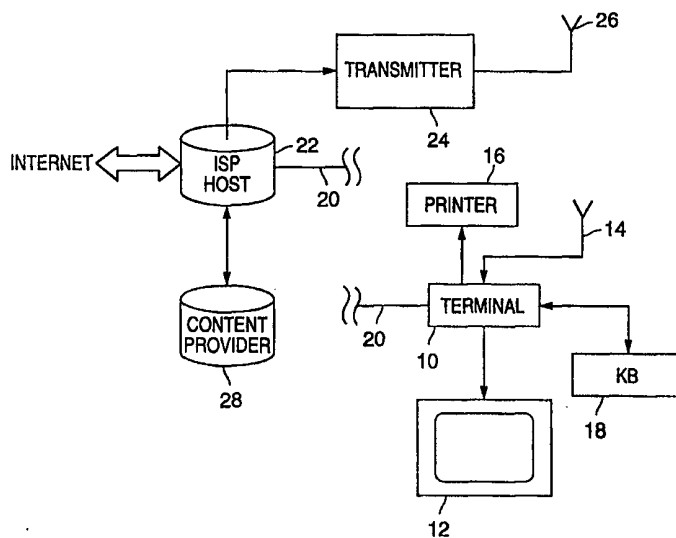




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|  |                  |  |
|--|------------------|--|
| <p>(51) International Patent Classification <sup>6</sup> :<br/><b>H04N 7/00</b></p>  | <p><b>A1</b></p> | <p>(11) International Publication Number: <b>WO 99/52280</b><br/>(43) International Publication Date: 14 October 1999 (14.10.99)</p>   |
| <p>(21) International Application Number: PCT/US99/07328<br/>(22) International Filing Date: 2 April 1999 (02.04.99)<br/>(30) Priority Data:<br/>09/054,069 2 April 1998 (02.04.98) US<br/>(71) Applicant: SONY ELECTRONICS INC. [US/US]; 1 Sony Drive, Mail Drop T1-1, Park Ridge, NJ 07656-8003 (US).<br/>(72) Inventor: COLSEY, Nicholas, J.; 2245 Del Mar Scenic Parkway, San Diego, CA 92014 (US).<br/>(74) Agents: WIGERT, William, J. et al.; Crosby, Heafey, Roach &amp; May, Suite 1900, 4 Embarcadero Center, San Francisco, CA 94111-4106 (US).</p> |                  | <p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b><br/><i>With international search report.</i></p> |

(54) Title: AUTOMATIC TRANSMISSION AND PRINTOUT BY A HOME PRINTER VIA A MULTIPLE-USER NETWORK



(57) Abstract

A system for automatically retrieving and printing information which includes a printer (16), a multiple-user communications network (20), a host server (22) connected to the network (20) for supplying information in digital form via the network (20) in response to an information delivery request, an information database (28) connected to the host server (22) for supplying requested information to the host server (22), and a receiving unit (10) connected to the network (20) and the printer (16) for receiving the information in digital form supplied by the host server (22) via the network (20) and automatically controlling the printer (16) to printout the received information in human readable form. The receiving unit (10) further has a user controllable unit (18) for initiating an information delivery request to the host server (22) via the network (20).

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

|    |                          |    |  |    |  |    |                          |
|----|--------------------------|----|--|----|--|----|--------------------------|
| AL | Albania                  | ES | Spain                                    | LS | Lesotho                                      | SI | Slovenia                 |
| AM | Armenia                  | FI | Finland                                  | LT | Lithuania                                    | SK | Slovakia                 |
| AT | Austria                  | FR | France                                   | LU | Luxembourg                                   | SN | Senegal                  |
| AU | Australia                | GA | Gabon                                    | LV | Latvia                                       | SZ | Swaziland                |
| AZ | Azerbaijan               | GB | United Kingdom                           | MC | Monaco                                       | TD | Chad                     |
| BA | Bosnia and Herzegovina   | GE | Georgia                                  | MD | Republic of Moldova                          | TG | Togo                     |
| BB | Barbados                 | GH | Ghana                                    | MG | Madagascar                                   | TJ | Tajikistan               |
| BE | Belgium                  | GN | Guinea                                   | MK | The former Yugoslav<br>Republic of Macedonia | TM | Turkmenistan             |
| BF | Burkina Faso             | GR | Greece                                   | ML | Mali   | TR | Turkey                   |
| BG | Bulgaria                 | HU | Hungary                                  | MN | Mongolia                                     | TT | Trinidad and Tobago      |
| BJ | Benin                    | IE | Ireland                                  | MR | Mauritania                                   | UA | Ukraine                  |
| BR | Brazil                   | IL | Israel                                   | MW | Malawi                                       | UG | Uganda                   |
| BY | Belarus                  | IS | Iceland                                  | MX | Mexico                                       | US | United States of America |
| CA | Canada                   | IT | Italy                                    | NE | Niger  | UZ | Uzbekistan               |
| CF | Central African Republic | JP | Japan                                    | NL | Netherlands                                  | VN | Viet Nam                 |
| CG | Congo                    | KE | Kenya                                    | NO | Norway                                       | YU | Yugoslavia               |
| CH | Switzerland              | KG | Kyrgyzstan                               | NZ | New Zealand                                  | ZW | Zimbabwe                 |
| CI | Côte d'Ivoire            | KP | Democratic People's<br>Republic of Korea | PL | Poland                                       |    |                          |
| CM | Cameroon                 | KR | Republic of Korea                        | PT | Portugal                                     |    |                          |
| CN | China                    | KZ | Kazakstan                                | RO | Romania                                      |    |                          |
| CU | Cuba                     | LC | Saint Lucia                              | RU | Russian Federation                           |    |                          |
| CZ | Czech Republic           | LI | Liechtenstein                            | SD | Sudan  |    |                          |
| DE | Germany                  | LK | Sri Lanka                                | SE | Sweden                                       |    |                          |
| DK | Denmark                  | LR | Liberia                                  | SG | Singapore                                    |    |                          |
| EE | Estonia                  |    |  |    |  |    |                          |

## AUTOMATIC TRANSMISSION AND PRINTOUT BY A HOME PRINTER VIA A MULTIPLE-USER NETWORK

### Background of Invention

#### Field of the Invention

This invention is related to a method and apparatus for obtaining information from a host provider over a multiple-user network and for automatically printing out the information.

5

#### Description of Related Art

The Internet is a global communications network, comprising a network of networks which are both public and private. The world wide web (WWW) is a subset of the Internet. The world wide web allows people to jump from one server to another simply by selecting a highlighted word, picture or icon about which they want more information. This is a maneuver which is called a "hyperlink." To use the world wide web a user loads a special navigation program, called a web browser, onto his or her computer which is connected to an Internet service provider, most typically by means of a telephone line. The Internet service provider is connected to one of the networks making up the Internet.

10

More recently, some servers have provided what is called a "search engine." These search engines can be accessed by a user via the Internet. A search engine allows a user to submit information requests. The search engine then accesses a database, which has been previously established, looking for information which satisfies the information search request. These servers which provide the search engines typically update their databases more or less continuously with new information derived from the Internet.

15

20

Also recently developed for the Internet is "push" technology. The push technology allows data categories selected by a user to be delivered into the user's computer over the Internet or other multiple user network either at prescribed intervals or based on some event that occurs. This is in contrast with the "pull" technology model, in which a user specifically asks for something by performing a search or requesting an existing report, video or other data type.

25

Browsing the web is an example of the pull model, while PointCast® (a product of PointCast Incorporated) is a push model. PointCast® was one of the first Internet push services to become extremely popular and offers users selected news and stock quotes which are

delivered automatically into a user's machine at prescribed intervals. More recently, some companies are offering Internet browsers, such as Microsoft Corporation's Internet Explorer version 4.0, which incorporate push technology so that a user can select various information channels which will automatically download information from those channels at regular intervals and display them on the user's screen.

The typical connection of most users to the Internet is via a personal computer which is connected through a telephone link to an Internet service provider. More recently, however, a company known as WebTV Networks has pioneered the Internet television market. WebTV Networks offers a system wherein the user can watch television and, also, from the same television set, access the Internet. It is often desirable to print out the information because text is difficult to read on a television screen. Furthermore, information presented on the television's screen is not portable and cannot be shared conveniently. While the WebTV system allows information to be retrieved over the WebTV Network and printed out at the user's printer, printing while online is time consuming and wastes online time.

#### Summary of Invention

The above, and other disadvantages of prior art information delivery systems via a multiple-user network are overcome by the present invention of a system for automatically retrieving and printing information comprising a printer, a multiple-user communications network, a host server connected to the network for supplying information in digital form via the network in response to an information delivery request, and information database means connected to the host server for supplying requested information to the host server, and a receiving unit connected to the network and the printer for receiving the information in digital form supplied by the host server via the network and automatically controlling the printer to print out the received information in human readable form. The receiving unit further has a user controllable means for initiating an information delivery request to the host server via the network.

In the preferred embodiment, the receiving unit further comprises a display means, such as a television set, for displaying information including an information channel menu presenting a plurality of user choices of information channels and a user interface control, such as a remote control device, for interactively selecting an information channel from the information channel menu displayed on the display means, and means for sending an information delivery request to

the host server via the network in response to an information channel selected by the user using the interface control means.

The advantages of the system according to the invention are that the user obtains regular delivery of information, automatically, straight to the user's printer. The delivery of the information is fast, that is, the new story can be delivered as soon as it happens. Furthermore, the information printed out is customized information, that is, only news topics in which the user has an interest. And, of course, the information, because it is printed, is easy to carry and show to others.

The foregoing and other objectives, features and advantages of the invention will be more readily understood upon consideration of the following detailed description of certain preferred embodiments of the invention, taken in conjunction with the accompanying drawings.

#### **Brief Description of Drawings**

Figure 1 is a block diagram of an information retrieval and automatic printing system according to the invention; and

Figure 2 is an illustration of a menu displayed on a television set of the system depicted in Figure 1.

#### **Description of the Preferred Embodiments**

Referring now to Fig. 1, in one embodiment, a user terminal 10, for example a WebTV Internet Terminal®, is connected to a user's television set 12. The terminal 10 is also connected to a television antenna or cable television system 14 which provides a source of broadcast television signals to the terminal 10. Also connected to the terminal 10 are a printer 16 and a user input device 18, such as a keyboard, mouse, or remotely controlled cursor device. The terminal 10 is connected through telephone lines 20 to an ISP host 22. The host 22 is part of a multiple user network, e.g., the WebTV Network®. The host 22 sends information signals via a commercial broadcast transmitter 24 to be broadcast over an antenna 26 or through a commercial cable system.

The information supplied by the host 22 to the transmitter 24 is high bandwidth data (1MB/sec.) which is embedded in the conventional TV broadcast signal. At the terminal 10 is a video modem (not shown) which can receive the high bandwidth signal embedded in the conventional TV broadcast and which can strip out the embedded data without disturbing the

conventional TV broadcast signal. The stripped out data is then passed on to the television receiver 12.

The terminal 10 is actually a special purpose computer loaded with a form of a web browser which presents a display 30 on the television set 12 allowing the user to send and receive E-mail, visit chat rooms and use net groups, find local sites and services, and search and find subjects on the Internet as well as download full screen, full motion video and sound files. The above-described existing system allows a user of the terminal 10 to browse the Internet or other information content provided directly to the ISP host 22 by a content provider 28 and to printout that information on the printer 16.

However, the above-described system does not allow a user to select information from a "push" information source and to have such information automatically sent to the user's terminal 10 and printed out. The present invention provides this feature. In operation, the user of the terminal 10, using the loaded web browser program, selects from a menu 30 (Fig. 2) displayed on the screen of the television 12 one or more information sources which are continually updated by their providers, e.g. CNN News, MNBC, etc. These are now being provided in the form of push "channels" by such companies as PointCast Incorporated or with Microsoft's Internet Explorer 4.0. The selection is by means of commands entered via the user input device 18. A selection by the user causes an HTML command embedded in an HTML document to be sent to the host 22 via the network 20.

In response to the received command, the host 22 then supplies the requested content either from the Internet or directly from a cooperating content provider 28 through the transmitter 24 and antennas 26 and 14 to the terminal 10, where the requested information is stripped from the television broadcast signal. The requested information can include HTML printing codes. The printing codes cause the printer 16 to automatically printout the downloaded information. Because the printing codes are sent over the TV broadcast airways along with the requested information, the network 20, e.g., a telephone line, is not tied up awaiting delivery of the information so that it can be printed. In practice, the user might arrange to have the information sent during the night, for example.

Although the present invention has been shown and described with respect to preferred embodiments, various changes and modifications are deemed to lie within the spirit and scope of the invention as claimed.

What is claimed is:

1. A system for automatically retrieving and printing information comprising:

a printer;

5 a multiple user communications network;

a host server connected to the network for supplying information in digital form via the network in response to an information delivery request;

an information database means connected to the host server for supplying requested information to the host server;

10 a receiving unit connected to the network and the printer for receiving the information in digital form supplied by the host server via the network and automatically controlling the printer to print out the received information in human readable form, the receiving unit further having user controllable means for initiating an information delivery request to the host server via the network.

15

2. A system for automatically retrieving and printing information according to claim 1, wherein the user controllable means for initiating an information delivery request to the host server via the network further comprises:

20 a display means for displaying information in an HTML format including an information channel menu presenting a plurality of user choices of information channels;

a user interface control means for interactively selecting an information channel from the information channel menu displayed by the display means; and

means for sending an information delivery request to the host server via the network in response to an information channel selected by the user using the user interface control means.

25

3. A system for automatically retrieving and printing information according to claim 1, wherein the multiple user communications network includes the Internet.

4. A system for automatically retrieving and printing information according to claim 1,  
30 wherein the receiving unit includes a television set.

5. A system for automatically retrieving and printing information according to claim 4, wherein the user controllable means includes a television set remote control unit.

6. A system for automatically retrieving and printing information according to claim 4, further comprising:

5 a television broadcast transmitter connected to the host server for sending digital information, in correspondence with the information delivery request, to the receiving unit in the form of high-bandwidth data embedded in a conventional television broadcast signal; and  
wherein the receiving unit includes a video modem means for stripping the high-bandwidth data from the received conventional broadcast signal.

7. A system for automatically retrieving and printing information according to claim 1, wherein the host server automatically supplies to the receiving unit via the network updated information, corresponding to the user's information delivery request, at periodic intervals, which is automatically printed by the printer.

8. A system for automatically retrieving and printing information according to claim 7, wherein the receiving unit includes a television set.

9. A system for automatically retrieving and printing information according to claim 8, wherein the user controllable means includes a television set remote control unit.

10. A system for automatically retrieving and printing information according to claim 8, further comprising:

20 a television broadcast transmitter connected to the host server for sending digital information, in correspondence with the information delivery request, to the receiving unit in the form of high-bandwidth data embedded in a conventional television broadcast signal; and  
25 wherein the receiving unit includes a video modem means for stripping the high-bandwidth data from the received conventional broadcast signal.



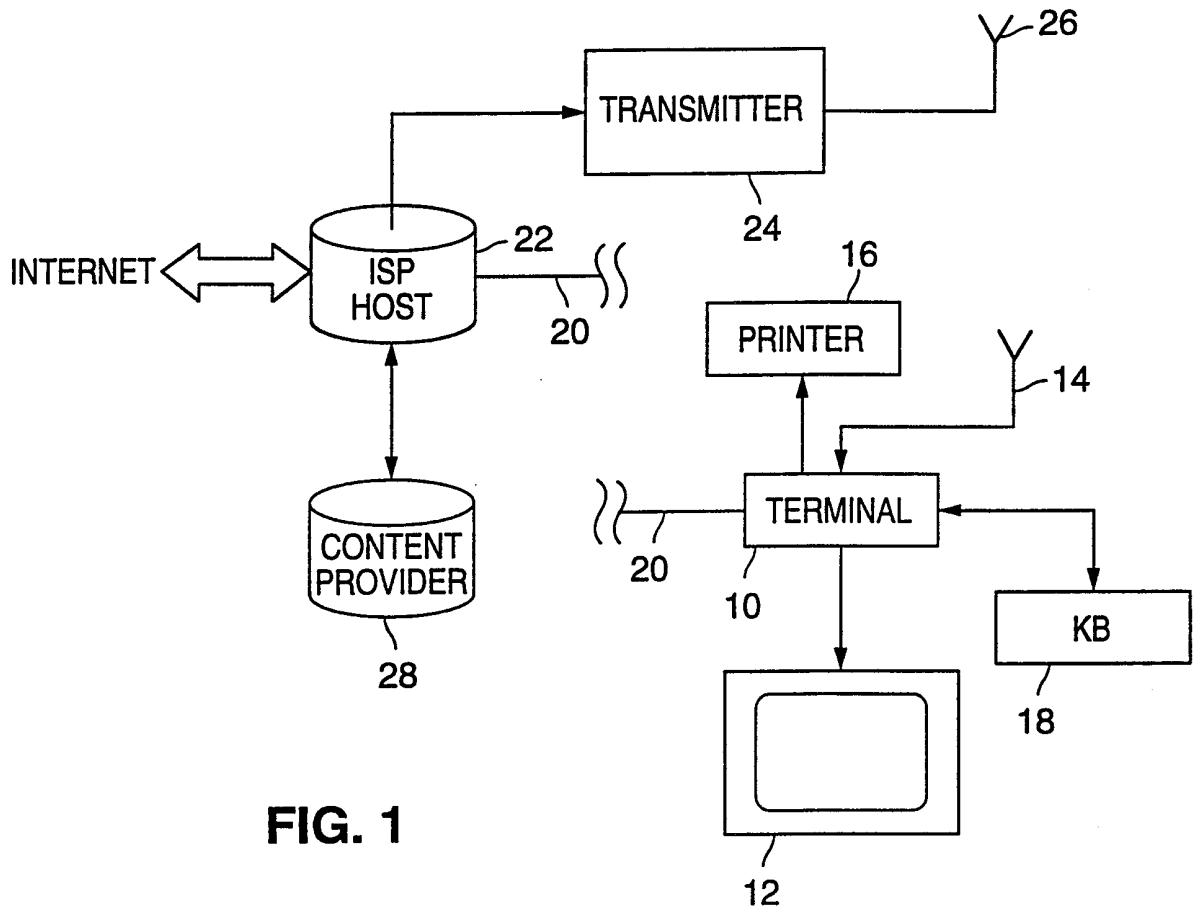


FIG. 1

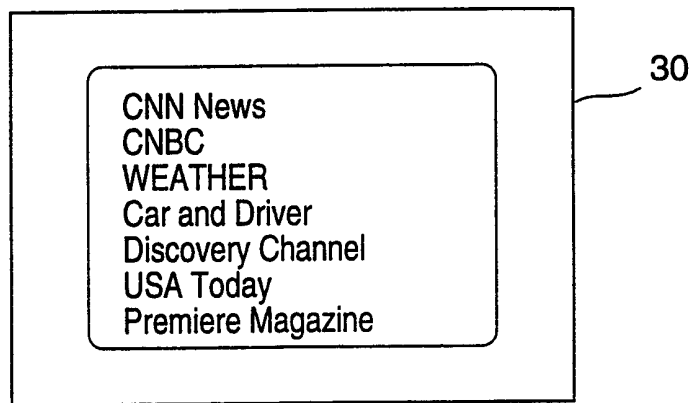


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/07328

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(6) :H04N 7/00  
US CL : 395/114

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

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 395/114; 705/35; 709/200, 204, 205, 206, 207, 218, 219; 345/327, 333, 334; 348/1, 6, 7

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

APS, DERWENT  
search terms: television, internet, printer, HTML

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category*       | Citation of document, with indication, where appropriate, of the relevant passages    | Relevant to claim No.    |
|-----------------|---|--------------------------|
| X<br>-----<br>Y | US 5,504,519 A (REMILLARD) 02 April 1996, see entire document.                        | 1, 4, 5<br>-----<br>8, 9 |
| X, E            | US 5,892,909 A (GRASSO et al) 06 April 1999, columns 6 through 18, and 27 through 30. | 1-3, 7                   |
| Y, P            | US 5,850,218 A (LAJOIE et al) 15 December 1998, column 2 through 6.                   | 1-10                     |
| Y, P            | US 5,850,520 A (GRIEBENOW et al) 15 December 1998, columns 2 through 5.               | 1, 3, 7                  |
| Y               | US 5,606,374 A (BERTRAM) 25 February 1997, see entire document.                       | 2, 4-6, 8-10             |

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

|   |  |
|---|--|
| * Special categories of cited documents:  | *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  |
| *A* document defining the general state of the art which is not considered to be of particular relevance  | *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone   |
| *E* earlier document published on or after the international filing date  | *Y* document of particular relevance; 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 |
| *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | *G* document member of the same patent family  |
| *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  |  |

|  |   |
|--|---|
| Date of the actual completion of the international search<br>21 MAY 1999 | Date of mailing of the international search report<br>15 JUN 1999 |
|--|---|

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231  
Facsimile No. (703) 305-3230

Authorized officer  
JOSEPH R. POKRZYWA *Joni Hill*  
Telephone No. (703) 305-3800/4700

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/07328

| C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |  |                       |
|---|--|-----------------------|
| Category*   | Citation of document, with indication, where appropriate, of the relevant passages       | Relevant to claim No. |
| A, P  | US 5,790,790 A (SMITH et al) 04 August 1998, columns 3 through 14.                       | 1-3, 7                |
| A   | MARKS, L. The Pull of Push Technologies. NetWorker magazine. Summer 1997, Vol. 7, No. 5. | 1-3, 7                |