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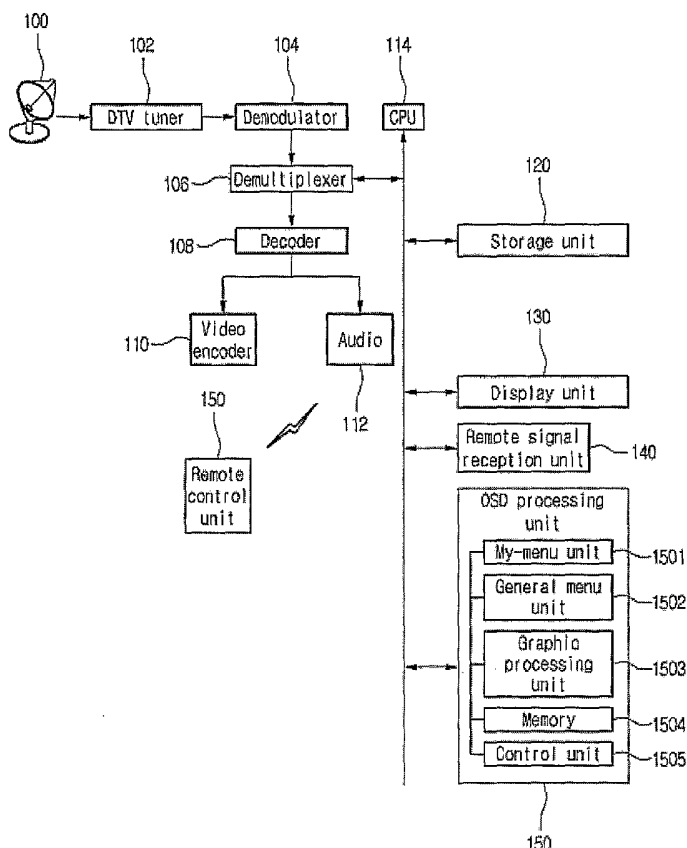
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(54) Title: A METHOD FOR EDITING AND REGISTERING USER MENUS IN DIGITAL TELEVISION AND DIGITAL TELEVISION USING THE SAME METHOD



(57) Abstract: A method of editing/registering user menus and digital television using the same are disclosed. The method includes a step (a) of displaying a main menu having a plurality of menu layer depths on a display unit of the DTV via an OSD (on screen display), a step (b) of deciding whether a specific user menu is registered within a my-menu storing a user preference menu per a path of a menu system, a step (c) of if the user menu is not registered to the my-menu, selecting a menu item having a specific function of a specific path via a menu navigation moving along a path of the main menu, and a step (d) of registering the selected menu item to the my-menu.



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【DESCRIPTION】**【Invention Title】**

A METHOD FOR EDITING AND REGISTERING USER MENUS IN DIGITAL TELEVISION AND DIGITAL TELEVISION USING THE SAME METHOD

【Technical Field】

The present invention relates to a digital television, and more particularly, to a method of editing/registering user menus and digital television using the same. Although the present invention is suitable for a wide scope of applications, it is particularly suitable for enabling a menu editing for user's convenience of television function selection and the like in configuration items of a television menu.

【Background Art】

Generally, a digital television (hereinafter abbreviated DTV) has developed so far in pursuit of high-definition, high-quality-of-image and multifunctional product since the beginning of the full-scale color TV era.

Specifically, in a current DTV, various functions relating to multimedia functions and merge with peripheral DTV devices have been astonishingly developed, in addition to the basic display function of the analog TV for viewing broadcast or recorded video. Hence, menus of DTV have been more complicated and diversified in functions and usage than those of the analog TV, by which the complexity and diversity cannot help increasing continuously.

Selection of various functions in DTV is carried out by menus provided via OSD (on screen display). OSD is a control panel appearing on a television screen and enables a user to select an option (visually represented selection list) or to adjust a component of a display such as brightness, contrast, horizontal/vertical position adjustment, etc. And, OSD is activated on a screen via a TV set button or remote controller in general.

The OSD gets more diverse, more complicated and more interactive together with the developments of DTV and graphic technology and provides a menu environment enabling a user to select and adjust various functions of DTV such as a program information display function, a search function and the like on a screen.

A structure of the menu provided by the conventional OSD includes several depths.

If a specific function is to be selected, a path of the menu depths is taken to select a function corresponding to the taken one path by performing key operations of several steps or navigation. Since a user-specific function generally needs to select several functions, numerous key operations are needed to obtain the specific function after turning on power of DTV and displaying an OSD menu. So, a menu system is complicated due to the diversification of the selection menu, the deepening of depth and the like. In light that the complication of the menu systems will get more deepened according to the diversification of the functions, the selection of the specific function in DTV is tended to be a problem or tedious thing for not only a user who may be relatively superior in learning an operational skill of DTV but also a user who may be relatively inferior in learning the operational skill.

Users tend to use menus of DTV according to their life styles or interests in general. For instance, a user interested in video movies on screen tends to more often select video-relating menus. And, a user interested in sound tends to mainly select a voice-relating menu from broadcasting programs.

The demand for a menu of various functions for using a PVR (personal video recorder) recording a broadcast in a hard disc or a memory card additionally rises due to the development of DTV technology. So, it is substantially impossible to provide the various menus suitable for various user's tastes, respectively, by using the related art solutions such as abbreviation keys of the remote controller.

As mentioned in the foregoing description, plenty of menu selection items exist in the menu system of DTV in accordance with the trend of functional diversification in DTV. Hence, when each user selects a frequently used menu (preference menu) according to his taste, unnecessary other menus are also displayed so often together with his preference menu item. And, the user has inconvenience in searching or navigating plenty of menus through several steps or depths in pursuit of the specific menu item.

【Disclosure】

【Technical Problem】

Accordingly, the present invention is directed to a method of editing/registering user menus and digital television using the same that substantially obviate one

or more of the problems due to limitations and disadvantages of the related art. An object of the present invention is to provide a method of editing/registering user menus and digital television using the same, by which convenience is provided to a user in a manner of enabling the user to register a specific menu to a DTV menu to facilitate a fast access to a frequently used menu or a preference menu. Another object of the present invention is to provide a method of editing/registering user menus and digital television using the same, in which users are enabled to edit his frequently used menu (or his preference menu) on menu system and by which a management of menu per user is enabled to facilitate a menu to be used according to each user's taste.

Another object of the present invention is to provide a method of editing/registering user menus and digital television using the same, in which a menu registered to a MyMenu item represents a category of a previous menu to indicate a feature of the menu and by which user's convenience is provided according to user's TV life style by enabling addition and deletion for the MyMenu item.

【Technical Solution】

To achieve these objects, there is provided a method of editing/registering user menus in a digital television (DTV) according to the present invention includes a step (a) of displaying a main menu having a plurality of menu layer depths on a display unit of the DTV via an OSD (on screen display), a step (b) of deciding whether a specific user menu is registered within a my-menu storing a user preference menu per a path of a menu system, a step (c) of if the user menu is not registered to the my-menu, selecting a menu item having a specific function of a specific path via a menu navigation moving along a path of the main menu, and a step (d) of registering the selected menu item to the my-menu.

Preferably, the method further includes the step of if a previously registered user menu exists within the may-menu in the step (b), selecting at least one specific menu item from the user menus and executing a function corresponding to the selected menu item within the DTV.

Preferably, if the selected menu item is not registered to the my-menu in the step (d), a function of the DTV corresponding to the selected menu item is executed.

Preferably, a number of the menu layer depths are at least three.

Preferably, the method further includes an editing step of sorting the selected menu item based on order and field for user's convenience after the step (c). Preferably, a user is allowed to enter a name for the sorted field each in the editing step of sorting the selected menu item per the field.

Preferably, if the user does not enter the name of the sorted field for the selected menu items, a prescribed name sorted as default in the my-menu is automatically entered as a sorted name of the menu item.

Preferably, the method further includes the step of repeating the steps (a) to (d) after deciding whether to select another user menu item from the main menu and confirming to select another user menu after the step (d).

To further achieve these and other advantages and in accordance with the purpose of the present invention, a digital television (DTV), which edits and registers user menus, includes an OSD processing unit providing various menus enabling a selection of a user-specific DTV function via an OSD (on screen display) on a display unit of the DTV, the OSD processing unit including a main menu unit providing a menu including a depth of a plurality of layers, a my-menu unit providing a function of editing and registering the user menus, a graphic processing unit graphically processing the main menu unit and a menu option provided by the my-menu unit, a memory storing an editing and registration of the user menu, and a control unit controlling the main menu unit, the my-menu unit, the graphic processing unit and the memory, wherein the control unit controls the my-menu unit so that a menu item of a main menu enabling a selection of a user-preferring function of the DTV and a path of a corresponding menu depth can be registered as the user menu.

【Advantageous Effects】

The present invention configures plenty of user interface (UI) functions proposed as an OSD form in more gradually diversified and complicated DTV (DTV Set/STB) to use conveniently and simply. In particular, by giving a 'manual UI' function named MyMenu according to a user's characteristic and by adding a menu function enabling editing according to a user's taste, the present invention is advantageous in clearing the inconvenience of a related art uniform product and in enabling a user to conveniently edit and establish an intrinsic interface function of each user.

【Description of Drawings】

The accompanying drawings, which are included to provide a further understanding of the invention, and are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention.

In the drawings:

Fig. 1 is a schematic configurational diagram of DTV having an OSD (on screen display) processing unit enabling a my-menu function editing and registering a user's preference menu according to one embodiment of the present invention;

Fig. 2 is a flowchart of a process for storing/editing a menu search path with a my-menu (MyMenu) window according to the present invention;

Fig. 3 is a diagram of a menu configuration of a general DTV;

Fig. 4 is an exemplary diagram of a process of selecting a preference item from an audio (AUDIO) menu item according to the present invention; and

Fig. 5 is an exemplary diagram of a preference menu of an audio (AUDIO) item registered to a my-menu (MyMenu) item according to the present invention.

【Best Mode】

Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings.

Fig. 1 is a schematic configurational diagram of DTV having an OSD (on screen display) processing unit enabling a my-menu function editing and registering a user's preference menus according to one embodiment of the present invention. A DTV according to the present invention includes an antenna 100, a tuner unit 102,

a demodulator unit 104, a demultiplexer 106, a decoder 108, a video encoder 110, an audio digital-analog converter or DA converter 112, a CPU 114, a storage unit 120, a display unit 130, and a remote signal reception unit 140. These elements are provided to a general DTV system, of which detailed explanation will be skipped. In this case, the storage unit 120 includes SDRAM, Flash ROM, EEPROM or the like for example and plays a role in storing a control operation required for a DTV system, a sequence program, a reception signal of a remote control unit according to necessity, and the like. The display unit 130 corresponds to a screen of the DTV and displays video, OSD picture, etc. And, the remote signal reception unit 140 receives a signal from the remote control unit to handle a display operation for the display unit 140, a storage operation in the storage unit 120 or a specific function if necessary.

In addition to these elements, the DTV according to one embodiment of the present invention includes an OSD processing unit 150. The OSD processing unit 150 includes a my-menu unit 1501 allowing a user to edit a preference menu function to register and to select a function with the registered menu only according to necessity, a general menu unit 1502 presenting all function generally selectable in the DTV by the user, a graphic processing unit 1503 for enabling a menu item currently selected or already registered by the user to be displayed in the display unit 130 according to an appropriate format, a memory 1504 for storing all control data occurring within the OSD processing unit 150 or user input data, and a control unit 1505 controlling operations of all element within the OSD processing unit 150.

Preferably, the memory 1504 of the OSD processing unit 150 can be replaced by the storage unit 120 within the DTV system. And, the control unit 1505 of the OSD processing unit 150 can be replaced by the CPU 114 of the DTV system as well. An operation of the DTV according to the present invention is explained in brief as follows. A digital broadcast signal delivered from the antenna 100 is received by the tuner unit 102 of the DTV to be gone through a demodulation process in the demodulator unit 104. The demodulated signal is separated into video and voice signals and the like in the demultiplexer unit 106. The separated signals are decoded into original video and voice via the decoder unit 108, respectively. The video is processed into a designated video format in the video encoder unit 110

to be viewed by a user, and the voice is converted to an analog signal in the audio digital-analog converter (Audio DAC) unit 112 to be provided to the user. And, the CPU 114 controls the entire system and the storage unit 120 stores a workspace, data and information in SDRAM, Flash ROM and EEPROM. The operation is identical to the configurational operation of the general DTV system. The present invention has originality in editing, registration, use and the like of the menu item relating to the operation of the my-menu unit 1501 in the OSD processing unit 150. And, the corresponding operation is explained with reference to a flowchart of Fig. 2.

【Mode for Invention】

Fig. 2 is a flowchart of a process for storing/editing a menu search path with a my-menu (MyMenu) window according to the present invention.

First of all, once the DTV is turned on, a start step is initiated (S10). By a key input of the remote control unit 150 (e.g., remote controller), an OSD picture is displayed on the display unit 130. If so, a user selects a main menu on the presented OSD (S30). The my-menu unit 1501 decides whether or not there is an already-registered user preference menu (S40). If the preference menu exists, the my-menu unit decides whether or not a specific function menu was selected from the already-registered preference menu (S110). If the specific function menu was selected from the already-registered preference menu, the control unit 1505 appropriately executes a user-specific function by searching the memory 1504 for the item of the general menu unit 1502 corresponding to the specific function menu item path (S220). If the already-registered preference menu does not exist in the my-menu unit 1501 in the step S40 or if any menu item is not selected from the already-registered preference menu in the step S110, the user performs menu navigation on the general menu unit 1502 to select the menu item of the user-specific function via a specific corresponding path (S50). The my-menu unit 1501 decides whether to register the specific menu item of the selected specific path (S60). If the specific menu item is not registered, the control unit 1505 decides whether to execute the function of the menu item selected from the general menu unit 1502 (S210). The control unit 1505 executes the function corresponding to the selected menu item via the appropriate elements within DTV (S220). In case

of registering the menu item selected in the step S60, editing of rearrangement of the elected menu item's path and the menu item's order, entry and sorting of names per field and the like is performed if necessary (S70). And, the designated menu item is registered (S80). Thereafter, the control unit 1505 checks whether to select another menu item from the general menu unit 1502 (S90). If another menu item is to be selected, it goes back to the step S50 to perform the menu navigation on the general menu unit 1502. If another menu item is not to be selected, the process below the step S210 is executed as mentioned in the foregoing description. Fig. 3 shows an example of a main menu not provided with a my-menu and Fig. 4 and Fig. 5 are diagrams of a process of registering a selected menu item to a provided my-menu.

First of all, once power of DTV is turned on and if a menu key of the remote control unit (or, remote controller) 150 is inputted by a user, a main menu is displayed on a screen to enable the user to search for a specific menu.

The displayed main menu shown in Fig. 3, Fig. 4 and Fig. 5 is a sort of a picture file, and is previously determined prior to supplying the TV to the user. Menu windows including SETUP, VIDEO, AUDIO, TIME, OPTION, LOCK, CABLE and the like configure a first depth (1st Depth).

Referring to Fig. 4, if a user selects one of the menu windows of the first depth, a part indicating a lower menu of the selected menu window appears on a right side (i.e., middle one of left, middle and right windows partitioned in a horizontal direction). The menu window is called a second depth (2nd Depth). And, a part indicating a lower menu of each menu window of the second depth is called a third depth (3rd Depth) (right window located at a far right side in Fig. 4).

By setting a menu window *cf. 'MyMenu' at a lowest layer in Fig. 4 or Fig. 5) remaining as a blank located at a lowest side of preset menu windows of the main menu to MyMenu for a frequently used menu search path, the user can decide whether to register the frequently used menu search path as a preference menu. If a preference menu use is decided by the user, the frequently used menu search path is stored. Subsequently, the user decides whether to edit the menu search path previously stored. If the stored menu search path is normal, the set path is stored. If the stored menu search path needs to be edited, the preference menu window named my-menu from the first depth is selected to edit the path in the second depth as

the lower menu of the first depth (cf. Fig. 5). In case of performing this editing, if there is a plurality of menu items to be registered, the user sorts the items according to function, taste and the like. And, the user can arbitrarily enter the sorted names. If the user does not decide the sorted names, predetermined names can be automatically given to newly sorted items as default forms, respectively. In this case, the automatically-given sort names include numerals, characters, symbols, combinations of them and the like that can be identified.

A process of registering a preference menu is explained in detail with reference to the drawings as follows. Figs. 4 to 5 show an example that a user registers a menu window displayed on an audio (AUDIO) item of a main menu as a preference menu to a my-menu.

Fig. 4 is an exemplary diagram of a process of selecting a preference item from an audio (AUDIO) menu item and Fig. 5 is an exemplary diagram of a preference menu of an audio (AUDIO) item registered to a my-menu (MyMenu) item.

Referring to Fig. 4, a user needs a 5-step menu search path named 'Menu →Audio →EZ Sound →User selection →Confirmation' for Audio setup.

In particular, Audio is one of the most-frequently used functions as the home theater becomes popularized.

Each time power of DTV is turned on or each time the function is reused while watching DTV, the five steps has to be taken. In case of using the my-menu function according to the present invention, if the third depth item, as shown in Fig. 5, is set as a preference menu, it is able to conveniently access the audio menu with the simple 2- or 3-step key operations. And, the path search can be modified using the editing function for user's convenience.

Namely, once the AUDIO in the first depth, the EX Sound in the second depth and the 'Normal' and 'Theater' in the third depth in Fig. 4 are selected by a user to be stored in the my-menu path, the path 'AUDIO/EZ Sound/Normal' and the path 'AUDIO/EZ Sound/Theater', as shown in Fig. 5, are stored. Hence, it is advantageous in that the path frequently visited by the user is not selected each time.

While the present invention has been described and illustrated herein with reference to the preferred embodiments thereof, it will be apparent to those skilled in the art that various modifications and variations can be made therein without departing from the spirit and scope of the invention. Thus, it is intended

that the present invention covers the modifications and variations of this invention that come within the scope of the appended claims and their equivalents.

【Industrial Applicability】

The present invention configures plenty of user interface (UI) functions proposed as an OSD form in more gradually diversified and complicated DTV (DTV Set/STB) to use conveniently and simply. In particular, by giving a 'Manual UI' function named MyMenu according to a user's characteristic and by adding a menu function enabling editing according to a user's taste, the present invention is advantageous in clearing the inconvenience of a conventional uniform product and in enabling a user to conveniently edit and establish an intrinsic interface function of each user. Therefore, the present invention is widely applicable to the DTV field and the DTV-associated application fields.

【CLAIMS】**【Claim 1】**

A method of editing/registering user menus in a digital television (DTV), comprising:

- (a) displaying a main menu having a plurality of menu layer depths on a display unit of the DTV via an OSD (on screen display);
- (b) deciding whether a specific user menu is registered within a my-menu storing a user preference menu per a path of a menu system;
- (c) selecting a menu item having a specific function of a specific path via a menu navigation moving along a path of the main menu, if the user menu is not registered to the my-menu; and
- (d) registering the selected menu item to the my-menu.

【Claim 2】

The method of claim 1, further comprising the step of if a previously registered user menu exists within the my-menu in the step (b), selecting at least one specific menu item from the user menus and executing a function corresponding to the selected menu item within the DTV.

【Claim 3】

The method of claim 1, wherein if the selected menu item is not registered to the my-menu in the step (d), a function of the DTV corresponding to the selected menu item is executed.

【Claim 4】

The method of claim 1, wherein a number of the menu layer depths are at least three.

【Claim 5】

The method of claim 1, further comprising an editing step of sorting the selected menu items based on an order and fields for user's convenience after the step (c).

【Claim 6】

The method of claim 5, wherein a user is allowed to enter a name for the sorted menu items of the field each in the editing step of sorting the selected menu items based on the field.

【Claim 7】

The method of claim 6, wherein if the user does not enter the name for the sorted

menu items of the field, a prescribed name sorted as default in the my-menu is automatically entered for the sorted menu items of the field.

【Claim 8】

The method of claim 1, further comprising the step of repeating the steps (a) to (d) after deciding whether to select another user menu item from the main menu and confirming to select another user menu item after the step (d).

【Claim 9】

The method of claim 8, wherein a number of the menu layer depths is at least three.

【Claim 10】

The method of claim 8, further comprising an editing step of sorting the selected menu items based on an order and fields for user's convenience after the step (c).

【Claim 11】

The method of claim 10, wherein a user is allowed to enter a name for the sorted menu items of the field each in the editing step of sorting the selected menu items based on the field.

【Claim 12】

The method of claim 11, wherein if the user does not enter the name for the sorted menu items of the field, a prescribed name sorted as default in the my-menu is automatically entered for the sorted menu items of the field.

【Claim 13】

A digital television (DTV), capable of editing and registering user menus, the digital television comprising an OSD processing unit providing various menus enabling a selection of a user-specific DTV function via an OSD (on screen display) on a display unit of the DTV, the OSD processing unit comprising:

- a main menu unit providing a menu including a depth of a plurality of layers;
- a my-menu unit providing a function of editing and registering the user menus;
- a graphic processing unit graphically processing the main menu unit and a menu option provided by the my-menu unit;

- a memory storing an editing and registration of the user menu; and

- a control unit controlling the main menu unit, the my-menu unit, the graphic processing unit and the memory,

wherein the control unit controls the my-menu unit so that a menu item of a main menu enabling a selection of a user-preference function of the DTV and a path of

a corresponding menu depth can be registered as the user menu.

【Claim 14】

The digital television of claim 13, wherein when the graphic processing unit of the OSD processing unit displays the main menu, if there exists a previously registered user menu, the my-menu unit provides the previously registered user menu to be selected.

【Claim 15】

The digital television of claim 13, wherein a number of the menu layer depths are at least three.

【Claim 16】

The digital television of claim 13, wherein the my-menu unit allows the user to edit and sort the user-selected menu items to be registered based on an order and fields for user's convenience.

【Claim 17】

The digital television of claim 16, wherein the my-menu unit allows a user to enter a specific name for the sorted field each in sorting the selected menu items per the field.

【Claim 18】

The digital television of claim 17, wherein if the user does not enter the name of the sorted field for the selected menu items, a prescribed name sorted as default in the my-menu is automatically entered as a sorted name of the menu item.

【Claim 19】

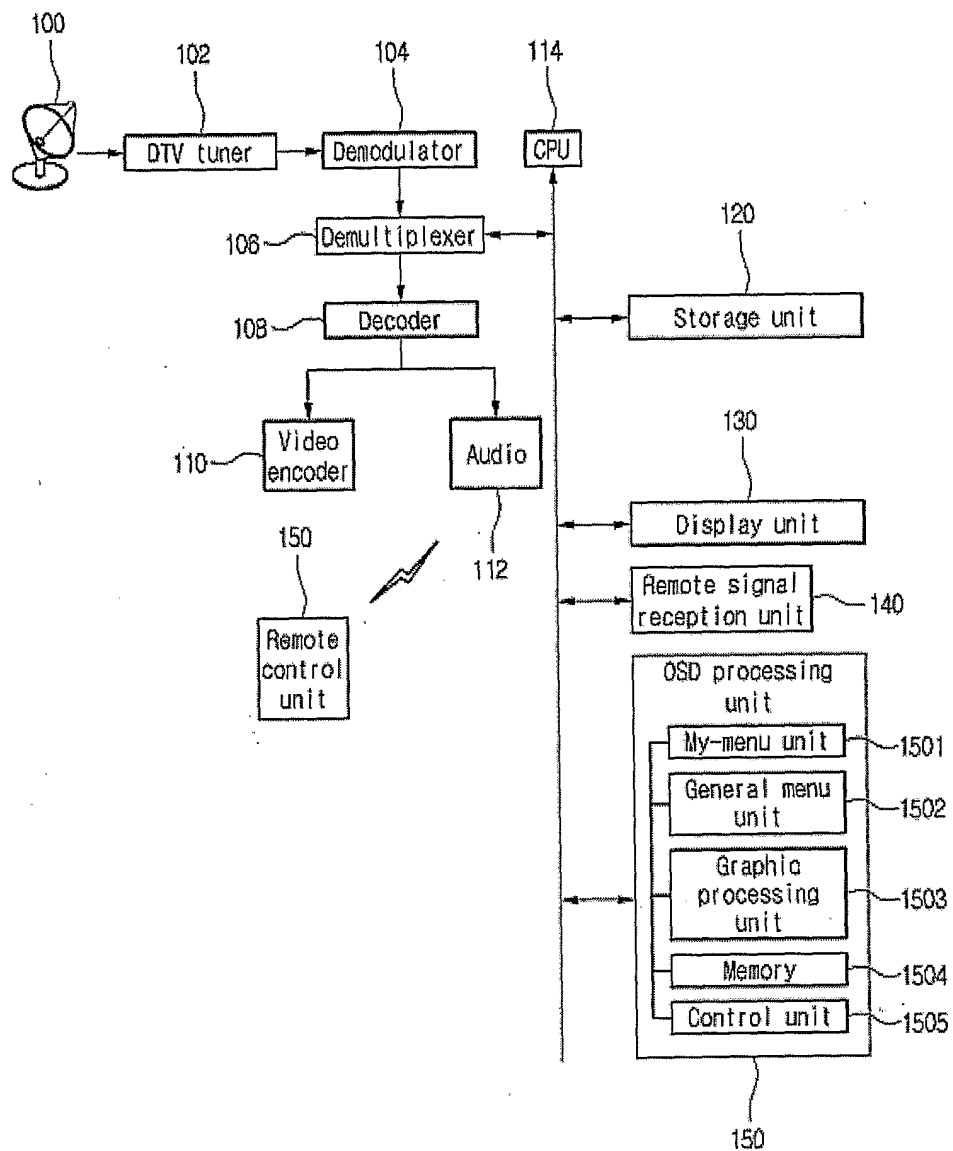
The digital television of claim 13, wherein a user input for user menu registration and editing is performed using a remote controller.

【Claim 20】

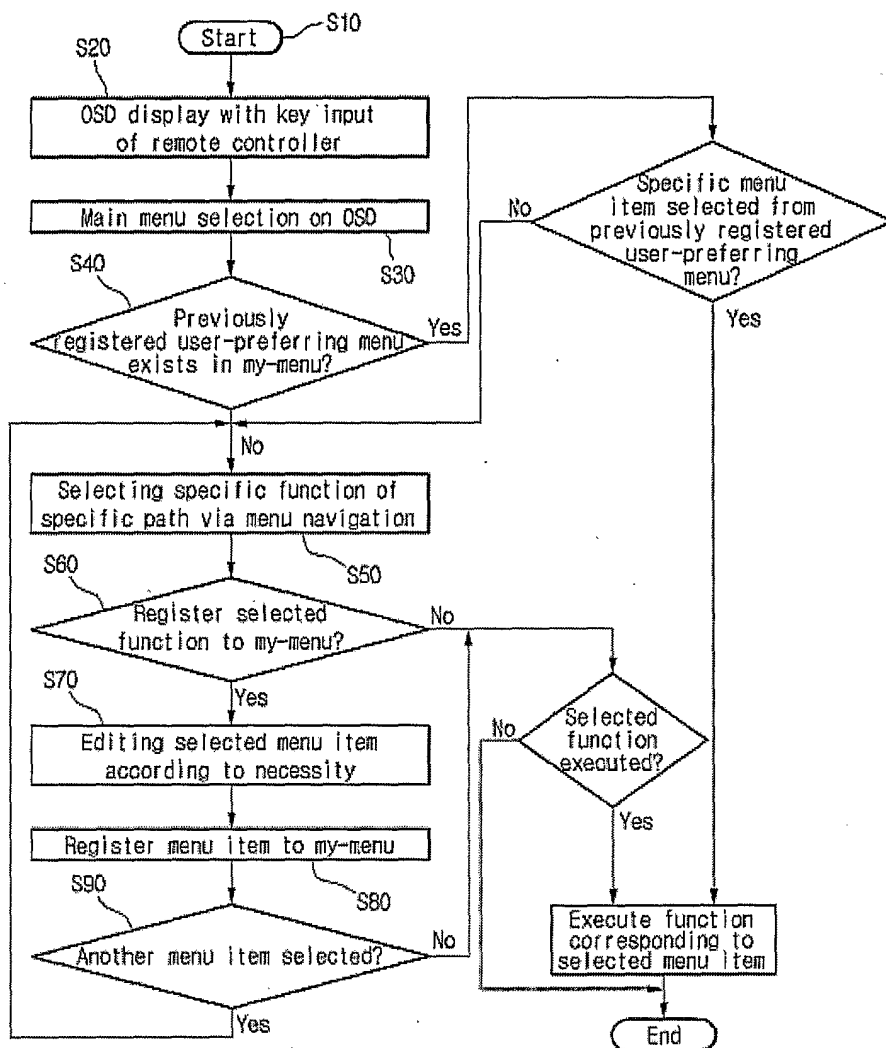
The digital television of claim 13, wherein a number of the menu layer depths is at least three.

【DRAWINGS】

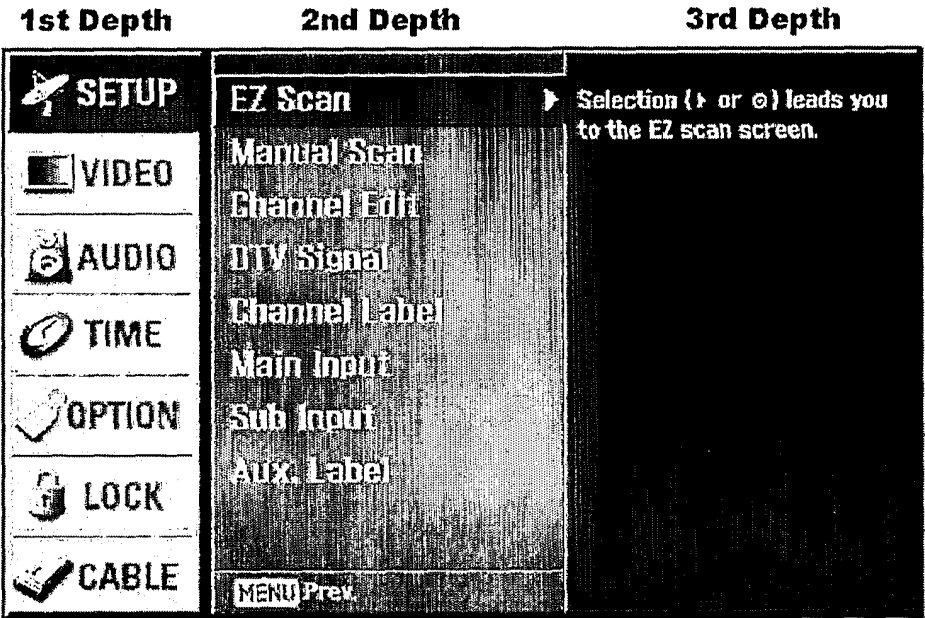
【Figure 1】



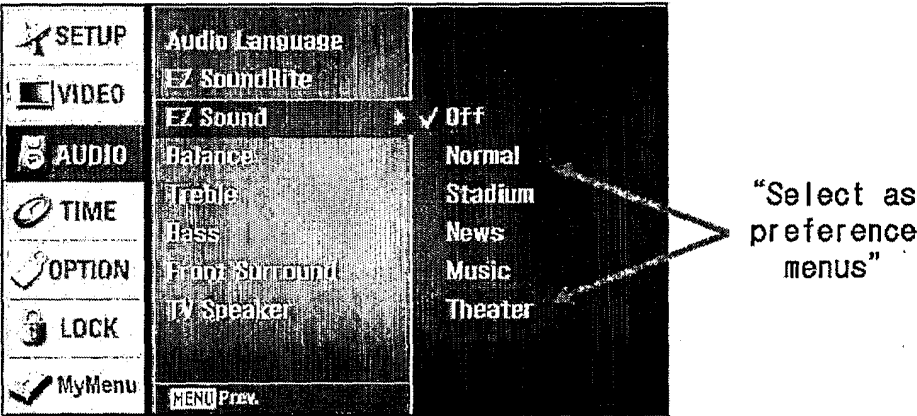
【Figure 2】



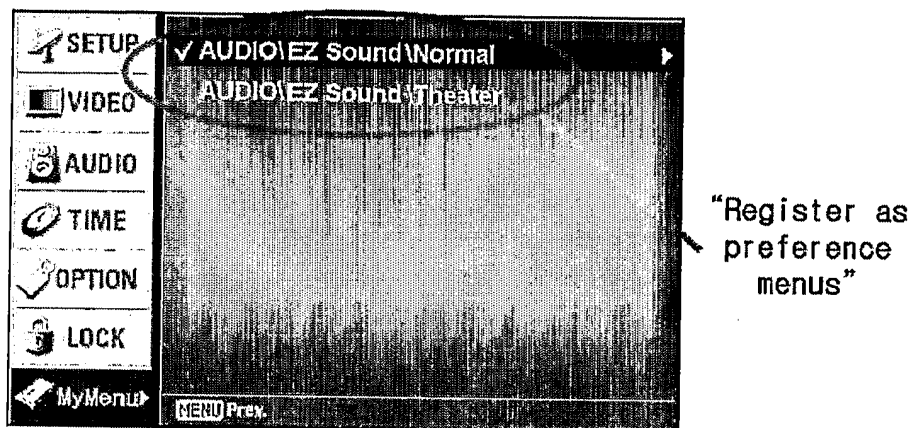
【Figure 3】



【Figure 4】



【Figure 5】



INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

H04N 5/445(2006.01)i

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)

IPC H04R, H04N

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

Korean Patents and applications for inventions since 1980

Korean Utility models and applications Utility models for since 1980

Japanese Patents and applications for inventions since 1980

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

NPS: " OSD, abbreviation, menu, depth "

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 2003047097 A (LG ELECTRONICS INC.) 18.06.2003 see the whole document	1-20
A	US20020067431A1 (LG ELECTRONICS INC) 06.06.2002 see the whole document	1-20
A	US20020097340A1(Funai Electric Co., Ltd.) 25.07.2002 see the whole document	1-20

☐ 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

17 JANUARY 2006 (17.01.2006)

Date of mailing of the international search report

20 JANUARY 2006 (20.01.2006)

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