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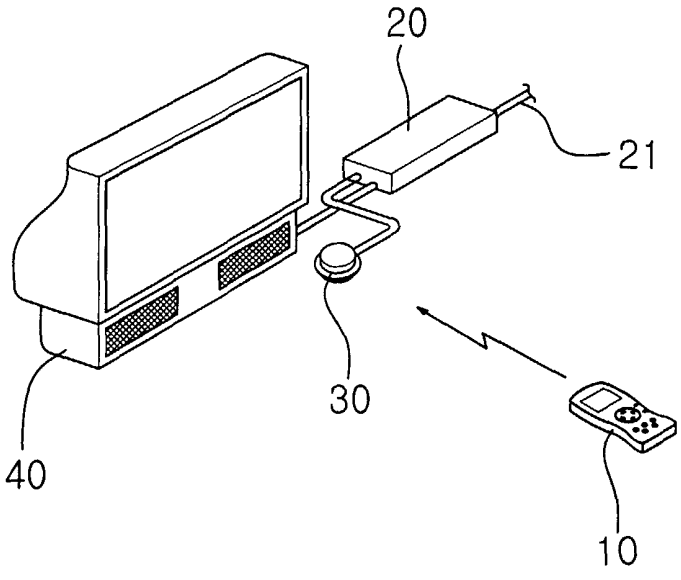
(54) Title: WEB SITE ADDRESS AUTOMATIC MATCH SYSTEM USING REMOTE-CONTROLLER HAVING A OPTICAL SCANNER AND METHOD THEREOF



(57) Abstract: An Internet site accessing system and method wherein a coupled version of a remote controller and an optical scanner is provided to read a Web address on a given paper and transmit information about the read Web address by radio. The system comprises a scan remote control device (10) for reading a Web address on a given paper and processing the read Web address to generate and transmit an infrared-ray data stream for remote control, and a set-top box (20) for receiving the infrared-ray data stream from the device (10), determining whether the read Web address corresponds to a previously registered sponsor company and, if the read Web address corresponds to the previously registered sponsor company, generating the real Web address in a uniform resource locator box of a Web browser and automatically executing an Internet connection to a site of the read Web address.

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WEB SITE ADDRESS AUTOMATIC MATCH SYSTEM USING REMOTE-CONTROLLER HAVING A OPTICAL SCANNER AND METHOD THEREOF

Technical Field

The present invention relates to an Internet site accessing system and method using a remote controller having an optical scanner, and more particularly to an Internet site accessing system and method wherein a coupled version of a remote controller for the control of a set-top box such as an Internet or Web television (TV) and an optical scanner is provided to read a Web address on a given paper and transmit information about the read Web address by radio to the set-top box, so that the user can simply and conveniently gain access to a specific Internet site using the set-top box.

Background Art

In order to use the Internet, generally, the user must have a computer with a Web browser installed therein. Furthermore, for access to a specific Web site, the user has to enter a Web address of the specific Web site in a uniform resource locator (URL) box of the Web browser or use a search engine.

Such access to the Internet and use thereof may not be so difficult for most members of society and most juveniles owing to the recent rapid developments in information technology, and the cultural changes brought about by the information age.

It is certain that information in all areas of society such as government, economy, social lives and culture will be mostly processed and exchanged through the Internet in future. This will in turn lead to a great inconvenience for persons unskilled with the Internet and place a considerable economic burden on those people.

Because children now use computers as a basic tool in life, they can very

easily use the computers and also readily gain access to the Internet through them.

However, many people, more particularly older people are still afraid to learn computers and are also very slow in their learning speed. In this regard, the development of an interface capable of allowing such people to very easily use either computers or the Internet will be more efficient in terms of society and economy than teaching them how to use the computers.

Disclosure of the Invention

Therefore, the present invention has been made in view of the above problems, and it is an object of the present invention to provide an Internet site accessing system and method wherein a coupled version of a remote controller for the control of a set-top box such as an Internet or Web TV and an optical scanner is provided to read a Web address, company name, corporate identity (CI) or logo of a specific Web site on a given paper and transmit information about the read Web address, company name, CI or logo by radio to the set-top box, so that the user can simply and conveniently gain access to the specific Internet site using the set-top box.

In accordance with one aspect of the present invention, the above and other objects can be accomplished by a provision of an Internet site accessing system comprising a scan remote control device including a remote controller and a scanner coupled therewith, the scan remote control device reading a Web address on a given paper and processing the read Web address to generate and transmit an infrared-ray data stream for remote control; a set-top box for receiving the infrared-ray data stream transmitted from the scan remote control device, determining whether the read Web address corresponds to a previously registered sponsor company and, if the read Web address corresponds to the previously registered sponsor company, generating the read Web address in a uniform resource locator box of a Web browser and automatically executing an Internet connection to a site of the read Web address; and a monitor connected to the set-top box.

In accordance with another aspect of the present invention, there is provided an Internet site accessing method using a scan remote control device, comprising the steps of a) coupling a remote controller with a scanner to configure the scan remote control device and allowing the scan remote control device to read a Web address on a given paper; b) allowing the scan remote control device to recognize the read Web address and compare it with updated Web address information of registered sponsor companies stored in its internal memory; c) allowing the scan remote control device to generate and transmit an infrared-ray data stream for remote control if the read Web address was previously registered; and d) allowing a set-top box to receive the infrared-ray data stream transmitted from the scan remote control device, register the read Web address in a uniform resource locator box of a Web browser and run the browser.

Brief Description of the Drawings

The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a block diagram showing the overall construction of an Internet site accessing system in accordance with the present invention;

Fig. 2 is a perspective view showing a layout of the Internet site accessing system in accordance with the present invention;

Fig. 3 is a perspective view showing the relation between a scan remote control device and holder in the Internet site accessing system in accordance with the present invention;

Fig. 4 is a block diagram showing an internal circuitry construction of the scan remote control device in the Internet site accessing system in accordance with the present invention;

Fig. 5 is a block diagram showing an embodiment of a remote control signal generator in Fig. 4;

Fig. 6 is a block diagram showing an internal circuitry construction of a set-top box in the Internet site accessing system in accordance with the present invention;

Fig. 7 is a view illustrating the concept of Web site connection based on recognition of a graphic symbol in accordance with the present invention;

Fig. 8 is a flowchart illustrating the operation of the scan remote control device in the Internet site accessing system in accordance with the present invention; and

Fig. 9 is a flowchart illustrating the operation of the set-top box in the Internet site accessing system in accordance with the present invention.

Best Mode for Carrying Out the Invention

With reference to Fig. 1, there is shown in block form the overall construction of an Internet site accessing system in accordance with the present invention. In this drawing, the reference numeral 10 denotes a scan remote control device composed of a remote controller and an optical scanner coupled therewith, and 60 denotes a Web server for constructing a homepage site, periodically updating registered sponsor company information and downloading the updated sponsor company information to a set-top box 20 of each subscriber through the constructed homepage site to provide each subscriber with an Internet site accessing service using the scan remote control device 10. Connected to the Web server 60 are a subscriber database (DB) 70 for storing subscriber information and a sponsor DB 80 for storing the registered sponsor company information to permit each subscriber to gain easy access to Web sites managed by the Web server 60.

The set-top box 20 is connected to a cable TV of each subscriber, which enables high-speed Internet connection. A holder 30 for the scan remote control device 10 and a monitor 40 are connected to the set-top box 20, which is designed in such a manner that it can be remotely controlled by the device 10.

Fig. 2 is a perspective view showing a layout of the Internet site accessing

system in accordance with the present invention. As seen from this drawing, the set-top box 20 is connected to a cable 21 for Internet connection and remotely controlled by the scan remote control device 10.

In Fig. 2, the set-top box 20 is shown to employ a cable system having a cable modem (not shown). Alternatively, a wireless Internet modem may be installed in the set-top box 20 instead of the cable modem so that the set-top box 20 can be wirelessly connected to Web sites.

Fig. 3 is a perspective view showing the relation between the scan remote control device 10 and holder 30 in the Internet site accessing system in accordance with the present invention. As shown in this drawing, the scan remote control device 10 comprises a display window 12 provided at its front part for displaying a scanned Web address, and a scan start key 13 selectively useable for the scanning of a Web address on a given paper. A cursor direction key 14 is provided to move a cursor upward, downward, left and right on a screen of the monitor 40 to select a desired menu on the screen. An update port 15 is used to download information of a newly registered sponsor company to a memory in the scan remote control device 10 to update the contents stored in the memory with the downloaded information. A URL movement key 16 is adapted to upwardly and downwardly scroll Web addresses registered in a URL box of a Web browser displayed on the monitor screen to select a desired one thereof. A variety of function keys 17 are provided to selectively store or delete the registered Web addresses. A scan sensor 18 is shown to have a head exposed externally to read a Web address on a given paper. The reference numeral 11, not described, denotes an infrared-ray diode in a transmitter of the scan remote control device 10.

The holder 30 is connected to the set-top box 20 and adapted for holding the scan remote control device 10 to provide updated sponsor company information from the set-top box 20 to the device 10 at any time. The holder 30 has a data transfer port 35 provided at its predetermined portion for transferring the updated sponsor company information from the set-top box 20 to the update port 15 in the scan remote control device 10.

While being held in the holder 30, the scan remote control device 10 downloads registered sponsor company information updated and downloaded to the set-top box 20 by the Web server 60 and stores the downloaded information in its internal memory.

Noticeably, the present Internet site accessing system can be designed in two ways on the basis of the relation between the scan remote controller 10 and the set-top box 20, as will hereinafter be described in detail.

In one way, with no separate memory for downloading sponsor company data, the scan remote control device 10 decodes a Web address scanned from a given paper and transmits the decoded result directly as an infrared-ray data stream to the set-top box 20. Then, the set-top box 20 determines whether the scanned Web address corresponds to any one of sponsor companies previously registered in its internal memory. If the scanned Web address corresponds to a certain sponsor company previously registered in the memory, the set-top box 20 runs the Web browser to establish an Internet connection to the scanned Web address.

In the other way, the scan remote control device 10 comprises a separate memory for downloading updated sponsor company information through the holder 30. In this case, the scan remote control device 10 decodes a Web address scanned from a given paper and determines on the basis of the above information stored in the memory whether a sponsor company corresponding to the scanned Web address was previously registered. If the sponsor company corresponding to the scanned Web address was previously registered, the scan remote control device 10 transmits the decoded result as an infrared-ray data stream to the set-top box 20.

In either case, easy access to the Internet is enabled according to the present invention.

Fig. 4 is a block diagram showing an internal circuitry construction of the scan remote control device 10 in the Internet site accessing system in accordance with the present invention. As stated previously, the scan sensor 18 is provided in the scan remote control device 10 to read a Web address on a given paper. As shown in Fig. 4, the scan remote control device 10 comprises a light source 102 for

emitting a scanning light beam to the scan sensor 18, a site name detector 104 for detecting a site name from information read by the scan sensor 18, an analog/digital (A/D) converter 105 for converting an output signal from the site name detector 104 into a digital signal, and a microcomputer 101 for processing an output signal from the A/D converter 105. The microcomputer 101 is adapted to generate a set-top box function control signal in accordance with the processed result. The scan remote control device 10 further comprises a remote control signal generator 110 for generating a remote control signal in response to the set-top box function control signal from the microcomputer 101 and a key input signal from a key input unit 109, an infrared-ray transmitter 120 for modulating the remote control signal from the remote control signal generator 110 into an infrared-ray signal and transmitting the modulated infrared-ray signal to the set-top box 20, and a read only memory (ROM) 108 for storing an operating system (OS) program.

Preferably, a random access memory (RAM) 107 may be connected to the microcomputer 101 to store updated, registered sponsor company information inputted through the update port 15.

In the scan remote control device 10 with the above-described construction in accordance with the present invention, if the scan sensor 18 scans a specific Internet address (domain name) printed on a given paper with the scanning light beam from the light source 102, then the scanned Internet address is detected by the site name detector 104, A/D-converted by the A/D converter 105 and applied to the microcomputer 101. At this time, asterisks may be appended respectively to head and tail portions of the detected site name (e.g., *www.internettv.co.kr*).

The Internet address information, read and processed by the scanner in the above manner, is converted into an infrared-ray control signal by the remote control signal generator 110 and then transmitted to a remote control signal receiver in the set-top box 20 via the infrared-ray transmitter 120. Further, the remote control signal generator 110 converts a variety of function key input signals and selection key input signals from the key input unit 109 into infrared-ray control signals and transmits the converted infrared-ray control signals to the set-top box 20 via the

infrared-ray transmitter 120.

Alternatively, differently from the direct transmission of the read Internet address as stated above, the microcomputer 101 may compare the read Internet address with Internet addresses of registered sponsor companies stored in the RAM 107 according to the OS program stored in the ROM 108. In this case, if the read Internet address corresponds to any one of the registered sponsor companies, it is processed by the microcomputer 101 and then transmitted to the set-top box 20 through the remote control signal generator 110 and infrared-ray transmitter 120.

In other words, the scan remote control device 10 can selectively be configured to employ any one of the above two methods.

Fig. 5 is a block diagram showing an embodiment of the remote control signal generator 110 in Fig. 4. As shown in this drawing, the remote control signal generator 110 includes a frequency divider 112 for frequency-dividing output signals from an oscillator 111 and timing pulse generator 113 and providing the resultant signals to an output mixer 114 and a carrier signal generator 115.

The carrier signal generator 115 provides a carrier signal to a code converter 119.

The output mixer 114 receives a remote control signal from the microcomputer 101 through a code bit input circuit 116 and key input data from the key input unit 109 through a key input detector 117 and a data encoding circuit 118 and mixes the received signal and data together. The code converter 119 modulates output data from the output mixer 114 at the carrier signal from the carrier signal generator 115 and sends the modulated data to the infrared-ray transmitter 120.

Fig. 6 is a block diagram showing an internal circuitry construction of the set-top box 20 in the Internet site accessing system in accordance with the present invention. As shown in this drawing, the set-top box 20 includes an infrared-ray receiver 203 for receiving an infrared-ray signal transmitted from the scan remote control device 10, an amplifier 204 for amplifying the infrared-ray signal received by the infrared-ray receiver 203, a decoder 205 for decoding the infrared-ray signal

amplified by the amplifier 204 into the original remote control signal, and a microcomputer 201 for processing the remote control signal decoded by the decoder 205 to detect a Web address therefrom. The microcomputer 201 registers the detected Web address in a URL box of a Web browser to control the execution of the browser. The set-top box 20 further includes a Web browser OS storage unit 208 for supporting an OS program of the Web browser to the microcomputer 201, an update DB 207 for storing updated sponsor company Web addresses, and a communication interface unit 202 for connection to the Internet.

In the set-top box 20 with the above-described construction in accordance with the present invention, if an infrared-ray data stream with a Web address value, transmitted from the scan remote control device 10, is received by the infrared-ray receiver 203, then it is amplified by the amplifier 204, decoded into the original remote control signal and applied to the microcomputer 201.

At this time, in the case where the scan remote control device 10 transmits an Internet address read from a given paper directly, without authenticating registered sponsor company information associated therewith, the microcomputer 201 compares the transmitted Internet address with Internet address information stored in the update DB 207 to determine whether a sponsor company corresponding thereto was registered. If the sponsor company corresponding to the transmitted Internet address was registered, the microcomputer 201 automatically enters the Internet address in the URL box of the Web browser according to the OS program stored in the Web browser OS storage unit 208. Then, the microcomputer 201 connects the set-top box 20 to a homepage of the corresponding sponsor company by running the browser on the monitor 40.

Therefore, a subscriber of the present system can gain access to an Internet homepage of a desired sponsor company through the communication interface unit 202 without operating separate keys.

Provided that the scan remote control device 10 downloads registered sponsor company information from the Web server 60 via the set-top box 20 and stores the downloaded information in its own RAM 107, it will determine whether a

sponsor company corresponding to an Internet address read from a given paper was registered and transmit the read Internet address as a result of the determination. In this case, the microcomputer 201 automatically enters the transmitted Internet address in the URL box of the Web browser according to the OS program stored in the Web browser OS storage unit 208 directly, without comparing the Internet address with Internet address information stored in the update DB 207, and executes the connection of the set-top box 20 to a homepage of the corresponding sponsor company.

On the other hand, if the scan remote control device 10 is put in the holder 30 connected to the microcomputer 201, then the microcomputer 201 downloads registered sponsor company information from the Web server 60 through the communication interface unit 202, updates the contents stored in the update DB 207 with the downloaded information and transfers the downloaded information to the scan remote control device 10 via the holder 30. As a result, the scan remote control device 10 updates the contents stored in the sponsor company information storage RAM 107 with the information transferred via the holder 30.

Next, a description will be given of an Internet site accessing method using a scan remote control device in accordance with the present invention.

According to the present invention, at the first step of the Internet site accessing method, the scan remote control device is configured by coupling a remote controller with a scanner, and the scan remote control device reads a Web address on a given paper. At the second step, the scan remote control device recognizes the Web address read at the first step and compares it with updated Web address information of registered sponsor companies stored in its internal memory. At the third step, the scan remote control device generates and transmits an infrared-ray data stream for remote control if the read Web address was previously registered. At the fourth step, a set-top box receives the infrared-ray data stream transmitted from the scan remote control device, registers the read Web address in a URL box of a Web browser and runs the browser.

Preferably, logo and graphic information of registered sponsor companies

may be stored in a memory of the scanner in the scan remote control device. In this case, if the scanner scans the graphic information of any one of the registered sponsor companies, the set-top box acts to generate a Web address associated with the scanned graphic information in the URL box of the Web browser.

Further, preferably, specific symbols may be appended respectively to head and tail portions of the Web address on the given paper in order that a microcomputer in the scan remote control device can determine whether data read by the scanner in the scan remote control device is a Web address.

Fig. 7 is a view illustrating the concept of Web site connection based on recognition of a graphic symbol in accordance with the present invention. In the present invention, the connection to a site of a specific sponsor company on the Internet can be made by recognizing a specific logo or graphic symbol as well as specific alphanumeric characters as an Internet address of the specific sponsor company. In this case, the specific logo or graphic symbol is previously registered in conjunction with the Internet address of the specific sponsor company. Then, the connection to the Internet site associated with the specific logo or graphic symbol is made on the basis of contour information of the specific logo or graphic symbol, extracted when the logo or symbol is scanned by the scan remote control device.

Fig. 8 is a flowchart illustrating the operation of the scan remote control device in the Internet site accessing system in accordance with the present invention. First, if the start key in the scan remote control device is pushed, then the light source is operated and characters, a symbol or logo on a given paper is scanned.

At this time, if an error is detected, it is displayed and a scanning circuitry is reset.

In the case where no error is detected and the read contents are characters, they are converted into ASCII values. Alternatively, if a logo or other graphic symbol is read, contour information thereof is extracted and the resultant image values are converted into hexadecimal values.

The converted character, symbol or logo data is compared with registered sponsor company information stored in a character, symbol or logo table and a

registered sponsor company corresponding thereto is determined as a result of the comparison.

Then, the converted character, symbol or logo data is sent to the data encoding circuit, which delivers it as consecutive key values.

The key values from the data encoding circuit are transmitted in the form of an infrared-ray data stream via the output mixer.

Fig. 9 is a flowchart illustrating the operation of the set-top box in the Internet site accessing system in accordance with the present invention. A description will hereinafter be focused on the Internet accessing operation of the set-top box based on graphic symbol information, because the character processing operation is well known in the art.

First, if the scan remote control device processes an Internet address in the form of hexadecimal data, modulates it into an infrared-ray data stream and transmits the modulated data stream, then the set-top box receives the transmitted infrared-ray data stream and decodes it into the original binary data, or original mark. This graphic symbol information is compared with registered sponsor company information in an image table and the validity thereof is verified as a result of the comparison.

In the case where the mark information is valid, an Internet address of a sponsor company associated therewith is searched and exhibited in the URL box of the Web browser, resulting in the set-top box being connected to the Internet.

Industrial Applicability

As apparent from the above description, the present invention provides an interface capable of allowing children or older people unskilled in the use of computers or an Internet addressing system to very conveniently gain access to the Internet.

Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that

various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims:

1. An Internet site accessing system comprising:

a scan remote control device including a remote controller and a scanner coupled therewith, said scan remote control device reading a Web address on a given paper and processing the read Web address to generate and transmit an infrared-ray data stream for remote control;

a set-top box for receiving said infrared-ray data stream transmitted from said scan remote control device, determining whether said read Web address corresponds to a previously registered sponsor company and, if said read Web address corresponds to the previously registered sponsor company, generating said read Web address in a uniform resource locator box of a Web browser and automatically executing an Internet connection to a site of said read Web address; and

a monitor connected to said set-top box.

2. The Internet site accessing system as set forth in Claim 1, wherein said scan remote control device further includes:

a display window for displaying said read Web address;

a scan start key for starting a scanning operation;

a cursor direction key for moving a cursor upward, downward, left and right on a screen of said monitor to select a desired menu on the screen;

an update port for downloading information of a newly registered sponsor company;

a uniform resource locator movement key for upwardly and downwardly scrolling Web addresses registered in said uniform resource locator box of said Web browser to select a desired one thereof;

a plurality of function keys for selectively storing or deleting the registered Web addresses; and

a scan sensor having a head exposed externally to read said Web address on

said given paper.

3. The Internet site accessing system as set forth in Claim 1, further comprising a holder connected to said set-top box and adapted for holding said scan remote control device, said holder including a data transfer port for transferring updated sponsor company information from said set-top box to an update port in said scan remote control device.

4. The Internet site accessing system as set forth in Claim 1, wherein said scan remote control device further includes:

a scan sensor for reading said Web address on said given paper;

a light source for emitting a scanning light beam to said scan sensor;

a site name detector for detecting a site name from information read by said scan sensor;

an analog/digital converter for converting an output signal from said site name detector into a digital signal;

a microcomputer for processing an output signal from said analog/digital converter and generating a set-top box function control signal in accordance with the processed result;

a remote control signal generator for generating a remote control signal in response to said set-top box function control signal from said microcomputer and a key input signal from a key input unit;

an infrared-ray transmitter for modulating said remote control signal from said remote control signal generator into an infrared-ray signal and transmitting the modulated infrared-ray signal to said set-top box; and

a read only memory for storing an operating system program.

5. The Internet site accessing system as set forth in Claim 4, wherein said scan remote control device further includes a random access memory connected to said microcomputer for downloading and storing updated, registered sponsor

company information from said set-top box, said microcomputer comparing said Web address read by said scan sensor with said registered sponsor company information stored in said random access memory to determine whether said read Web address corresponds to a previously registered sponsor company and controlling the transmission of said remote control signal to said set-top box in accordance with the compared result.

6. The Internet site accessing system as set forth in Claim 1, wherein said set-top box includes:

an infrared-ray receiver for receiving an infrared-ray signal transmitted from said scan remote control device;

an amplifier for amplifying said infrared-ray signal received by said infrared-ray receiver;

a decoder for decoding said infrared-ray signal amplified by said amplifier into the original remote control signal;

a microcomputer for processing said remote control signal decoded by said decoder to detect a Web address therefrom and registering the detected Web address in said uniform resource locator box of said Web browser to control the execution of said browser;

a Web browser operating system storage unit for supporting an operating system program of said Web browser to said microcomputer;

an update database for storing updated sponsor company Web addresses; and

a communication interface unit for connection to the Internet.

7. An Internet site accessing method using a scan remote control device, comprising the steps of:

a) coupling a remote controller with a scanner to confgure said scan remote control device and allowing said scan remote control device to read a Web address on a given paper;

b) allowing said scan remote control device to recognize said read Web address and compare it with updated Web address information of registered sponsor companies stored in its internal memory;

c) allowing said scan remote control device to generate and transmit an infrared-ray data stream for remote control if said read Web address was previously registered; and

d) allowing a set-top box to receive said infrared-ray data stream transmitted from said scan remote control device, register said read Web address in a uniform resource locator box of a Web browser and run said browser.

8. The Internet site accessing method as set forth in Claim 7, further comprising the step of storing logo and graphic information of registered sponsor companies in a memory of said scanner in said scan remote control device and, if said scanner scans the graphic information of any one of the registered sponsor companies, generating a Web address associated with the scanned graphic information in said uniform resource locator box of said Web browser.

9. The Internet site accessing method as set forth in Claim 7, further comprising the step of appending specific symbols respectively to head and tail portions of said Web address on said given paper in order that a microcomputer in said scan remote control device can determine whether data read by said scanner in said scan remote control device is a Web address.

Fig. 1

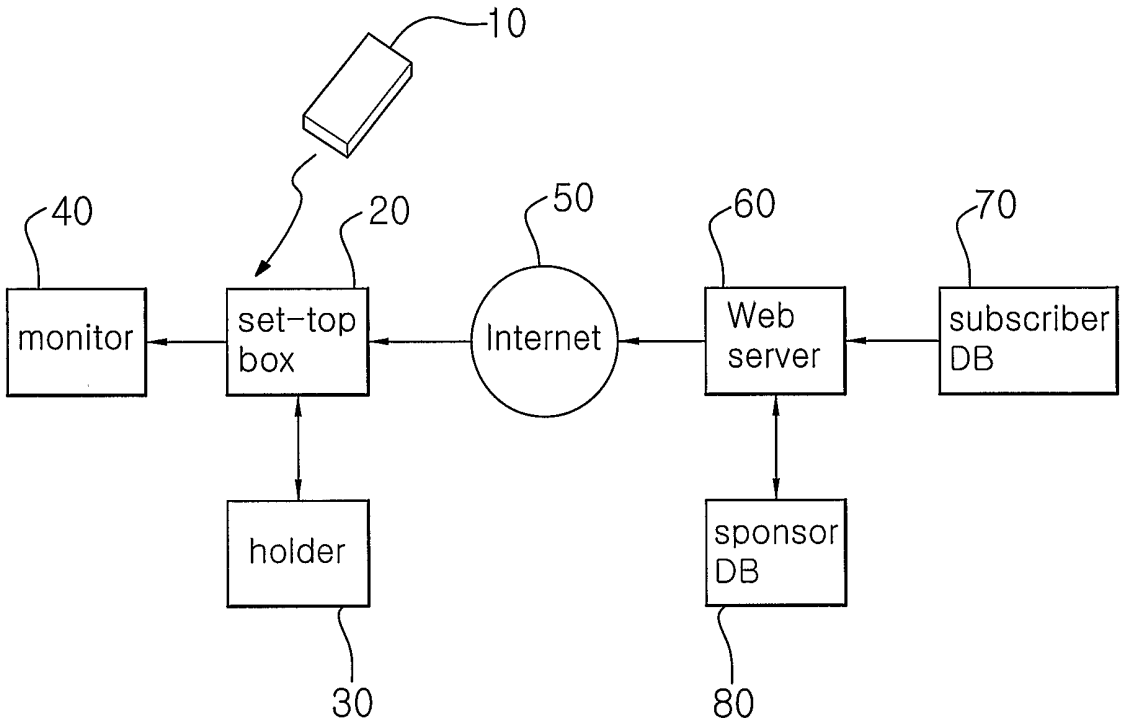

10
40
20
50
60
70
monitor
set-top box
Internet
Web server
subscriber DB
holder
sponsor DB
30
80

Fig. 2

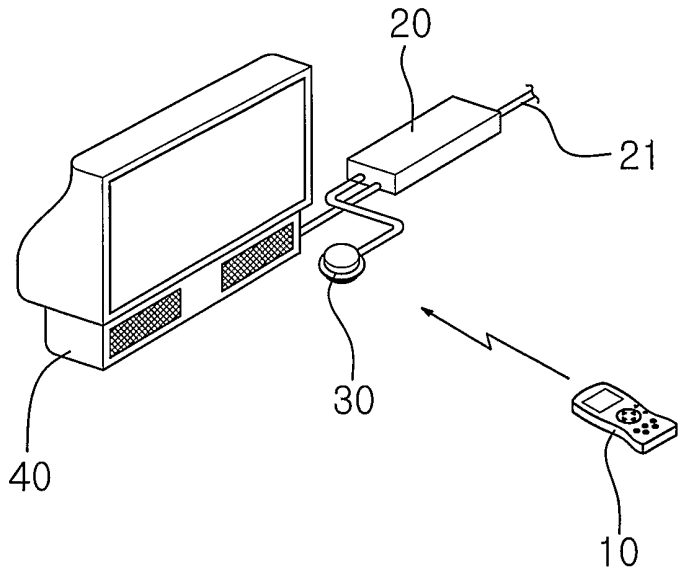

20
21
30
40
10

Fig. 3

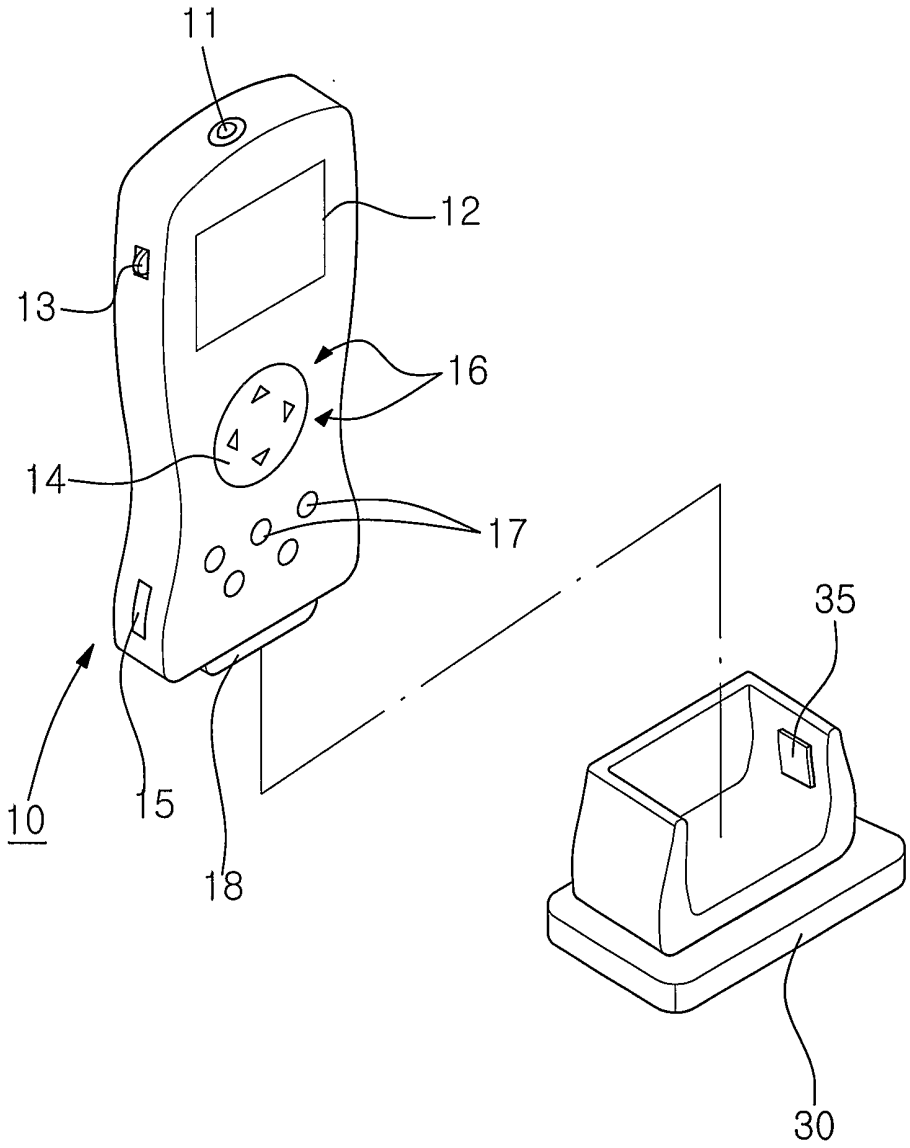


Fig. 4

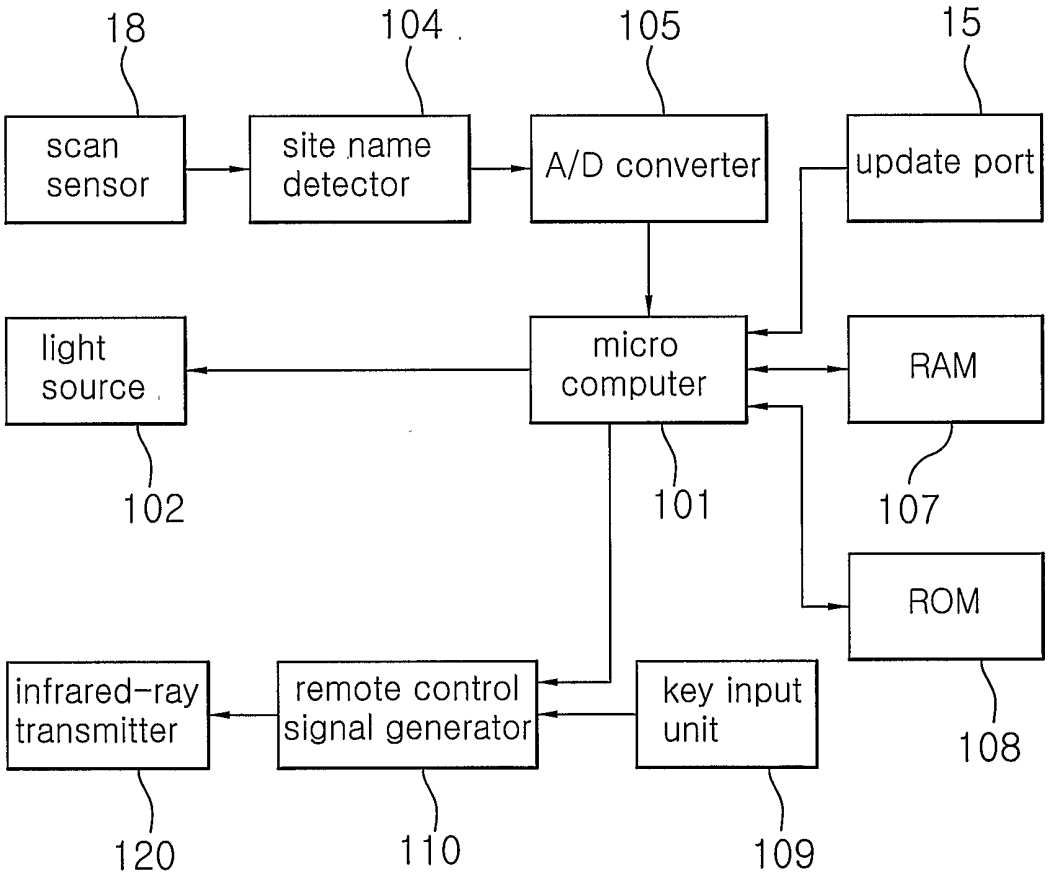
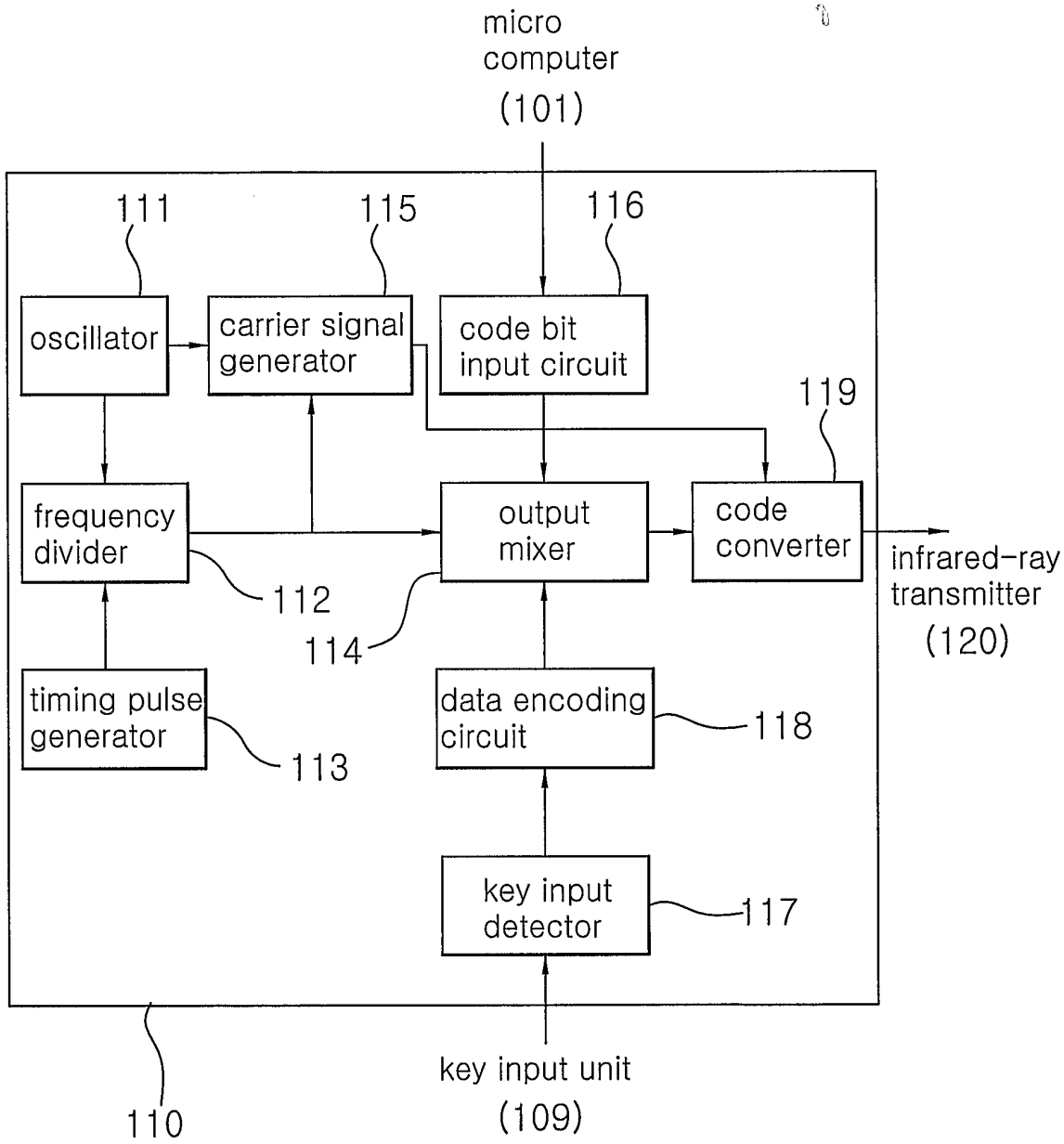

18
104
105
15
scan sensor
site name detector
A/D converter
update port
light source
micro computer
RAM
102
101
107
ROM
infrared-ray transmitter
remote control signal generator
key input unit
108
120
110
109

Fig. 5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computer
(101)
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115
116
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generator
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frequency
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infrared-ray
transmitter
(120)
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generator
113
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circuit
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key input
detector
117
110
key input unit
(109)

Fig. 6

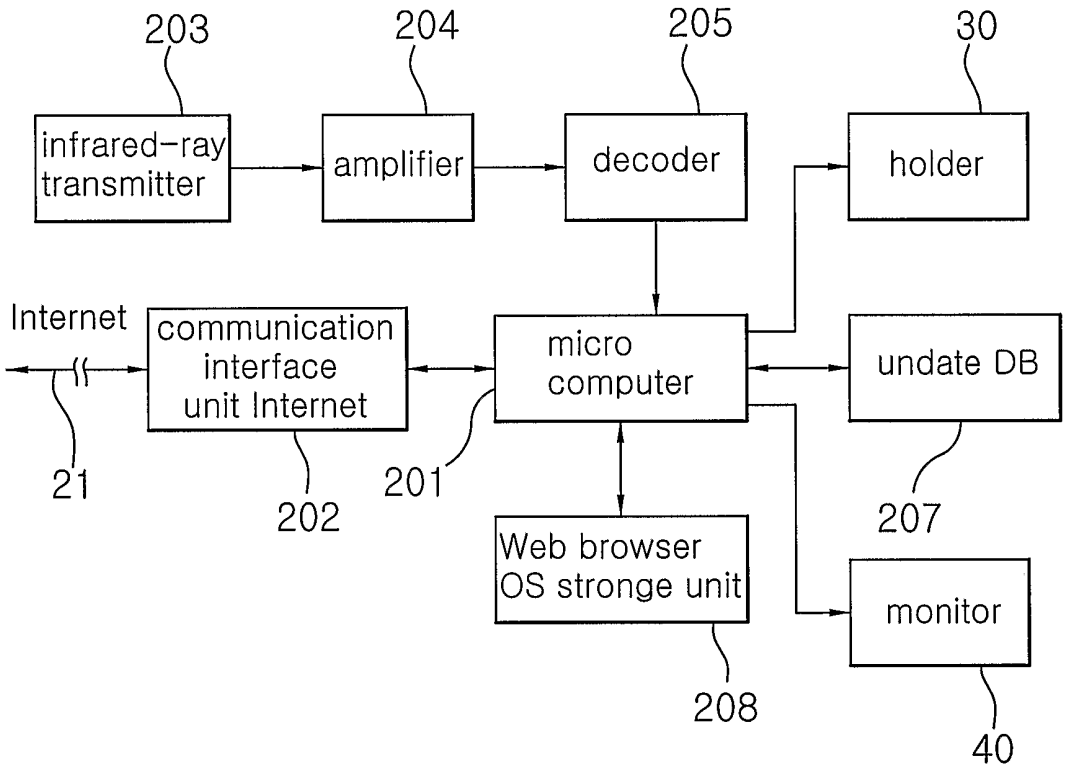

203
204
205
30
infrared-ray transmitter
amplifier
decoder
holder
Internet
communication interface unit Internet
micro computer
undate DB
21
202
201
207
Web browser OS stronge unit
monitor
208
40

Fig. 7

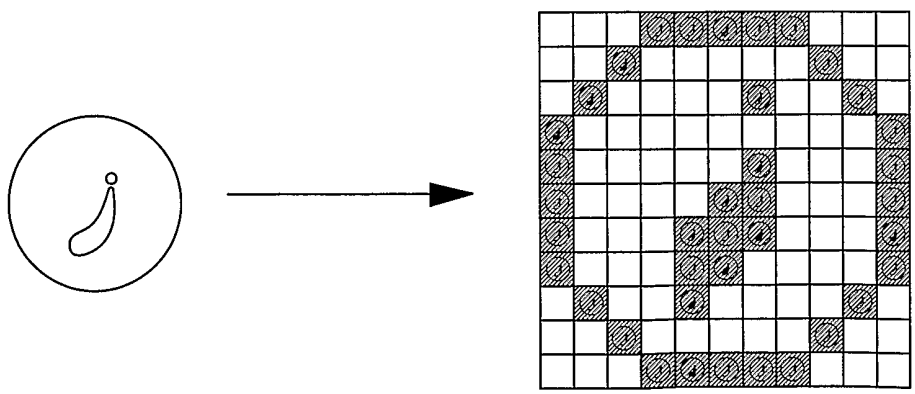


Fig. 8

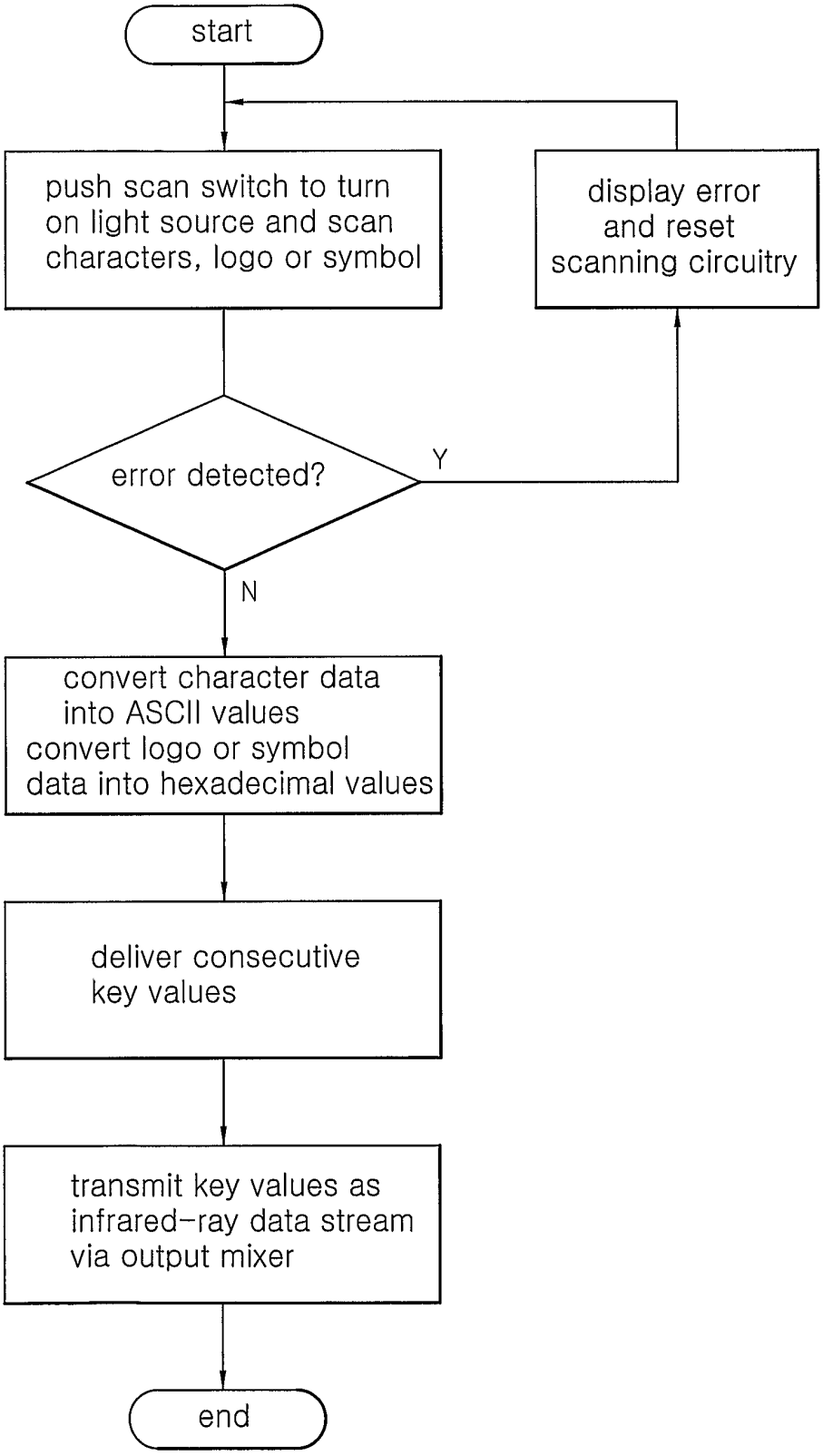
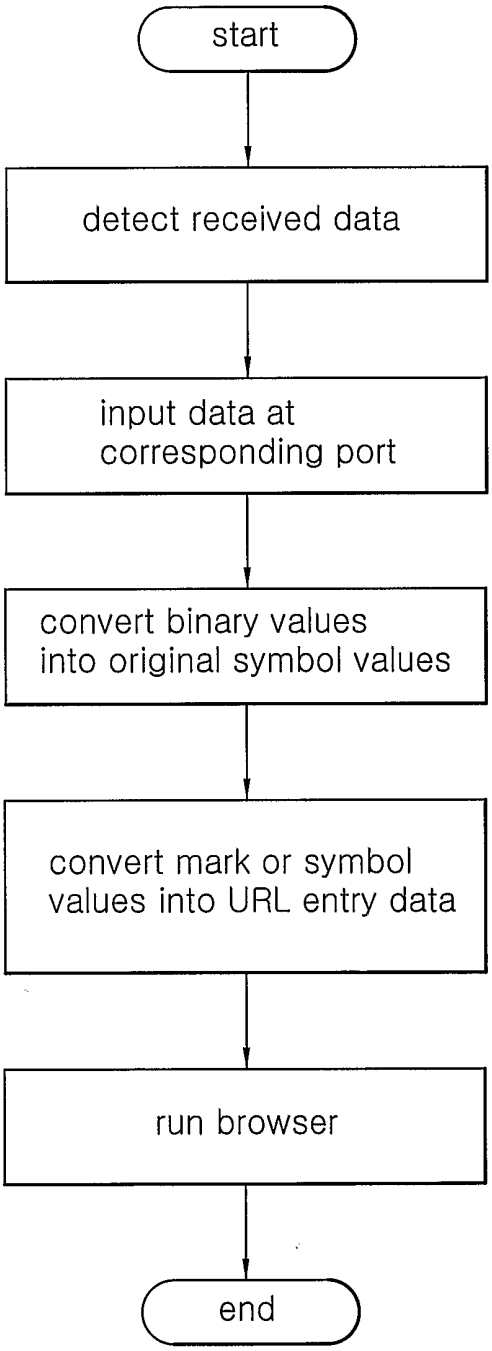

start
push scan switch to turn on light source and scan characters, logo or symbol
display error and reset scanning circuitry
error detected?
Y
N
convert character data into ASCII values
convert logo or symbol data into hexadecimal values
deliver consecutive key values
transmit key values as infrared-ray data stream via output mixer
end

Fig. 9


start
detect received data
input data at corresponding port
convert binary values into original symbol values
convert mark or symbol values into URL entry data
run browser
end

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR00/00833

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 G06F 17/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimun documentation searched (classification system followed by classification symbols)

IPC7 G06F 17/00, IPC7 G06F19/00

Documentation searched other than minimun documentation to the extent that such documents are included in the fileds searched

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search trerms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO9806055 A (PARAPORT SEYMOUR ALVIN) FEB. 12 1998 ABSTRACT	1-9
A	WO9850862 A (GTE MAIN STREET INC.) NOV. 12 1998 ABSTRACT	1-9
A	JP 10188140 A (TEC CORP.) JULY 21 1998 ABSTRACT	1-9

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevence
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"Y" document of particular relevence; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 JANUARY 2001 (10.01.2001)	11 JANUARY 2001 (11.01.2001)

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