

as a television set, either in place of the television signal, superimposed over the television signal, or in picture-in-picture format, as controlled by the user. Alternatively, processor 58 provides the video signal on line 38 to a high resolution reproducing system 40, such as a computer monitor. Indicator signal generator 46 may also incorporate a switch (not shown) which automatically switches off the primary output signal 36 whenever a signal appears at the output of signal converter 62. In this manner, information signals received from online information providers will be automatically displayed on conventional reproducing system 22 in place of the ordinarily displayed video signal 36. Processor 58 can also receive the input video or audio electronic program signal through a line 55 output from address extractor 42 (although direct connection of the electronic signal line 12 is possible). In this manner, processor 58 may be constructed to operate upon the video or audio signal in conjunction with information signals received from an online information provider to generate a "picture within picture" signal for display upon conventional reproducing system 22.

The operation of the system will now be described. An electronic signal 12, such as a signal from a video or audio program from channel selector 16 or playback system 18, e.g., prerecorded videotape, or an analog or digital video disc, containing an embedded signal representing the electronic address of an online information provider in the blanking interval or other non-displayed portion of the electronic signal 12 is received by address extractor 42. From the electronic signal 12, address extractor 42 detects, decodes and stores a digital address of the online services provider, if any such address is embedded therein. If an address is successfully decoded and stored, address extractor 42 activates, through signal line 44, indicator signal generator 46. Indicator signal generator 46 then produces an indicator signal and overlays or encodes it onto a conventional program signal 36 to be displayed or transduced by conventional reproducing system 22. Alternatively, indicator signal generator 46 produces a signal on line 50 which activates a special purpose indicator, e.g., illuminating a light 24 or producing a sound on a speaker 28 of access controller 10.

If the user wants to access the online information provider, the user gives such command to access controller 10 by, for example, pushing a special button on his or her remote control device. The remote control device transmits a command signal to user interface 56 which receives the command signal. User interface 56 in turn, produces a signal which is applied to address extractor 42 to retrieve the stored address of the online information provider. Under appropriate software or hardware control, the address is transmitted via modem 54 over network 30 to an online information provider, e.g., 34c.

Once access to the online information provider has been established, access controller 10 can automatically receive digital information signals through modem 54 from the online information provider. Received information signals are operated upon by processor 58 for displaying upon conventional TV reproducing system 22 or high resolution reproducing system 40, e.g., a computer monitor or other display device. Preferably, received signals which are incapable of being directly displayed upon conventional reproducing system 22, e.g., a conventional television set, are converted by a signal converter 62 for display thereon. Information signals received from an online information provider may be displayed as still or moving images in place of the ordinarily displayed video signal on the conventional

reproducing system 22, or may be displayed as part of a "picture within picture" display in conjunction with the ordinarily displayed video signal on conventional reproducing system 22 or on the computer monitor 40 or other display device.

After access has been established, user commands received through user interface 56 are transmitted as information signals through modem 54 to the online information provider, thereby providing interactive user access with the online provider and enabling searching for detailed information, conducting transactions, sending or posting messages to the accessed provider and any other actions that can ordinarily be conducted through an online connection.

Another embodiment of the invention is illustrated in FIG. 3. FIG. 3 shows an embodiment which operates in conjunction with an available computer 164. In this embodiment, access controller 110 does not require an internal processor or modem because such functions are provided by a computer 164 attached thereto. In addition, computer 164 also provides a monitor and audio reproducing components which function as high resolution reproducing system 40. Address extractor 142, indicator signal generator 146, and user input interface 156 of access controller 110 are connected through an output interface 166 for providing decoded address output, indicator signals, and user commands, respectively, to computer 164. In other respects, access controller 110 is connected to receive an electronic signal 12 and provide a conventional program signal 122 and a signal 150 to indicator 124 or indicator 128, in like manner as in the self-contained embodiment of access controller 10 described in the foregoing (FIG. 2). It will be appreciated that the computer supported embodiment of the invention (FIG. 3) provides the same function and operates in essentially the same manner as the self-contained embodiment (FIGS. 1-2) and need not be described in any further detail.

In still another embodiment of the invention, with reference to FIGS. 1-3, a connection to network 30 is maintained continuously by access controller 10 through modem 54 or the modem provided in computer 164. This embodiment will be described with reference to the access controller 10 shown in FIG. 2, although the skilled person in the art will readily understand the structural modifications required for operation in accordance with the access controller shown in FIG. 3. In this embodiment, address extractor 42 detects and decodes an online information provider address embedded in the video or audio program signal, but does not store the address.

As described in the foregoing embodiments of the invention, address extractor 42 provides a signal to indicator signal generator 46 when it successfully detects an online information provider address in the electronic signal. Address extractor 42 detects and decodes the embedded address and passes it to modem 54. Modem 54, in turn, only uses the extracted address if it has first received a user command to initiate access to the online information provider. It will be appreciated that this embodiment of the invention can be used with a video or an audio program signal wherein the online information provider address is frequently or continuously transmitted. Modem 54 is provided with hardware and/or software to automatically establish, upon receiving a user command to initiate online access, a direct digital communication link with the online information provider associated with the next received online information provider address.

As an example of the operation of this non-address storing embodiment of the invention, a video or an audio program

signal having a frequently transmitted embedded signal containing an online information provider address is received through line 12 by address extractor 42. Address extractor 42 detects and decodes the online information provider address, but does not store it before passing it to modem 54. Modem 54 does nothing with the online information provider address unless a user command to initiate access has first been received from user interface 56. If such user command has been received, modem 54 transmits a signal over network 30 using the next received address to establish a digital communication link with the online information provider. The function and operation of the non-address storing embodiment is otherwise the same as in the other described embodiments of the invention and need not be described in any further detail.

In yet another embodiment of the invention, automated direct user access to online information providers is achieved without incorporating an indicator signal generator 46, 146 (FIG. 3) into the access controller 10. In this embodiment, the video or audio program as produced incorporates a visual or auditory indicator, such as a logo or message, which is automatically displayed or sounded by conventional reproducing system 22 and/or high resolution reproducing system 40 during portions of the program when an online information provider address is present in the underlying electronic program signal. Through the visual or auditory indicator, the user is made aware of the availability of the online information provider address. Therefore, in this embodiment of the invention, address extractor 42 may be constructed and used in a manner so as to detect and decode an embedded online information provider address only after receiving a user command to initiate access to the online information provider. The skilled person in the art will appreciate that this embodiment of the invention operates in other respects as in the other embodiments of the invention described in the foregoing and need not be described in further detail.

While the invention has been particularly described and illustrated with reference to preferred embodiments thereof, it will be understood by those skilled in the art that changes in the above description or illustration may be made with respect to form or detail without departing from the spirit and scope of the invention.

What is claimed is:

1. A method of providing to a user of online information services automatic and direct access to online information through an address associated with an online information source provided with a video program comprising:

indicating to the user that an address has been provided with said video program; and electronically extracting said address and automatically establishing, in response to a user initiated command, a direct communication link with the online information source associated with said address so that the user has direct access to the online information.

2. The method in accordance with claim 1 further comprising using said communication link to provide interactive exchange of information between said online information source and the user.

3. The method in accordance with claim 1 wherein said step of indicating includes producing a visual indication to be displayed on the system wherein said program is displayed.

4. The method in accordance with claim 1 wherein said step of indicating includes producing an auditory indication to be sounded on a speaker where an audio portion of said program is reproduced.

5. The method in accordance with claim 1 where said step of indicating includes activating a sensory indicator on a system separate from that on which said program is reproduced.

6. A method of providing to a user of online information services automatic and direct access to online information, comprising the steps of:

receiving a television broadcast signal having an information signal representing the address of an online information source;

extracting the address of said online information source from said received television broadcast signal, automatically using said address, in response to a user initiated command, to transmit a signal to connect said user directly with the online information source associated with said address so that the user has direct access to the online information; and

receiving online information signals from said online information provider.

7. A method of providing to a user of online information services, at the time of viewing a video program represented by an electronic signal, automatic and direct access to online information through a link provided in said video program, comprising:

indicating to the user that an address is available for establishing communication with an online information source;

electronically extracting, in response to a user initiated command, an address associated with an online information source from an information signal embedded in said electronic signal, and automatically using said extracted address to establish a direct communication link with the online information source associated with said extracted address so that the user has direct access to the online information.

8. A method of providing to a user of online information services automatic and direct access to online information through a link provided in a video program, comprising:

indicating to the user that a link to online information services is available for receiving the online information; and

automatically and directly electronically accessing said online information associated with said link in response to a user initiated command so that the user has direct access to the online information.

9. A media online services access system for providing to a user of online information services while viewing or listening to a video or audio program represented by an electronic signal, automatic and direct access to online information by establishing a direct digital communication link with an online information source through a link provided in said electronic signal, comprising:

means for indicating to the user that an address is available for extraction from said electronic signal which permits communication with an online information source; and

means for extracting an address associated with an online information source from an information signal embedded in said electronic signal, and for automatically

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establishing, in response to a user initiated command, a direct link with the online information source associated with said extracted address so that the user has direct access to the online information.

10. The media online services access system in accordance with claim 9 wherein said program is a video program, further comprising:

- means for receiving an information signal from said online information source; and
- means for displaying an image signal detected from said received information signal.

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11. The media online services access system in accordance with claim 9 wherein said indicating means comprises a visual indicator displayed on a system on which said program is displayed.

12. The media online services access system in accordance with claim 9 further comprising a user control device coupled to said system to permit said user to interactively communicate with said online information source.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,233,736 B1
DATED : May 15, 2001
INVENTOR(S) : Thomas R. Wolzien

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 10,

Line 22, delete the word "as" and insert -- has -- therefore.

Signed and Sealed this

Second Day of December, 2003



JAMES E. ROGAN
Director of the United States Patent and Trademark Office

SERIAL NUMBER	FLING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
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APPLICANT
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****CONTINUING DOMESTIC DATA*******
VERIFIED THIS APPLN IS A CON OF 08/597,432 02/08/96 PAT 5,761,606

[Signature]

****371 (NAT'L STAGE) DATA*******
VERIFIED

[Signature] NONE

****FOREIGN APPLICATIONS*******
VERIFIED

[Signature] NONE

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Foreign Priority claimed 35 USC 119 (a-d) conditions met	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Met after Allowance	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
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TITLE
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