



(19) Korean Intellectual Property Office
(12) Publication of (Unexamined) Patent Application (A)

(11) Publication No. 10-2010-0134423
(43) Publication Date December 23, 2010

(51) Int. Cl. *H04N 5/50* (Jan. 2006) *H04N 5/445* (Jan. 2006)
(21) Application No. **10-2009-0053042**
(22) Application Date **June 15, 2009**
Examination Request Date None

(71) Applicant **LG Electronics Co., Ltd.**
20 beonji Yeoido-dong, Yeongdeungpo-gu, Seoul
(72) Inventors **Geun Sang Bae**
c/o LG Electronics Co., Ltd., 642 beonji Jinpyeong-dong, Gumi-si,
Gyeongsangbuk-do
(74) Agent **Yong Rok Heo**

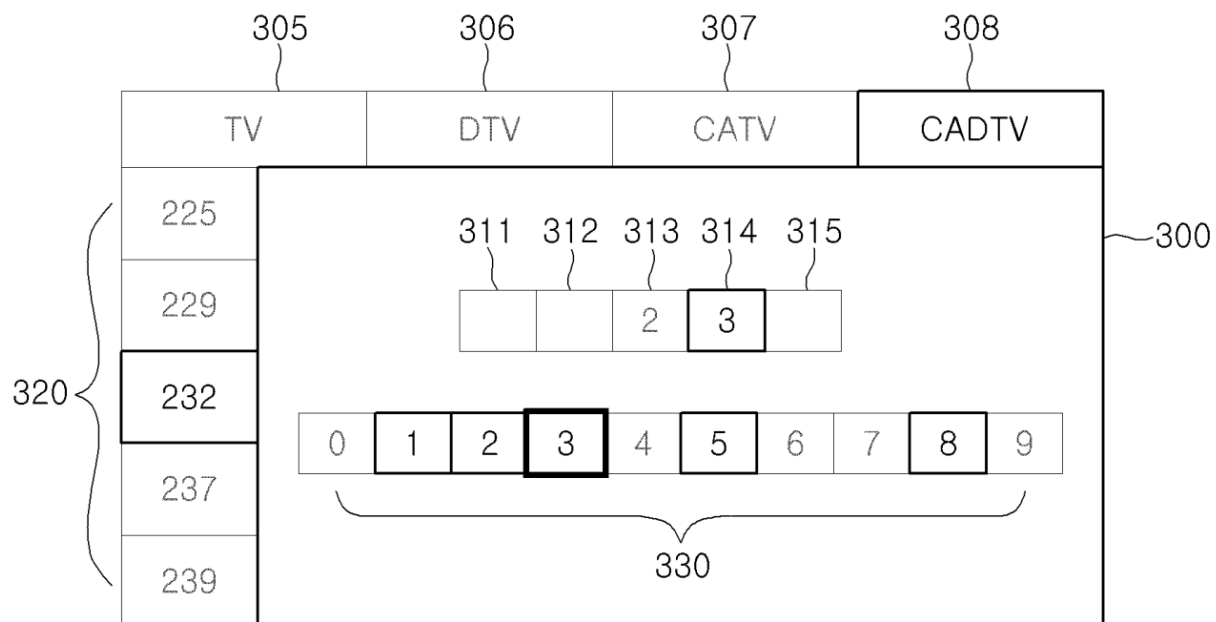
Total Number of Claims: Total of 8 Claims

(54) **Video display device and channel searching method thereof**

(57) Abstract

The present invention relates to a device and method for channel search in a video display device. The present invention is characterized by configuration by a tuner unit that receives broadcast signals for each channel from the outside; an OSD processing unit that generates at least one channel number selection window through which a channel number for a broadcast signal received through the tuner unit can be selected, and a channel number display window displaying the selected channel number; a display unit that displays a channel number input window generated by the OSD processing unit, and a channel number display window that displays the channel input through the channel number input window; a user interface unit that sequentially receives input from the channel of the highest unit according to the displayed channel number input screen; and a control unit that controls to activate and display a selectable next-priority channel number comprising the channel number input through the user interface unit, and to perform channel switching to the selected channel.

Representative Drawing – FIG. 3



*Claims***Claim 1**

A video display device, configured by:

a tuner unit that receives broadcast signals for each channel from the outside;

an OSD processing unit that generates at least one channel number selection window through which a channel number for a broadcast signal received through the tuner unit can be selected, and a channel number display window displaying the selected channel number;

a display unit that displays a channel number input window generated by the OSD processing unit, and a channel number display window that displays the channel input through the channel number input window;

a user interface unit that sequentially receives input from the channel of the highest unit according to the displayed channel number input screen; and

a control unit that controls to activate and display a selectable next-priority channel number comprising the channel number input through the user interface unit, and to perform channel switching to the selected channel.

Claim 2

The video display device according to Claim 1,

wherein the OSD processing unit creates a channel number input window identical to the number of digits of the channel number that can be entered when creating the channel number input screen.

Claim 3

The video display device according to Claim 1,

wherein the control unit controls selectable channel information to be displayed in a predetermined area of the display unit when sequentially inputting the channel number from the highest digit through the user interface unit.

Claim 4

Channel searching method of a video display device, comprising:

a step of receiving a channel search command,

a step of displaying a channel number input window where a channel number can be input,

a step of receiving a higher unit channel number through the displayed channel number input window,

a step of activating a selectable lower unit channel number comprising the input channel number of the higher unit,

a step of selecting one of the activated channel numbers, and

a step of switching to the corresponding channel when a request to switch to a selected channel number occurs.

Claim 5

The Channel searching method of a video display device according to Claim 4,

wherein after the channel number is entered sequentially starting from the top number, switching to the corresponding channel is performed even if no channel number switching request occurs for a certain period of time.

Claim 6

The Channel searching method of a video display device according to Claim 4,

wherein the channel number input window is arranged with numbers from 0 to 9, and the channel number selected by the user and the selectable channel number are displayed separately.

Claim 7

The Channel searching method of a video display device according to Claim 6,

wherein the channel number input window activates and displays only selectable channels among the next-highest priority channel numbers once the upper channel number selection is completed.

Claim 8

The Channel searching method of a video display device according to Claim 4,

wherein the channel numbers selected through the channel number input window are listed sequentially in the channel number display

window.

Specification

Detailed Description of the Invention

Technical Field

[0001] The present invention relates to a video display device, and particularly to a channel searching method of the video display device.

Prior Art

[0002] Typically, display devices include televisions; recently, as television broadcasting technology has developed, the method of transmitting broadcast signals has also developed, and accordingly, interest in digital televisions using digital transmission methods is increasing.

[0003] Because digital television transmits analog broadcast signals in digital form, it can minimize the effects of noise and facilitate reproduction of the original image.

[0004] Recently, these display devices can receive various broadcasting channels through cable or satellite broadcasting, unlike in the past when they could only receive over-the-air channels, providing users with as few as 50 channels and as many as 200 or more channels.

[0005] When selecting various channels, users search for channels by sequentially moving through all channels or randomly entering a specific number to select the channel. However, users cannot easily recognize information about valid channels among numerous channels, and searching all channels one by one results in significant time loss.

Details of the Invention

Problem to be Solved by the Invention

[0006] The present invention was created to solve the above-described problems; the purpose of the present invention is to provide a device and method that allows users to easily search for and select a plurality of broadcasting channels.

Means for Solving the Problem

[0007] In order to solve the above-stated problem, the present invention is configured by a tuner unit that receives broadcast signals for each channel from the outside; an OSD processing unit that generates at least one channel number selection window through which a channel number for a broadcast signal received through the tuner unit can be selected, and a channel number display window displaying the selected channel number; a display unit that displays a channel number input window generated by the OSD processing unit, and a channel number display window that displays the channel input through the channel number input window; a user interface unit that sequentially receives input from the channel of the highest unit according to the displayed channel number input screen; and a control unit that controls to activate and display a selectable next-priority channel number comprising the channel number input through the user interface unit, and to perform channel switching to the selected channel.

Effects

[0008] Therefore, according to the present invention, there is an effect in that the user is able to quickly identify selectable channels among the numerous channels received through the video display device, thereby enabling easy channel search and selection.

Specific Details for Carrying Out the Invention

[0009] Hereinafter, a channel search device and method in a video display device according to the present invention will be described in detail with reference to the attached drawings.

- [0010] FIG. 1 is a block diagram of an image display device to which an embodiment of the present invention is applied.
- [0011] Referring to FIG. 1, the image display device according to an embodiment of the present invention comprises a tuner unit 100 that receives broadcast signals input from the outside and selects a channel selected by a user request, a broadcast signal processing unit 110 that performs signal processing on video signals among broadcast signals selected through the tuner unit 100, a broadcast output unit 120 that outputs the broadcast signal processed through the broadcast signal processor 110 as video or audio, and a user input unit 130 for receiving a request command from the user.
- [0012] In addition, the video display device to which the present invention is applied comprises a storage unit 140 that stores channel information selected through the tuner unit 100, and an OSD processing unit 150 that generates an OSD for channel search based on the channel information stored in the storage unit 140.
- [0013] Hereinafter, the configuration of the video display device will be described in more detail.
- [0014] The tuner unit 100 selects a broadcast channel in a specific frequency band according to a tuning control signal from the control unit 160, which will be described later, and receives a broadcast signal corresponding to the broadcast channel. Here, the tuner unit 100 may be implemented as an antenna, a cable connector, a receiving device such as a set-top box, a tuner, a demodulator decoder, and the like.
- [0015] The broadcast processing unit 110 receives video signals and audio signals among the broadcast signals received through the tuner unit 100 and outputs the received signal to be output through the broadcast output unit 120, which comprises a display unit and a speaker.
- [0016] At this time, the broadcast processing unit 110 may comprise a video decoder that decodes the video signal and a scaler that converts the decoded video signal to fit the vertical frequency, resolution, and screen ratio that meet the specifications of the display unit. Additionally, it may include an audio processing unit that processes audio to meet output standards.
- [0017] The user input unit 130 is a means for receiving request commands from the user, and receives channel search commands, channel change commands, volume up/down commands, etc. input from the user and transmits them to the control unit 160. In particular, the user input unit 130 according to an embodiment of the present invention performs a function of sequentially receiving the channel to be input from the user, starting from the upper number.
- [0018] The control unit 160 controls the overall operation of the video display device. The control unit 160 controls the OSD processing unit 150 that generates an OSD to receive channel numbers sequentially input from the highest number through the user interface unit 130 according to an embodiment of the present invention. Additionally, the tuner unit 100 selects the broadcast signal corresponding to the selected channel number and controls the broadcast signal to be output through the broadcast output unit 120.
- [0019] The storage unit 140 is a means for storing various data and may be composed of EEPROM (Electrically Erasable and Programmable Read Only Memory), which is an electrically erasable and program read-only device. Further, the storage unit 140 stores the previously searched channel information, and performs a function of reading a channel number input through the user interface unit 130 so that a channel number selectable according to the control unit 160 can be output through the broadcast output unit 120.
- [0020] Hereinafter, a channel search operation in the video display device according to an embodiment of the present invention will be described based on the configuration of the video display device described above.
- [0021] FIG. 2 is a flowchart of a channel search operation according to an embodiment of the present invention, and FIG. 3 is an example screen displayed during channel search according to an embodiment of the present invention.
- [0022] The control unit 160 controls the video display device to operate in a broadcast output mode that controls the video or audio input through the tuner unit 100 to be output (Step 205). While performing the output mode, it is confirmed whether the channel search menu is entered through the user input unit 130 (Step 210). When the control unit 160 determines that the channel search menu is selected, it displays a screen for searching and selecting a channel, as shown in the example screen 300 of FIG. 3 as a screen for channel search (Step 215).
- [0023] The channel search screen 300 is displayed divided into categories from which channels for each of TV 305, DTV 306, CATV 307, and CADTV 308 can be selected depending on the broadcast reception status. In addition, the numbers 0 to 9 are displayed in the channel number selection window 330 for channel search in each category; for each number, only selectable numbers are activated and displayed so that the user can input the corresponding number using the left and right keys or number keys.
- [0024] Additionally, it comprises a channel number display window 310 that displays the number for each digit of the channel selected in the channel number selection window 330. The channel number display window is able to display a window with as many digits as the channel number that can be selected by the user, and performs the function of displaying the corresponding channel according to the selection of the channel number to fit each

digit (311, 312, 313, 314, 315). The channel search screen may comprise a channel number window 320 that sequentially displays channel numbers previously stored in the memory unit according to each digit of the selected channel displayed in the channel number display window.

- [0025] As described above, when the channel search menu is selected, a screen including a plurality of windows for channel search is displayed, and the highest digit to be selected is selected through the channel number selection window 330 (Step 220). In an embodiment of the present invention, the number of selectable channel numbers is 5 digits, and the channel number selected by the user is "232."
- [0026] When the control unit 160 selects "2" as the first number, which is a number in hundreds, through the user input unit 130, "2" is displayed in the position corresponding to the hundreds digit in the channel number display window 310. In the channel selection window, a second number that can be selected in tens among channels comprising the first number "2" is activated and displayed (Step 225). Afterwards, similar to the operation of inputting the first number from the user, a second number is selected (Step 230), and the selected number is displayed behind the hundredth unit number in the channel number display window. At this time, the channel number selection window activates and displays the third number that can be selected on a daily basis among channels including the first and second numbers (Step 235). The last one unit number is input, and when the confirmation key is pressed or a predetermined time has elapsed (Step 240), the switch to the corresponding channel is performed (Step 245).
- [0027] As described above, the channel searching method according to an embodiment of the present invention sequentially receives selectable channels from a plurality of channels starting from the highest digit number; each time, selectable channel numbers comprising the number entered are activated and displayed, allowing the user to easily search for a desired channel among numerous channels.

Brief Description of the Drawings

- [0028] FIG. 1 is a block diagram of an image display device to which the present invention is applied.
- [0029] FIG. 2 is a flow chart of a channel search operation according to an embodiment of the present invention.
- [0030] FIG. 3 is an example screen displayed when searching for a channel according to an embodiment of the present invention.

Drawings

FIG. 1

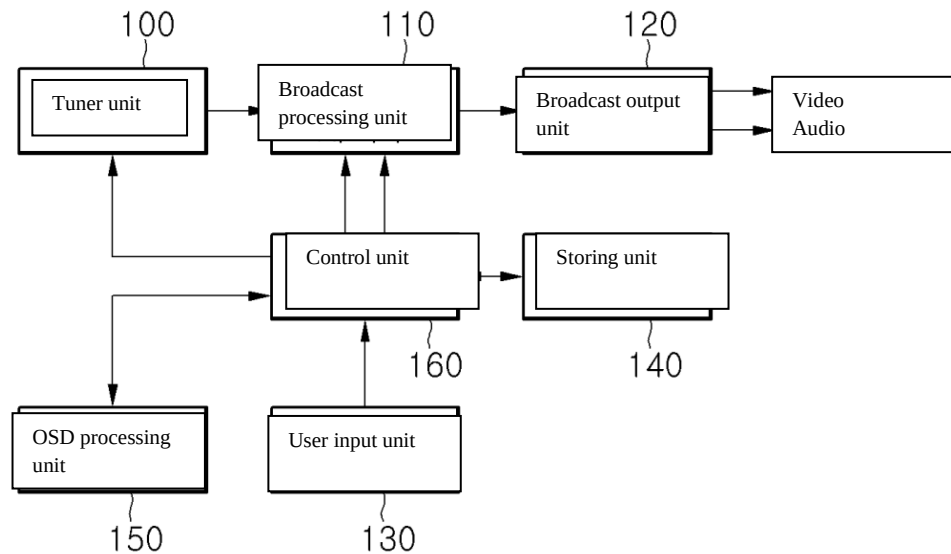


FIG. 2

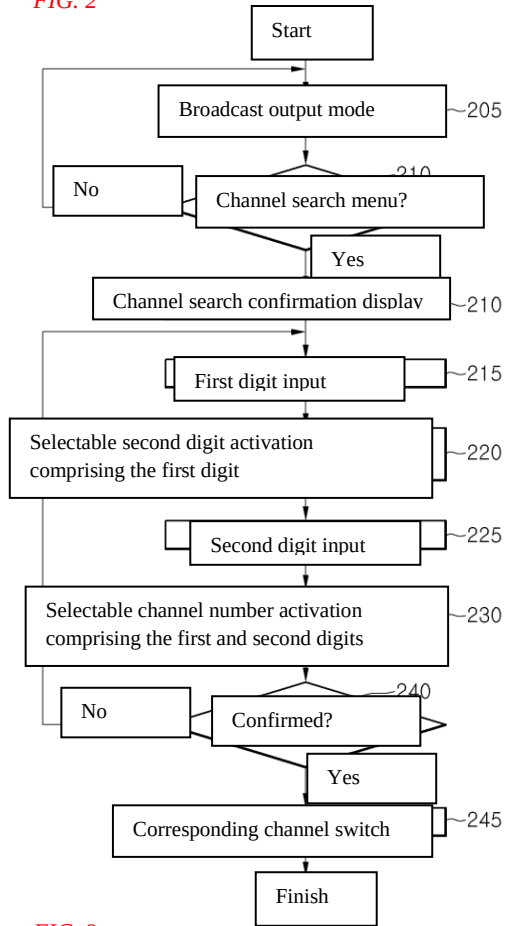
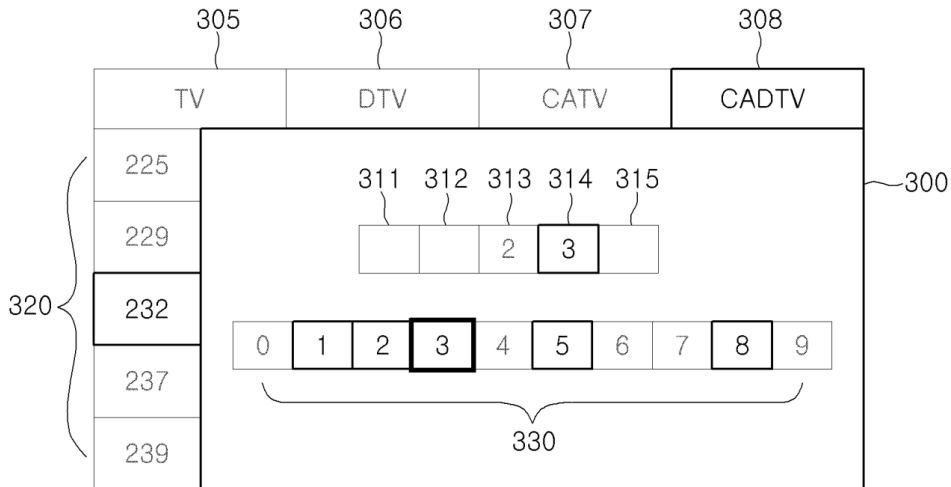


FIG. 3





Certification of Accuracy of Translation

Sun IP Project # 23-5958

Name: Carl T. Sullivan

Address: 4855 South 1580 West Sterling, Utah

Telephone: 801-369-1501

I, Carl T. Sullivan, hereby declare that I am a professional translator, with over 32 years of professional experience, and am knowledgeable and well acquainted with the English language and the Korean language.

The document KR20100134423A (Bae) in the English language attached hereto is to the best of my ability, knowledge, and expertise, the correct English translation of the original document written in the Korean language.

I translated the original document into the English language. I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 or Title 18 of the United States Code.

A handwritten signature in black ink, appearing to read "C. T. Sullivan", written over a horizontal line.

Carl T. Sullivan

Signed in Sterling, Utah USA on November 3, 2023