the internet **2** is searched, and the procedure proceeds to Step S**2**, then, in Step S**2**, judgment is made of whether or not the object ID is described, that is, whether or not the <IDTAG> tag is present, in the HTML file as the source file of the searched home page (hereinafter referred to as an attention home page). In Step S**2**, where judgment was made of that the <IDTAG> tag is not present in the attention home page, the procedure skips Steps S**3** and S**4** and proceeds to Step S**5**.

[0074] Where judgment was made of that the <IDTAG> tag is present in the attention home page, the procedure proceeds to Step **3** to obtain the genus described in the <IDTAG> tag, and URL of the home page (the attention home page). That is, for example, where the home page that URL shown in **FIG. 2**(B) is http://www.aaa/sample.html is the attention home page, with respect to the object specified by the description <IMG SRC="YAMADA-SAN.gif> between the start tag <IDTAG ID=1111111 Date=1999/01/01 10:00 Make="TARO"Att="SABURO" Key="eraser" Kind=Gif>, and the end tag </IDTAG>, http://www.aaa/sample.html which is URL of the attention home page, and genus ID=1111111, Date=1999/01/01, 10:00 Make="TARO", Att="SABURO", Key="eraser", Kind=Gif described in <IDTAG> tag are obtained.

[0075] Thereafter, the procedure proceeds to Step **4**, and the collection engine **11** has URL of the home page obtained in Step S**3** and the genus corresponded, which is registered as shown in **FIG. 4**, for example.

[0076] The processing of Step **3** and Step **4** is carried out for all <IDTAG> which are present in the home page searched in Step S**1**.

[0077] After the processing in Step **4**, the procedure proceeds to Step **5**, and judgment is made of whether or not a link is extended from the home page searched in Step **1** to the other home page. Where, in Step **5**, judgement was made of that a link is extended to the other home page, that is, where URL of the other home page is described, for example, by <A> tag, on the home page searched in Step S**1**, the procedure proceeds to Step S**6**, and processing similar to the case of Steps S**2** to S**6** is carried out for the other home page. Then, the procedure returns to Step S**1**, and the similar processing is repeated for the home page not researched.

[0078] On the other hand, where in Step S**5**, judgment was made of that a link was not extended from the home page searched in Step S**1** to the other home page, the procedure returns to Step S**1**, and the similar processing is repeated for the home page not researched.

[0079] Next, the search processing carried out in the search server **4** will be described with reference to the flow chart of **FIG. 6**.

[0080] When the request for connection is brought through the internet **2** from the user terminal, in the search server **4**, the connection relative to the user terminal **3** is established, and the procedure proceeds to Step **12**, in which step, judgment is made of whether or not the search research for requesting search of URL of the home page including the object ID and the object to which the object ID is assigned is transmitted from the user terminal **3**.

[0081] In Step **12**, where judgment was made of that the search request was transmitted along with the object ID, the procedure proceeds to the step S**13**, and the input processing section **15** receives the object ID to output it to the search processing section **16**.

[0082] The search processing section **16** searches, when receives the object ID from the input processing section **15**, URL corresponded to the object ID referring to the data base **12**, in Step S**14**, to output URL as the search result to the output processing section **17**.

[0083] The output processing section **17** prepares the home page (hereinafter suitably referred to as the search result page) on which URL from the search processing section **16** is displayed, in Step **15**. Where a plurality of URLs are searched in the search processing section **16**, the output processing section **17** is caused to prepare the search result page in which the plurality of URLs are arranged in suitable order, or can be sometimes caused to prepare the search result page arranged in order of the high importance degree described in **FIG. 4**.

[0084] When the output processing section **17** prepares the search result page, the procedure proceeds to Step S**16**, and the search result page is transmitted to the user terminal **3** through the internet **12**, to complete the search processing.

[0085] While in the above-described case, only the URL corresponded to the object ID transmitted along with the search request from the user terminal **3** is displayed on the search result page, it is noted that in addition thereto, the outline relating to the object specified by URL and the object ID can be displayed on the search result page.

[0086] In the following, the issue processing carried out in the search server **4** will be described with reference to the flow chart of **FIG. 7**.

[0087] When the request for the connection is brought through the internet **2** from the user terminal **3**, in the search sever **4**, the connection relative to the user terminal **3** is established in Step S**21**. The procedure proceeds to Step S**22**, the I/F section **18** judges whether or not the request for the issue for requesting the issue of the object ID is transmitted from the user terminal **3**. In Step S**22**, where judgment was made of that the request for the issue is not transmitted, the procedure returns to Step S**22**, In Step S**22**, where judgment was made of that the request for the issue is transmitted, the procedure proceeds to Step S**23**, and judgment is made whether or not the object ID is transmitted along with the request for the issue.

[0088] That is, in the present invention, where the object ID is issued to the user, the search server **4** can issue the object ID determined by the search server **4** and can also issue the object ID desired by the user as well. Where the user requests the issue of the object ID desired by himself, the user operates the user terminal **3** to transmit the object ID desired to be issued along with the request for the issue. In Step S**23**, judgment is made whether or not the object ID is transmitted along with the request for the issue.

[0089] Where judgment is made of that the object ID is not transmitted along with the request for the issue in Step S**23**, that is, where only the request for the issue is transmitted, the I/F section **18** receives the request for the issue to transmit it to the issue processing section **19**. Then, the procedure proceeds to Step S**24**.

[0090] The issue processing section **19** obtains the object IDs not registered (the unused ID) referring to the data base **12** in Step S**24**. The procedure proceeds to Step S**25**, and one of them is registered in the data base **12**. The issue processing section **19** supplies the object ID registered in the data base **12** to the I/F section **18**. The procedure proceeds to Step S**26**. The I/F section **18** transmits the object ID from the issue processing section **19** to the user terminal **3** through the internet **2**, in Step S**26** to thereby issue the object ID and end the issue processing.

[0091] On the other hand, where in Step S**23**, judgment was made of that the object ID was transmitted along with the object ID, the I/F section **18** supplies the object ID to the issue processing section **19**. The procedure proceeds to Step S**27**.

[0092] The issue processing section **19** judges, in Step S**27**, whether or not the object ID from the I/F section **18** is already registered in the data base **12**. In Step S**27**, where the object ID from the I/F section **18** is not registered in the data base **12**, the procedure proceeds to Step S**28**, and the object Id is registered in the data base **12**. The issue processing section **19** supplies the message to the effect that the object ID is registered (hereinafter suitably referred to as the registration message) to the I/F section **18**. The procedure proceeds to Step S**29**. The I/F section **18** transmits the

registration message from the issue processing section **19** to the user terminal **3** through the internet **2** in Step S**29** to end the issue processing.

[**0093**] Further, where in Step S**27**, the object ID from the I/F section **18** is already registered in the data base **12**, the issue processing section **19** supplies the message to the effect that the object ID cannot be registered (hereinafter suitably referred to as the registration disable message) to the I/F section **18**, and the procedure skips Step S**2** and proceeds to Step S**29**. The I/F section **18** transmits the registration disable message from the issue processing section **19** to the user terminal **3** through the internet **2** and ends the issue processing.

[**0094**] Where the object ID was issued by the issue processing, the record having only the object ID is registered in the data base **12**, but thereafter, when the home page including the object to which the object ID was assigned by the user is prepared to upload it on the internet **2**, the above-described collection processing is carried out whereby URL of the home page including the object to which the object ID was assigned by the user, and genera except the object ID are registered as shown in **FIG. 4**.

[**0095**] Next, the reverse processing carried out in the search server **4** will be described with reference to the flow chart of **FIG. 8**.

[**0096**] When the request for the connection is brought through the internet **2** from the user terminal **3**, in the search server **4**, the connection relative to the user terminal **3** is established in Step S**31**, and the procedure proceeds to Step S**32**. The I/F section judges whether or not the request for the reverse for requesting the search for the object ID from the key word is transmitted from the user terminal **3** along with the key word used for the search. Where judgment was made in Step S**32** that the reverse request and the key word are not transmitted, the procedure returns to Step S**32**.

[**0097**] Further, where judgment was made in Step S**32** that the reverse request and the key word are transmitted, the I/F section **18** outputs the reverse request and the key word to the reverse processing section **20**, and the procedure proceeds to Step S**33**.

[**0098**] In Step S**33**, the reverse processing section **20** refers to the data base **12** to thereby search the record in which the key word coincided with the key word from the I/F section **18** to extract the object ID registered in the record.

[**0099**] Then, the reverse processing section **20** outputs the extracted object ID to the I/F section **18**, and the I/F section **18** in turn transmits the object ID from the reverse processing section **20** to the user terminal **3**, in Step S**34**, and ends the reverse processing.

[**0100**] According to the reverse processing as described above, the user is able to know the object ID of the object to which a key word is attached.

[**0101**] Next, the user terminal **3** constituting the network system shown in **FIG. 1** will be described in more detail. The user terminal **3** is provided with a camera **31** as shown in **FIG. 9**. This camera **31** takes a photograph of an object to thereby output the image on which the object is displayed to the ID read section **32**. The ID read section **32** carries out, for example, the image recognition with respect to the image from the camera **31** to thereby recognize, that is, read the object ID of the object related to the object.

[**0102**] That is, in the embodiment shown here, for example, the objects related to the goods such as an eraser, for example, such as the image on which the goods are photographed, the text for explaining the goods, and the object ID assigned to the voice are displayed. The ID read section **32** reads the object ID displayed on the goods from the image from the camera **31**. The object ID read by the ID read section **32** is supplied to the communication section **33**.

[**0103**] On the goods, the object ID itself can be displayed, and, for example, those in the form of a bar code can be displayed. Further, the object ID is not always displayed on the goods, but in the ID read section **32**, it is also possible to recognize the image of the goods from the camera **31** to recognize the object ID of the object related to the goods from the result of recognition. Accordingly, the object photographed by the camera **31** need not be the goods, but a person, an animal such as a dog, and a plant may be included.

[**0104**] The communication section **33** communicates with the WWW server **1** and the search server **4** through the internet to exchange various kinds of data. That is, the communication section **33** transmits the object ID and data corresponding to the operation of the operation section **34** to the WWW server **1** and the search server **4** through the internet **2**. The communication section **3** receives and supplies data, for example, such as HTML file, transmitted through the internet **2** from the WWW server **1** and the search server **4** to the display control section **35**.

[**0105**] The operation section **34** is composed of, for example, such as a keyboard, and a mouse so as to impart a command, and necessary data to the communication section **33**. The operation section **34** may be composed of, for example, a microphone and a voice recognition device. In this case, in the operation section **33**, the user's voice as the command is voice-recognized to impart the voice recognition result to the communication section **33**.

[**0106**] The display control section **35** receives data from the communication section **33** to display it on the display section **36**. The display section **36** is composed of, for example, a liquid crystal panel and CRT (Cathode Ray Tube), to carry out the display in accordance with the control from the display control section **35**.

[**0107**] In the user terminal **3** constituted as described above, the search request processing for requesting the search for the home page including the object from the object ID of the object related to an object, the issue request processing for requesting the issue of the object ID assigned to the object, or the reverse request processing for requesting the search for the object ID of the object corresponding to the key word from the key word are carried out.

[**0108**] So, first, the search request processing will be described with reference to the flow chart of **FIG. 10**.

[**0109**] The user photographs, for example, when desires the detailed information with respect to an object, the object with a camera **31**. The image of the object obtained by the camera **30** is supplied to the ID read section **32**, and the ID read section **32** reads, from the image, the object ID of the object related to the object displayed on the image to supply

it to the communication section **3**. The communication section **33** requests the search server **4**, when receives the object ID from the ID read section **32**, the connection through the internet **2** in Step S**41**, and when the connection relative to the search server **4**, the procedure proceeds to Step S**42** to transmit the object ID from the ID read section **32** along with the search request.

[**0110**] In the search server **4** having received the object ID and the search request, the search processing is carried out as described in **FIG. 6**, and the search result page is transmitted, and therefore, in the communication section **33**, judgment is made whether or not the search result page is transmitted from the search server **4** in Step S**43**.

[**0111**] Where in Step S**43**, judgment is made of that the search result page is not transmitted, the procedure returns to Step S**43** to wait till the search result page is transmitted. Further, where in Step S**43**, judgment is made of that the search result page was transmitted, the communication section **33** receives the search result page to supply it to the display control section **35**, and the procedure proceeds to Step S**44**.

[**0112**] In Step S**44**, the display control section **35** causes the search result page from the communication section **33** to display on the display section **36** to end the search request processing.

[**0113**] The search result page is the home page on which is displayed URL of he home page including the object corresponded to the object ID transmitted along with the search request by the user, and accordingly, the user is able to easily obtain information related to the object photographed by the camera **31**.

[**0114**] That is, where a person as the object is photographed by the camera **31**, the object ID assigned to the object related to the person is transmitted to the search server **4** from the user terminal **3**. Accordingly, since in the search server **4**, URL of the home page including the object related to the person photographed by the camera **31** is searched, only such URL is displayed on the search result page. Since only URL of the home page including the object related to the person photographed by the camera **31** is displayed in the manner as described, the desired information can be obtained easily as compared with the case where URL of the home page on which is described information related to a plurality of persons of the same family and personal name as in the case where search is made by a key word in the conventional search engine.

[**0115**] Further, the data forms of the object to which the object ID is assigned may be the text, of course, or JPEG and GIF and other video data, or may be WAV and AU and other audio data, and the search with the image or voice as objects can be carried out.

[**0116**] While in the above-described case, the object is photographed by the camera **31**, and in the ID read section **32**, the object ID of the object related to the object is obtained from the object output by the camera **31** is obtained, it is noted alternatively that the object ID may be also input, for example, by operating the operation section **34**. The object ID of the object related to the object enables to be notified to the user by issuing the magazine or the like which prints the object ID on an advertisement of the object, or prints the object ID of the object related to the object.

[**0117**] Further, where the object ID is obtained by the ID read section **32**, the object itself is not photographed by the camera **31**, but a photograph or an image on which the object is displayed can be photographed.

[**0118**] Next, the issue request processing will be described with reference to the flow chart of **FIG. 11**.

[**0119**] When the user desires to assign the object ID to the object constituting the existing home page or the home page prepared in future, the user operates the operation section **34** to input the command (hereinafter suitably referred to as the issue request command) for causing the user terminal **3** to carry out the issue request processing.

[**0120**] The issue request command is received by the communication section **33**, and when the communication section **33** requests, when receives the issue request command, the search server **14** the connection through the internet **2** in Step S**54** to establish the connection with the search server **4**, then the procedure proceeds to Step S**52** to transmit the issue request to the search server **4**.

[**0121**] In the search server **4** which receives the issue request, the issue processing is carried out as described in **FIG. 7**, and since the registration message or the registration disable message (both of which will be hereinafter suitably referred to as the registration result message) or the issued object ID is transmitted, the communication section **33** receives the registration result message or the object ID receives in Step S**53** and supplies it to the display control section **35**. Further, in Step S**53**, the display control section **35** supplies the registration result message or the object ID to the display section **36** for display, and the issue request processing ends.

[**0122**] Where an optional object ID is desired to be issued, the user will suffice merely to operate the operation section **34** to input the issue request command, but where an object ID having a value descried by himself, it is necessary for the user to operate the operation section **34** to input the issue request command and input the object ID desired also. In this case, in Step S**52**, the input object ID is also transmitted along with the issue request.

[**0123**] Next, the reverse request processing will be described with reference to the flow chart of **FIG. 12**.

[**0124**] Where the user desires to obtain URL of the home page including the object related to an object, it is necessary to transmit the object ID to the search server **4** to carry out the search request, but the object or the image on which the object is displayed is not present near oneself, or when the object ID of the object related to the object is not known, the search request cannot be carried out.

[**0125**] So, according to the reverse request processing, when a key word is input with respect to the object, the object ID of the object related to the object can be obtained.

[**0126**] That is, the user operates, when desires to know the object ID of the object related to an object, the operation section **34** to input a key word along with the command (hereinafter suitably referred to as the reverse request command) for causing the user terminal **3** to carry out the reverse request processing.

[**0127**] The reverse request command and the key word are received by the communication section **33**. The communi-

cation section **33** requests, when receives the reverse request command and the key word, the search server **4** the connection through the internet **2** in Step S**61**, when the connection with the search server **41** is established, the procedure proceeds to Step S**62** to transmit the reverse request command and the key word to the search server **4**.

[**0128**] In the search server **4** having received the reverse request command and the key word, the reverse processing is carried out as described in **FIG. 8** whereby in the data base **12** (see **FIG. 4**), the object ID corresponded to the key word is searched and transmitted, and therefore, in Step S**63**, the communication section **33** receives the object ID to supply it to the display control section **35**. Further, in Step S**63**, the display control section **35** supplies the object ID to the display section **36** for display, and the reverse request processing ends.

[**0129**] The user carries out the search request processing described in **FIG. 10** using the object ID obtained as described above to obtain URL of the object related to the desired object.

[**0130**] Where the home page on which the <IDTAG> tag is described is displayed by the WWW browser, when the cursor is moved on the object specified by the description surrounded by the <IDTAG> tag, it is possible to display the object ID assigned to the object.

[**0131**] That is, according to the HTML file shown in **FIG. 2**(B), in the WWW browser, the home page as shown in **FIG. 13**(A) similar to that shown in **FIG. 2**(A) is displayed but in this case, when the cursor is moved on the image V_1 as the object, the object ID [1111111] assigned to the image V_1 as the object can be displayed on the WWW browser as shown in **FIG. 13**(B).

[**0132**] Further, when others assign the object ID described in a home page without leave, information becomes confused, and therefore, some measure is desirably taken so the use of the object ID as described above can be prohibited.

[**0133**] A series of processing as described above can be carried out by a hardware as well as a software. Where the series of processing is carried out by a software, a program constituting the software is installed on a general-purpose computer or the like.

[**0134**] **FIG. 14** shows one example of a computer in which the program for executing the aforementioned series of processing is installed.

[**0135**] The program can be recorded in advance in a hard disc **150** as a recording medium encased in a computer **101** or ROM **243** as a semiconductor memory.

[**0136**] Alternatively, the program can be stored or recorded temporarily or permanently in a removable recording medium **151** such as a floppy disc, CD-ROM (Compact Disc Read Only Memory), MO (Magneto optical) disc, DVD (Digital Versatile Disc), a magnetic disc, and a semiconductor memory. Such a removable recoding medium **151** can be provided as a so-called package soft-ware.

[**0137**] In addition to the above, the program is transferred, from the down-load side, to the computer **101** by radio through the artificial satellite for digital satellite broadcasting, is transferred to the computer by wire through network such as LAN (Local Area Network) and an internet, and can be installed on a hard-disc **102** encased.

[**0138**] In the description of the present invention, the processing steps for describing programs for causing the computer to carry out various processes not always need to be process in time series along the order described as a flow chart, but, for example, processing executed in parallel or individually or processing according to the object is included.

[**0139**] Further, the program may be processed by a single computer, or may be processed by being scattered by a plurality of computers. Further, the program may be transferred to a distant computer for execution.

[**0140**] The computer **101** encases therein CPU (Central Processing Unit) **142**. An input-output interface **145** is connected to CPU **142** through a bus **141**. When a command is input as a result that the input section **147** constituted by a keyboard or a mouse is operated by the user through the input-output interface **145**, CPU **142** executes the program stored in ROM (Read Only Memory) **143** accordingly. Further, CPU **142** loads, on RAM (Random Access Memory) **144**, and executes a program stored in a hard-disc **150**, a program which is transferred from a satellite or a network, received by a communication section **148** and installed in the hard-disc **150**, or a program which is read from a removable recording medium **151** mounted on a drive **149** and installed on the hard-disk. Then, CPU **142** outputs the processed result, for example, to a display section **146** constituted by LCD (Liquid Crystal Display) or the like through the input-output interface **145**, as occasion demands, or the processed result is transmitted from the communication section **148**.

[**0141**] As the object ID, characters such as alphabet and symbols in addition to numerals can be used.

INDUSTRIAL APPLICABILITY

[**0142**] According to the present invention, as described above, discrimination information assigned to the object constituting information transmitted from the terminal is received, position information corresponded to discrimination information from the terminal is searched from the data base storing discrimination information assigned to the object constituting information and position information of the information corresponded, and a list of the searched position information is prepared and transmitted the terminal. On the other hand, the discrimination information assigned to the object constituting the information is transmitted to the server, and a list of position information with respect to information constituted from the object to which the discrimination information transmitted from the server corresponding to the transmission is received and displayed, and therefore, the position information including the desired object can be obtained easily.

1-12. (canceled)

13. An information processing apparatus for requesting a server for providing position information indicative of a position of a home page, comprising:

transmission means for transmitting discrimination information assigned to an object constituting the home sage to said server;

receiving means for receiving a list of said position information with respect to the home page constituted from said object o which the discrimination information transmitted from said server corresponding to the transmission of said discrimination information is assigned;

display control means for displaying the list of said position information; and

request means for requesting said server to issue said discrimination information.

14. The information processing apparatus according to claim 13 further comprising input means for inputting said discrimination information transmitted to said transmission means.

15. (canceled)

16. The information processing apparatus according to claim 13 further comprising request means for requesting said server to search said discrimination information by a key word.

17. The information processing apparatus according to claim 13 wherein the home page is a file described in a predetermined description language.

18. The information processing apparatus according to claim 13 wherein said predetermined description language is HTML (Hyper Text Markup Language).

19. The information processing apparatus according to claim 13 wherein said position information is URL (Uniform Resource Locator).

20. An information processing method for requesting a server for providing position information indicative of a position of a home page, comprising:

transmission step for transmitting discrimination information assigned to an object constituting the home page to said server;

receiving step for receiving a list of said position information with respect to the home page constituted from said object o which the discrimination information transmitted from said server corresponding to the transmission of said discrimination information is assigned; display control step for displaying the list of said position information; and

issuing step for issuing said discrimination information not registered in said data base in response to the request from said terminal.

21. A recording medium having a program recorded therein, said program causing a computer to execute information processing for requesting a server for providing position information indicative of a position of a home page, a program being recorded, said program comprising:

transmission step for transmitting discrimination information assigned to an object constituting the home page to said server;

receiving step for receiving a list of said position information with respect to the home page constituted from said object to which the discrimination information transmitted from said server corresponding to the transmission of said discrimination information is assigned;

display control step for displaying said list of position information; and

issuing step for issuing said discrimination information not registered in said data base in response to the request from said terminal.

22. An information network system comprising a server for providing position information indicative of a position of a home page and a terminal for requesting said server said position information, said server comprising:

first receiving means for receiving discrimination information assigned to an object constituting the home page transmitted from said terminal;

search means for searching said position information corresponded to discrimination information from said terminal from a data base for storing discrimination information assigned to the object constituting the home page and said position information with respect to the information corresponded;

preparing means for preparing a list of said position information searched; and

first transmission means for transmitting said list of position information to said terminal, wherein said terminal comprises:

second transmission means for transmitting discrimination information assigned to the object constituting the home page to said server;

second receiving means for receiving said list of said position information with respect to the home page constituted from said object to which the discrimination information transmitted from said server corresponding to the transmission of said discrimination information is assigned; and display control means for displaying said list of position information.

23. The information network system apparatus according to claim 22 wherein the terminal further comprises:

identification read means operatively connected to said sensing means for determining the discrimination information assigned to the object from the audio and/or visual data obtained by the sensing means;

display means for displaying the home page including the object; and

communication means operatively connected to said first and second transmission means, said identification read means, and said display means.

24. The information network system apparatus according to claim 23 further comprising operation means operatively connected to the communication means, wherein said discrimination information includes an object identifier and a cursor controlled by said operation means is displayed by the display means over the home page and the object identifier is displayed on the home page when the cursor is moved on the object.

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