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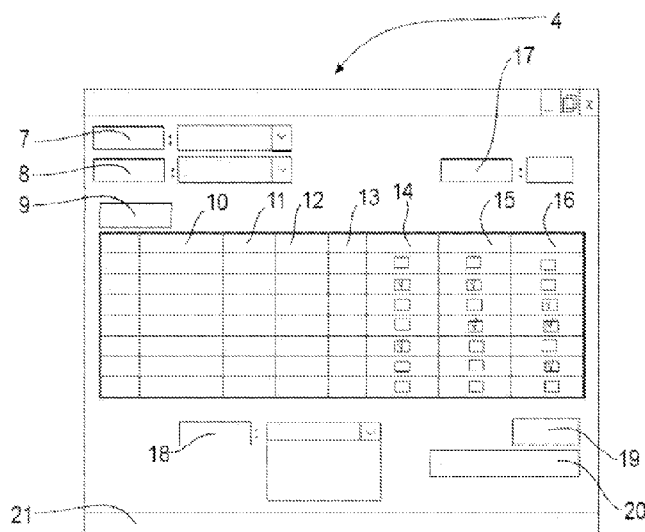
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(54) Title: A METHOD FOR AUTOMATIC CHANNEL SWITCHING



(57) Abstract: The present invention relates to a method for automatic channel switching which, when a TV program determined by the user starts to broadcast, enables the television to automatically switch to the desired channel. The objective of the present invention is to realize a method for automatic channel switching which enables users of televisions, which lack automatic channel switching function, to use this function with less cost and without waste of resources. With this purpose, a solution has been provided to this problem by an automatic channel switching method which uses the resources of personal computers generally in use at homes.

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Description

A METHOD FOR AUTOMATIC CHANNEL SWITCHING

[1] Field of the Invention

[2] The present invention relates to a method for automatic channel switching which, when a TV program determined by the user starts to broadcast, enables the television to automatically switch to the desired channel.

[3] Background of the Invention

[4] With the increase in the number of television channels, it has got difficult for the television users to find programs of their interest just by viewing the channels in a row with the help of a remote control. This situation has led the users to use the program tables showing the broadcast flow of television channels. The said program tables are traditionally found in newspapers and magazines.

[5] However, use of these tables on paper has got difficult as the number of channels increased. The reason of this difficulty is that the user is required to remember the broadcast day and time of the programs which he/she reads in the table and which are of interest to him/her, or that he/she needs to constantly follow through the table and switch to the channel himself/herself via remote control at the time of broadcast. Consequently, as the number of programs that are of interest to the user increased, keeping track of the programs has also got difficult.

[6] Television manufacturers have commercialized televisions which have automatic channel switching function with the purpose of overcoming this problem. These televisions, upon the user selecting the program of his/her interest, automatically switch to the channel where the program is being broadcast, at the time of broadcast. Thus the user does not have to remember the time and channel no of the program nor constantly follow it from the program list.

[7] However users of older model televisions are required to replace, or update the software of their televisions. These are methods which impose additional cost and which are not preferred by the users.

[8] Several methods have been developed to enable the users of televisions lacking the function of automatic channel switching to benefit from this function. One of these is disclosed in the International patent application No. WO03017651. The method in this application comprises the use of a television remote control with a display screen. Program tables are downloaded to this remote control from a desktop device such as a PC preferably via wireless means, and are viewable on the display of the remote control. When a program scheduled to be broadcast in the near future is selected, the time and channel no of the said program is stored in the memory via a processor on the remote control, and a signal is sent, when the broadcast time of the program comes, to

enable the television to display the desired channel.

[9] The method disclosed in the said application has enabled users of televisions which lack the automatic channel switching function, to benefit from this function. However, the method of this application is a costly method as it requires use of a remote control comprising expensive parts such as a display screen for displaying program tables, a memory big enough to enable storage of most of these program tables and a processor capable of downloading and processing these program tables and performing other operations. In fact, parts capable of the functions mentioned above already exist in personal computers which are in use almost at every home nowadays.

[10] In conclusion, there is an increasing need for an automatic channel switching method which enables users of televisions which lack automatic channel switching function and which, in doing so, uses the resources in personal computers generally in use at homes for the required parts such as display, memory, processor.

[11] Summary of the Invention

[12] The objective of the present invention is to realize a method for automatic channel switching which enables users of televisions, which lack automatic channel switching function, to use this function with less cost and without waste of resources. With this purpose, a solution has been provided to this problem by an automatic channel switching method which uses the resources of personal computers generally in use at homes.

[13] Detailed Description of the Invention

[14] The method for automatic channel switching realized to fulfill the objectives of the present invention is illustrated in the accompanying figures, in which;

[15] Figure 1 is the block diagram of the inventive method for automatic channel switching.

[16] Figure 2 is the view of an example user interface of the software of the inventive method for automatic channel switching in a personal computer.

[17] The parts in the figures are individually numbered, where the numbers refer to the following:

[18] 1. Personal computer

[19] 2. Remote control

[20] 3. Television

[21] 4. User interface

[22] 5. Network

[23] 6. Network server

[24] 7. Date

[25] 8. Channel

[26] 9. Program table

- [27] 10. Program name
- [28] 11. Channel name
- [29] 12. Channel no
- [30] 13. Time
- [31] 14. "Switch to channel"
- [32] 15. "Audible warning"
- [33] 16. "Open in PIP"
- [34] 17. Remote control channel no
- [35] 18. Remote control communication interface type
- [36] 19. "Connect" button
- [37] 20. "Send the selections" button
- [38] 21. Information line
- [39] The inventive method for automatic channel switching essentially comprises a personal computer (1) operating a software which enables displaying of the program tables showing the broadcast flow of channels, providing the user the opportunity to make selections from these program tables and transmitting the information related to those selected programs to the remote control (2), a remote control (2) which stores this transmitted program information and enables the television to switch to the desired channel at the broadcast time of the program according to the said information, and a television (3).
- [40] The said personal computer (1) can display the program tables showing the broadcast flow of channels by means of an auxiliary software. This software enables the user to view the program table and to make selections on it via a user interface (4). The software stores the date, time and name of the channel and other information related to the channel provided by the table for the program selected by the user for automatic channel switching from the program table displayed via the user interface (4).
- [41] Program tables can be loaded onto the personal computer (1) via any portable memory means such as a memory stick, floppy disk or a compact disc, and can also be downloaded via a network (5) to which the personal computer (1) is connected. In the preferred embodiment of the invention, the program tables located on a web site provided by a network server (6) connected to the network (5) are downloaded to the personal computer (1) and used by the said software.
- [42] There are two ways to determine the position number of the channel, in which the user has selected a program, in the memory of the television (3). The first one is to have the user, following the selection of the program of his/her interest from the program table, manually inputting the position number of the channel in which the program is broadcasted. In the second way which is the preferred embodiment of the invention, names and position numbers of all these channels stored in the memory of

the television (3) are stored in a channel list in the personal computer. When the user selects a program, the software automatically determines the channel position number matching with the channel name shown in the program table of the desired program by using this channel list.

[43] After the program information comprising date, time and channel position number required for automatic channel switching are saved by the software, these informations are transferred to the remote control via any communication interface. The said interface can be wired or wireless (USB, Bluetooth, IrDA, RS232, etc.).

[44] The remote control (2) comprises a memory big enough to save small sized data consisting of program date, time and channel position number selected on the personal computer (1), a timer to keep the time and date, and a processor with a relatively low capacity to open the desired channel at the right time in accordance with the said data. Additionally, the remote control also comprises a connector compatible with the communication interface which is used between the remote control and the personal computer (1). When the date and time of the timer matches the date and time specified in any of the program information saved on the remote control, the remote control (2) sends the signal of the desired channel position number to the television (3). Thus, displaying of the desired channel at the desired date and time on the television (3) is ensured.

[45] After automatic channel switching is realized by using the program information arranged for a program by means of a remote control (2), the information of the said program is deleted from the memory of the remote control (2).

[46] In addition to the feature of switching the channel automatically via the user interface (4) on the personal computer, the user, preferably, can select the options of audible warning and opening in PIP (opening in the second window) before the selected program begins. When the feature of audible warning is selected, upon matching of the date and time of the timer on the remote control (2) with some time (for example 5 minutes) prior to the date and time specified in the saved program information, audible warning is given via a speaker on the remote control (2). When the feature opening in PIP is selected, upon matching of the date and time of the timer on the remote control (2) with the date and time specified in the saved program information, the remote control (2) sends to the television a signal for opening the said channel in PIP.

[47] Although the said television (3) is not required to include any additional features other than the ability to communicate with the remote control (2), for all the other features of the invention to be used, the television (3) should include PIP feature in order for the feature of opening in PIP to function.

[48] In one embodiment of the invention, the user interface (4) illustrated in Figure 2 is used. There is a program table (9) on this exemplary user interface (4) shown for the

selected date (7) and channel (8). On this program table (9), there are columns of program name (10), channel name (11), channel no (12), time (13) and the columns of “Switch to channel” (14), “Audible warning” (15) and “Open in PIP” (16). There are also the remote control channel number (17) of the selected channel and the remote control communication interface type (18) selected by the user, on the user interface (4). Establishing connection with the remote control (2) is done by a “Connect” button (19) and the user’s sending his/her selections to the remote control (2) is done by a “Send the selections” button. There is an information line (21) at the bottom of the said user interface (4) showing the remote control (2) connection status.

- [49] Within the framework of the basic principles described herein, development of various embodiments of the invention is possible and details not described in this description are details known by a person skilled in the art. The invention is essentially according to the claims.

Claims

- [1] A method for automatic channel switching, which enables the television (3) to automatically switch to the desired channel when the program determined by the user starts to be broadcasted, characterized in that it comprises a personal computer (1) operating a software which enables displaying of the program tables showing the broadcast flow of channels, providing the user the opportunity to make selections from these program tables and transmitting the information related to selected programs to the remote control and a remote control (2) which stores this transmitted program information and enables the television (3) to switch to the desired channel at broadcast time of the program according to the said information.
- [2] A method for automatic channel switching according to Claim 1, characterized in that the software enables the user to view the program table and to make selections on this table via a user interface (4).
- [3] A method for automatic channel switching according to Claim 1 or Claim 2, characterized in that the software in the personal computer (1) saves the date, time and channel name of programs selected by the user from the program tables.
- [4] A method for automatic channel switching according to any of the preceding claims, characterized in that the user, upon selecting the program he/she wants to watch from the program tables via the software, manually inputs via the user interface and saves the position numbers of selected programs as stored in the television's memory.
- [5] A method for automatic channel switching according to Claim 1, Claim 2 or Claim 3, wherein all the channel names and position numbers saved in the memory of the television are stored in a channel list in the personal computer.
- [6] A method for automatic channel switching according to Claim 5, characterized in that, when the user selects the program he/she wants to watch, the software, by using the said channel list, automatically determines and saves the channel position number of the concerned program matching the channel name shown in the program table.
- [7] A method for automatic channel switching according to any of the preceding claims, characterized in that the said program tables are downloaded via a network (4) to which the personal computer is connected (1).
- [8] A method for automatic channel switching according to any of the preceding claims, characterized in that the program tables located on a network page provided by a network server (6) connected to the network (5) are downloaded to the personal computer (1) and used by the said software.

- [9] A method for automatic channel switching according to any of the preceding claims, characterized in that the program information comprising the program start date, time and channel position number generated for each selected program, is transferred from the personal computer (1) to the remote control (2) via any communication interface.
- [10] A method for automatic channel switching according to any of the preceding claims, characterized in that the said remote control (2) comprises a memory big enough to save small sized data consisting of program date, time and channel position number.
- [11] A method for automatic channel switching according to any of the preceding claims, characterized in that the said remote control (2) comprises a timer to determine the time and date.
- [12] A method for automatic channel switching according to any of the preceding claims, characterized in that the said remote control (2) comprises a processor which will enable it to open the desired channel at the right time in accordance with the program and time data.
- [13] A method for automatic channel switching according to any of the preceding claims, characterized in that after automatic channel switching is performed, the desired program information are deleted from the memory of the remote control (2).
- [14] A method for automatic channel switching according to any of the preceding claims, characterized in that the user can select the feature of audible warning for the program selected via the user interface (4).
- [15] A method for automatic channel switching according to Claim 14, characterized in that, when the feature of audible warning is selected for a program via the user interface (4), upon matching of the date and time of the timer on the remote control (2) with some time prior to the date and time specified in the saved program information, audible warning is given via a speaker on the remote control (2).
- [16] A method for automatic channel switching according to any of the preceding claims, characterized in that the television has PIP (small window) feature.
- [17] A method for automatic channel switching according to Claim 16, characterized in that the user can select the feature of opening in PIP (opening in the second window) for the channel selected via the user interface (4).
- [18] A method for automatic channel switching according to Claim 17, characterized in that, when the feature of opening in PIP is selected via the user interface (4), upon matching of the date and time of the timer on the remote control (2) with the date and time specified in the saved program information, the remote control

(2) sends to the television (3) a signal for opening the said channel in PIP.

Figure 1

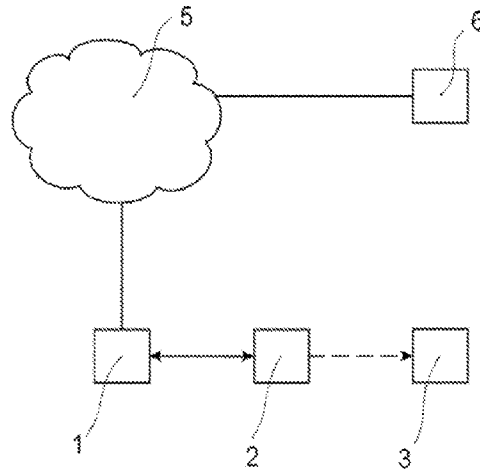
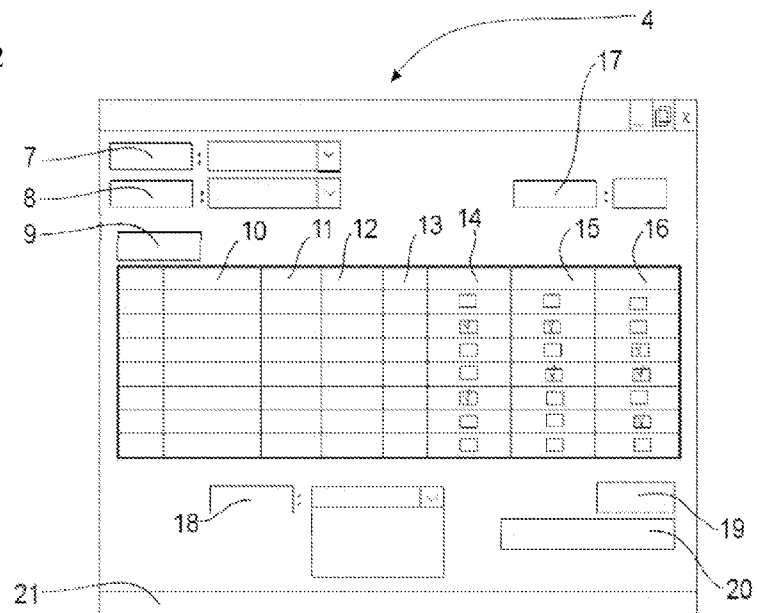


Figure2



INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2007/054870

A. CLASSIFICATION OF SUBJECT MATTER
 INV. H04N5/445 H04N5/44

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)
 H04N

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/017651 A (KONINKL PHILIPS ELECTRONICS NV [NL]) 27 February 2003 (2003-02-27) cited in the application	1-3, 7-13
Y	the whole document	4-6, 14-18
X	US 6 802 076 B1 (TERAKADO TOMOKO [JP] ET AL) 5 October 2004 (2004-10-05) abstract; figures 2, 12	1-3, 7-15
Y	WO 2006/038195 A (BEKO ELEKTRONIK ANONIM SIRKETI [TR]; TOPCU AYSE [TR]) 13 April 2006 (2006-04-13) abstract; figures 1, 2 paragraphs [0004] - [0020], [0041]	14-18
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Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2007/054870

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 684 525 A (KLOSTERMAN BRIAN LEE [US]) 4 November 1997 (1997-11-04) abstract column 4, lines 15-28 column 4, line 60 - column 5, line 9 column 7, line 37 - column 8, line 6	4-6
A	US 2002/085128 A1 (STEFANIK JOHN R [US]) 4 July 2002 (2002-07-04) abstract; claim 8 paragraphs [0012], [0033]	14,15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2007/054870

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03017651	A	27-02-2003	US 2003035074 A1	20-02-2003
US 6802076	B1	05-10-2004	US 6836296 B1	28-12-2004
			US 2002001042 A1	03-01-2002
			US 2001011996 A1	09-08-2001
WO 2006038195	A	13-04-2006	TR 200600920 T1	22-01-2007
US 5684525	A	04-11-1997	AT 298492 T	15-07-2005
			AT 202667 T	15-07-2001
			AU 708574 B2	05-08-1999
			AU 5443996 A	07-11-1996
			BR 9608111 A	07-12-1999
			CA 2218543 A1	24-10-1996
			CN 1185257 A	17-06-1998
			DE 69613573 D1	02-08-2001
			DE 69613573 T2	18-04-2002
			DE 69634881 D1	28-07-2005
			DE 69634881 T2	11-05-2006
			EP 0821856 A1	04-02-1998
			ES 2243197 T3	01-12-2005
			ES 2160241 T3	01-11-2001
			JP 11504171 T	06-04-1999
			JP 2006345563 A	21-12-2006
			JP 2008022565 A	31-01-2008
			JP 2007318803 A	06-12-2007
			WO 9633572 A1	24-10-1996
			US 5550576 A	27-08-1996
US 2002085128	A1	04-07-2002	NONE	