(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 811 241 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
25.07.2007 Bulletin 2007/30

(51) Int Cl.:
F24F 11/00 *(2006.01)*

(21) Application number: **06256516.3**

(22) Date of filing: **21.12.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(30) Priority: **23.01.2006 KR 20060006645**
02.03.2006 KR 20060019990

(71) Applicant: **LG Electronics Inc.**
Yongdungpo-gu
Seoul (KR)

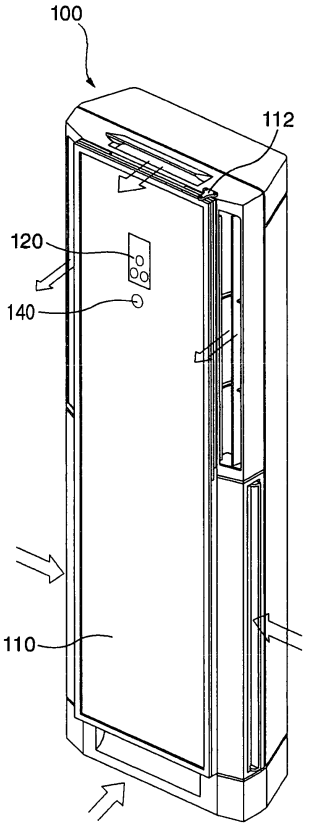
(72) Inventors:
- **Kim, Dong Jin**
  Wonjoo-si
  Kangwon-do (KR)
- **Kang, Hyuk Myung**
  Kangseo-ku
  Seoul (KR)

(74) Representative: **Palmer, Jonathan R.**
Boult Wade Tennant,
Verulam Gardens,
70 Gray's Inn Road
London WC1X 8BT (GB)

(54) Air conditioner and method for updating control program for air conditioner

(57) Provided are an air conditioner and a method for updating a control program for an air conditioner. The air conditioner includes: a main machine constituting an appearance and a display unit. The display unit is provided to the main machine to display an operating state of the main machine and receive a signal for controlling an operation of the main machine. The display unit displays a function button for displaying an operating state of the main machine and controlling an operation of the main machine. Also, the display unit includes a touch screen allowing a user touch a button to select the button. In the method for updating a control program for an air conditioner, an external storage medium in which an update program file is stored is mounted in a storage medium mounting part, the update program file is displayed on a display part, and the update program file is selected and executed.

Fig.1



EP 1 811 241 A2

Description

Field of the Invention

[0001] The present invention relates to an air conditioner, and more particularly, to an air conditioner, wherein a touch screen is mounted on a front side of the air conditioner, and data displayed on the touch screen can be updated, and a method for updating a control program for an air conditioner.

Description of the Related Art

[0002] An air conditioner is a device for conditioning air contained in a predetermined space into an optimum state according to a desired purpose. Recently, demand for the air conditioner has increased to make a living environment more comfortable. The air conditioner is installed in an indoor space or wall of vehicles, office rooms, homes, etc. to cool down or heat the inside air. The air conditioner operates in a series of cycles of compression-condensation-expansion-evaporation.

[0003] The air conditioner is roughly divided into a separation type air conditioner where an outdoor unit and an indoor unit are separately installed, and an integral type air conditioner where the outdoor unit and the indoor unit are integrally installed.

[0004] Meanwhile, an indoor unit of a related art air conditioner includes a main machine constituting an appearance and a front panel constituting a front appearance of the main machine. A heat exchanger and a blower fan are provided inside the main machine.

[0005] Also, a button part having a variety of buttons for operating the air conditioner, and a display part provided separately, for displaying an operating state of the air conditioner are provided on the front panel.

[0006] However, the related art air conditioner has the following problems.

[0007] Since the display part displays only an operating state of the air conditioner, a button part should be separately provided in order to control an operation of the air conditioner.

[0008] Therefore, an appearance of an entire air conditioner is not elegant, and a user's complaint is generated. Also, there is no method for updating a program provided to a control unit, for controlling the display part of the air conditioner.

[0009] In this case, a user should use a program that has been provided to the control unit when the air conditioner is brought to the market. Accordingly, a demand of a user who desires a variety of data to be displayed on the display part cannot be met.

SUMMARY OF THE INVENTION

[0010] Accordingly, the present invention is directed to an air conditioner and a method for updating a control program for an air conditioner that addresses one or more problems due to limitations and disadvantages of the related art.

[0011] It would be desirable to provide an air conditioner, wherein a touch screen incorporating a function of a button part and a function of a display part is provided.

[0012] Another object of the present invention is to provide an air conditioner and a method for updating a control program for an air conditioner, wherein a program stored in a control unit for controlling an operation of the air conditioner can be updated.

[0013] Additional advantages, objects, and features of the invention will be set forth in part in the description which follows and in part will become apparent to those having ordinary skill in the art upon examination of the following or may be learned from practice of the invention. The objectives and other advantages of the invention may be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

[0014] Accordingly, the invention provides an air conditioner including: a main machine constituting an appearance; and a display unit provided to the main machine to display an operating state of the main machine and receive a signal for controlling an operation of the main machine, wherein the display unit displays a function button for displaying an operating state of the main machine and controlling an operation of the main machine, and a touch screen allowing a user touch a button to select the button.

[0015] In another aspect of the present invention, there is provided an air conditioner including: a main machine constituting an appearance; a front panel constituting a front appearance of the main machine; and a display unit provided to the front panel to display an operating state of the main machine and receive a signal for controlling an operation of the main machine, wherein the display unit includes a display part displaying an operating state display portion for displaying an operating state of the main machine and a button portion for controlling an operation of the main machine, and a touch screen for selecting the button part in a touch manner.

[0016] In a further another aspect of the present invention, there is provided a method for updating a program for an air conditioner, the method including: mounting an external storage medium in which an update program file is stored in a storage medium mounting part provided to a main machine of the air conditioner; displaying the update program file stored in the external storage medium on a display part; and selecting and executing the update program file.

[0017] In a still further another aspect of the present invention, there is provided a method for updating a program for an air conditioner, the method including: mounting an external storage medium in which an update program file is stored in a storage medium mounting part formed in a main machine of the air conditioner; touching a touch screen formed on the main machine; displaying the update program file on the touch screen; and select-

ing and executing the update program file.

[0018] According to the present invention, unnecessary button can be removed and a front appearance of the main machine can look elegant.

[0019] Also, since an air conditioning state or an indoor environment and a variety of data is displayed through the touch screen, a user can recognize the displayed data more easily and can use various additional functions besides a primary function such as air conditioning. Accordingly, user convenience is enhanced.

[0020] Also, since a program for controlling an operation of an air conditioner can be updated, displayed image and text can be selected, which arouses customers' interest, and enhances user's satisfaction.

[0021] Also, since an image can be changed according to a user's taste, the user's taste can be more properly satisfied. Further, since the image can be conveniently changed, user convenience is enhanced.

[0022] It is to be understood that both the foregoing general description and the following detailed description of the present invention are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings:

FIG. 1 is a perspective view of an indoor unit of an air conditioner according to the present invention;

FIG. 2 is a perspective view illustrating a front panel of the air conditioner of FIG. 1 is open;

FIG. 3 is a block diagram illustrating a control system of the air conditioner of FIG. 1;

FIG. 4 is a block diagram explaining an operating mode of an air conditioner according to the present invention;

FIG. 5 is a view illustrating an example of an air conditioner start menu screen displayed on a touch screen of an air conditioner according to the present invention;

FIG. 6 is a flowchart explaining a method for updating a control program for an air conditioner according to the present invention;

FIG. 7 is a view illustrating an example of a program file screen displayed on a display part according to the present invention;

FIG. 8 is a view illustrating an example of an air conditioner operating mode screen displayed when an air conditioner operating button displayed on the air conditioner start menu screen of FIG. 5 is selected;

FIG. 9 is a view illustrating an example of a detailed operation control screen displayed when an operation setting button displayed on the air conditioner operating mode screen of FIG. 8 is selected;

FIG. 10 is a view illustrating the air conditioner operating mode screen of FIG. 8 is displayed as various operating mode animations on a screen according to an operating state of an air conditioner;

FIG. 11 is a view illustrating the air conditioner operating mode screen of FIG. 8 is displayed as various motion operating mode animations on a screen according to an operating state of an air conditioner;

FIG. 12 is a view illustrating an example of a screen state when a signal of a remote controller is suddenly received while an air conditioner operates in a screen state shown in FIG. 10 or 11;

FIG. 13 is a view illustrating a data center mode screen displayed on a front side of a touch screen when a data center button on the air conditioner start menu screen of FIG. 5 is input in a touch manner;

FIG. 14 is a view illustrating an example of a weather data center mode screen selected on the data center mode screen of FIG. 13;

FIG. 15 is a view illustrating a thumbnail screen of a photo album mode screen selected on the data center mode screen of FIG. 13;

FIG. 16 is a view explaining functions performed on the thumbnail screen of FIG. 15;

FIG. 17 is a view explaining a function of a sheet view screen designed for enlarging a photo on the thumbnail screen of FIG. 15;

FIG. 18 is a view illustrating another function of the thumbnail screen of FIG. 15;

FIG. 19 is a view illustrating an example of an anniversary management mode screen selected on the data center mode screen of FIG. 13;

FIG. 20 is a view explaining a calendar screen and a function thereof;

FIG. 21 is a view illustrating a main screen of an anniversary list screen;

FIG. 22 is a view illustrating an anniversary editing screen and a function thereof;

FIG. 23 is a view illustrating an example of a screen displayed on a touch screen depending on a kind of an anniversary;

FIG. 24 is a view illustrating an alarm setting screen;

FIG. 25 is a view illustrating a main screen of a configuration setting screen;

FIG. 26 is a view illustrating an operating mode setting screen for setting a screen displayed on a touch screen during an operating mode;

FIG. 27 is a view illustrating a stop mode setting screen for setting a screen displayed on a touch screen during a stop mode;

FIG. 28 is a view illustrating a screen saver setting screen for setting a screen saver displayed during a screen saver state;

FIG. 29 is a view illustrating a screen brightness setting screen for controlling screen brightness displayed on a touch screen;

FIG. 30 is a view illustrating a date/time setting screen;

FIG. 31 is a view illustrating an effect sound setting screen;

FIG. 32 is a view illustrating a main screen of a user manual in which information regarding a using method of an air conditioner is stored; and

FIG. 33 is a view illustrating an example of the user manual of FIG. 32.

DETAILED DESCRIPTION OF THE INVENTION

[0024] Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings.

[0025] Also, though description is made using a separation type air conditioner for an example to explain an air conditioner to which the present invention is applied, the spirit of the present invention can be applied to an integral type air conditioner, of course.

[0026] FIG. 1 is a perspective view of an indoor unit of an air conditioner according to the present invention.

[0027] Referring to FIG. 1, the air conditioner includes an indoor unit 100 and an outdoor unit (not shown). A front panel 110 formed long vertically to constitute a front appearance is provided on a front side of the indoor unit 100.

[0028] The front panel 110 is configured to be opened with a hinge 112.

[0029] A touch screen 120 is provided to an upper central portion of the front panel 110 so that a user can directly manipulate the air conditioner by only lightly touching the touch screen 120.

[0030] In detail, the touch screen 120 is attached on a display part 256 (FIG. 3) displaying an operation state display portion for displaying data regarding an operating state or operation execution state of the air conditioner, and a plurality of manipulation buttons for substantially controlling and setting an operation of the air conditioner. Also, a remote controller receiving portion 140 for receiving a signal of a remote controller is provided to below the touch screen 120.

[0031] FIG. 2 is a perspective view illustrating a front panel of the air conditioner of FIG. 1 is open. Referring to FIG. 2, a display unit 150 is provided on a backside of the front panel 110. Also, a storage medium mounting part is provided to the display unit 150, and an external storage medium 160 is selectively mounted in the storage medium mounting part.

[0032] In detail, the storage medium mounting part includes at least a universal serial bus (USB) memory 162 or a secure digital (SD) card 164.

[0033] Therefore, the display unit 150 can easily receive external data, e.g., a photo file through the USB memory 162 or the SD card 164.

[0034] Of course, data can be delivered through a variety of mobile storage media as well as the USB memory 162 or the SD card 164. Also, data can be downloaded through the Internet.

[0035] A speaker output terminal 156 of the display unit 150 is exposed to the outside. The speaker output terminal 156 is designed for delivering a predetermined sound generating during an operation of the display unit 150 to an external speaker (not shown). That is, a user can enjoy sounds output during an operation of the display unit 150 using a cable connecting the speaker output terminal 156 to the speaker (not shown).

[0036] Meanwhile, a cavity hole 158 for radiating heat from internal electric parts, and a speaker hole 157 for guiding output of a small speaker (with regulated power of about 1W) mounted within the display unit 150 are formed in the display unit 150.

[0037] Also, an air-purifying unit 170 for filtering and purifying foreign substances contained in air is provided to an inner lower portion of the indoor unit 100. The air-purifying unit 170 has a plurality of filters to filter various foreign substances such as dusts and smells contained in air.

[0038] Also, a main microcomputer 200 connected to a display controller 250, for controlling an entire operation of the air conditioner is installed on an upper side of the air-purifying unit 170.

[0039] Also, a pressure sensor 131 and a humidity sensor 132 are provided on an upper side of the main microcomputer 200. The pressure sensor 131 is provided for sensing a pressure change of an indoor space to predict weather change, and the humidity sensor 132 is intended for measuring humidity of an indoor space.

[0040] Signals sensed by the pressure sensor 131 and the humidity sensor 132 are processed by the main microcomputer 200, and then transmitted to the display controller 150.

[0041] Also, though not shown, a plurality of parts (heat exchanger, etc.) for air conditioning such as heating or cooling are further provided inside the indoor unit 100. Since functions and constructions of these parts are generally known in the art, detailed descriptions thereof will be omitted.

[0042] FIG. 3 is a block diagram illustrating a control system of the air conditioner of FIG. 1.

[0043] Referring to FIG. 3, the control system includes the main microcomputer 200 for controlling an entire operation of an air conditioner, and the display controller 250 allowing function manipulation of the air conditioner on the touch screen 120. The main microcomputer 200 and the display controller 250 include a variety of parts connected to each other so that various data can be transmitted and received.

[0044] In detail, a main memory 202 is provided to the main microcomputer 200. The main memory 202 is a storage medium basically mounted within the air conditioner to store various data.

[0045] Also, a sensor unit 212, a signal-receiving unit 214, an indoor unit motor 216, an outdoor unit motor 218, and a compressor 220 are connected to the main microcomputer 200.

[0046] In more detail, the sensor unit 212 includes a variety of sensors installed in the air conditioner, particularly, a plurality of sensors such as a temperature sensor (not shown), a humidity sensor 132 for measuring humidity of an indoor space, a pressure sensor 131 for obtaining data regarding weather, and a gas sensor (not shown) for measuring cleanness of air to measure a state and a contamination degree of air. Measurement values sensed by the sensor unit 212 are delivered to the main microcomputer 200.

[0047] Like the remote controller receiving portion 140, the signal-receiving unit 214 receives a signal from the outside. Of course, the signal-receiving unit 214 can be configured to receive data (signal) through a computer (including the Internet) or wireless communication as well as a signal of a remote controller.

[0048] The indoor unit motor 216 is provided to the indoor unit 100 of the air conditioner and designed for rotating a fan. The indoor unit motor 216 operates by receiving a signal from the main microcomputer 200.

[0049] At this point, the main microcomputer 200 can be configured to control a rotating speed of the indoor unit motor 216 according to a contamination value of air delivered from the sensor unit 212.

[0050] The compressor 220 and the outdoor unit motor 218 are operated by the main microcomputer 200. For example, when an operation command is input through the remote controller receiving unit 140 or the touch screen 120, the main microcomputer 200 operates the compressor 220 and the outdoor unit motor 218 to switch a mode of the air conditioner from a stop mode to an operation mode.

[0051] As described above, the air-purifying unit 170, which purifies air by filtering foreign substances contained in the air, operates by the main microcomputer 200 in response to a signal input from the outside.

[0052] Also, the main microcomputer 200 is configured to transmit and receive a signal to and from the display controller 250 provided to the display unit 150.

[0053] Also, data input to the display controller 250 through a data input part 258, and a signal input to the display controller 250 through a display input part 254 are delivered to the main microcomputer 200.

[0054] Also, a display memory 252, the display input part 254, a display part 256, and the data input part 258 are connected to the display controller 250.

[0055] In detail, the display memory 252 is mounted within the display unit 150, and stores various materials for display. For example, a static random access memory (SRAM) 252a temporarily stores data to be displayed on the display part 256, and a booting read only memory (ROM) 252b performs a booting operation of the display unit 150 when power is applied to the air conditioner. A flash memory 252c stores a photo or a moving image file to be displayed on an operating system (OS) or the display part 256 of the display unit 150.

[0056] The display input part 254 includes a touch screen 120 for receiving data selected in a touch manner and a touch screen controller 254a.

[0057] In detail, when a user touches the touch screen 120, coordinate data on the touch screen is decoded by the touch screen controller 254a and transmitted to the display controller 250.

[0058] An operating state display portion (a display portion to which a touch method is not applied) for displaying functions related to an operation of the air conditioner in response to a command from the display controller 250, and a function button (a display portion to which the touch method is applied) for setting functions of the air conditioner are displayed on the display part 256.

[0059] The data input part 258 receives data such as a photo file from the outside through a mobile storage medium such as a USB memory 162 and an SD card 164 and buffers the data. The data input through the data input part 258 are stored in the display memory 252 under control of the display controller 250 and can be transmitted to the main microcomputer 200 and stored in the main memory 202 when needed.

[0060] FIG. 4 is a block diagram explaining an operating mode of an air conditioner according to the present invention.

[0061] Referring to FIG. 4, when power is applied to an operation of the air conditioner, the main microcomputer 200 performs a booting operation for an operation of the air conditioner. During the booting operation, a booting screen 511 is displayed on the touch screen 120. Here, for the booting screen 511 displayed on the touch screen 120, a screen displayed on the display part 256 is directly displayed. Therefore, in the case where a predetermined screen is displayed on the display part 256, it is assumed that a predetermined screen is displayed on the touch screen 120 for convenience in description.

[0062] When the booting operation is completed, the booting screen 511 displayed on the touch screen 120 is switched into an air conditioner start menu screen 520.

[0063] The air conditioner start menu screen 520 displays an air conditioner operating button for selecting an operating function of the air conditioner, an air cleaning operating button for an air cleaning function, and a data center button for selecting various data such as weather, a photo album, and an anniversary.

[0064] When a user touches the air conditioner operating button or the air cleaning operating button displayed on the air conditioner start menu screen 520, the touch screen 120 is switched from the air conditioner start menu screen to a corresponding air conditioner operating menu screen or air cleaning operating menu screen. The block diagram of FIG. 4 illustrates only an air conditioner/cleanness operating menu screen 600 in one block for convenience in description.

[0065] When a user touches a predetermined input button displayed on the air conditioner/cleanness operating menu screen 600, corresponding various type operation setting menu screen 610 is displayed on the touch screen 120. The operation setting menu screen 610 will

be described below.

[0066] Meanwhile, when a user touches the data center button displayed on the air conditioner start menu screen 520, the touch screen 120 is switched from the air conditioner start menu screen 520 to a data center menu screen 700.

[0067] The data center menu screen 700 displays a photo album button for editing, setting, and displaying the photo downloaded from the USB memory 162 or the SD card 164, a weather data center button for displaying weather-related data such as weather, indoor humidity, and air cleanness of today, an anniversary management button for inputting or displaying a birth day of a family or familiar persons, an alarm button for setting or canceling an alarm, a user manual button for explaining functions or structures of the air conditioner in use, and a configuration setting button for arbitrarily setting a date or time.

[0068] Therefore, when a user touches the buttons displayed on the data center menu screen 700, a photo album menu screen 710, a weather data center menu screen 720, an anniversary management menu screen 740, a user manual menu screen 750, or a configuration setting menu screen 760, which is a corresponding sub-menu is displayed on the touch screen 120.

[0069] When a remote controller signal is not input or a touch operation is not made for a predetermined time with the air conditioner/cleanness operating menu screen 600, the data center menu screen 700, and the sub-menu of the data center menu screen 700 displayed on the touch screen 120, a screen saver 530 displaying a predetermined photo is displayed on the touch screen 120.

[0070] The screen saver 530 is cancelled and the screen is restored back to the screen right before the screen saver operation when the touch screen 120 is touched or a remote controller signal is input.

[0071] Meanwhile, when a remote controller signal is not input or a touch operation is not made for a predetermined time with the air conditioner start menu screen 520 displayed on the touch screen 120, the air conditioner start menu screen 520 is switched into a stop mode screen 512.

[0072] During the stop mode screen 512, the display part 256 can be turned off to save electricity, which can be controlled by configuration setting described later. However, a general stop mode screen 512 may be a screen displaying basic data such as clock/date/indoor temperature.

[0073] FIG. 5 is a view illustrating an example of an air conditioner start menu screen displayed on a touch screen of an air conditioner according to the present invention.

[0074] Referring to FIG. 5, the touch screen 120 displays an air conditioner operating button 121 on which air conditioner operating is marked, an air cleaning operating button 122 on which air cleaning operating button is marked, and a data center button 123 on which data center is marked.

[0075] As described above, the air conditioner start menu screen 520 is a main menu screen displayed on the touch screen 120 when power is applied to the air conditioner and the booting screen 511 passes by.

[0076] When a remote controller signal is not input or a touch operation is not made for a predetermined time (about one minute) with the air conditioner start menu screen 520 displayed, the air conditioner start menu screen 520 is switched into the stop mode screen 512. Also, when a user's touch is input during the stop mode screen 512, the stop mode screen 512 is restored back to the air conditioner start menu screen 520 and waits for a user's input.

[0077] Meanwhile, a previous button displaying restoring back to a right-before state is selected or an operation stop button representing stop of an air conditioner operation is touched from the data center menu screen or air conditioner operation/air cleaning operation menu screen, the stop mode screen 512 is directly displayed instead of the air conditioner start menu screen 520. At this point, when a user touches the stop mode screen 512, the stop mode screen 512 disappears and the air conditioner start menu screen 520 is displayed.

[0078] All the functions described up to now are performed by execution of an operating system and a variety of programs stored in the main memory 202 and the display memory 252 when the air conditioner is manufactured.

[0079] The operating system or the variety of programs already stored in the main memory 202 and the display memory 252 need to be modified, replaced, or updated all or selectively while the air conditioner is manufactured or in use.

[0080] According to the present invention, an external storage unit is used as a means for modifying and updating the already stored operating system and variety of programs.

[0081] That is, a new operating system and a variety of programs are stored in the external storage unit such as a USB memory or an SD card) through a personal computer (PC), and the stored OS and programs are transmitted to the main memory 202 or the display memory 252 of the air conditioner, so that an update operation can be performed.

[0082] A method for updating a control program for an air conditioner will be described with reference to FIG. 6.

[0083] FIG. 6 is a flowchart explaining a method for updating a control program for an air conditioner according to the present invention.

[0084] First, an operation for replacing or updating the already stored OS or program begins by displaying the air conditioner start menu screen 520, which is the main menu screen described with reference to FIG. 5, on the display part 256 (S11).

[0085] Next, the external storage medium 160 storing a new OS and the variety of programs is mounted in storage medium mounting parts 152 and 154 (S12).

[0086] When the external storage medium 160 is mounted, a user touches the touch screen 120 with the air conditioner start menu screen 520 displayed (S13).

[0087] At this point, the touch operation may be performed on peripheral region excluding a region on which function buttons (i.e., an air conditioner operating button 121, an air cleaning operating button 122, and a data center button 123) of the air conditioner start menu screen 520 are displayed. When a user touches a region on which the function buttons are not displayed, the display controller 250 downloads a predetermined program file stored in the external storage medium 160 and transmits downloaded program file to the display part 256.

[0088] Then, the air conditioner start menu screen 520 that has been displayed on the display part 256 is switched into a program file screen which will be described with reference to FIG. 7 (S14). Predetermined program files related to operations of the air conditioner are displayed as icons on the program file screen.

[0089] Next, a user selects and executes a desired program file from a plurality of program files displayed on the program file screen of the display part 256 using the touch screen 120 (S15) .

[0090] When execution of the desired program file is completed (S16), a user determines whether to execute another program file (S17).

[0091] When the user intends to execute another program file, the user can select another program file displayed on the program file screen to repeatedly perform operations S15 through S17.

[0092] Meanwhile, when the user does not intend to execute a new program file any more, the user removes the external storage medium 160 from the storage medium mounting parts 152 and 154 to finally end the updating operation (S18). At this point, the external storage medium 160 should not be removed arbitrarily. The external storage medium 160 should be removed after an ending file displayed on the program file screen is executed.

[0093] FIG. 7 is a view illustrating an example of a program file screen displayed on a display part according to the present invention.

[0094] FIG. 7A illustrates an initial screen of a program file screen, and FIG. 7B illustrates program files displayed when a file to be updated is selected in FIG. 7A.

[0095] Referring to FIG. 7A, a first program file 810 is a file storing a program allowing the display controller 250 to recognize an external storage medium, and a new OS file, a second program file 820 is a file containing a variety of program files (FIG. 8B) to be updated, and an execution file 830 is a file for checking normal execution of various program updating operations during the updating operations.

[0096] Therefore, a user should select the second program file 820 in order to perform a program updating operation. When the second program file 820 is selected by the user, a screen displaying program files is displayed as illustrated in FIG. 7B.

[0097] Referring to FIG. 7B, folder type various program files 821, 822, 823, and 824, and a plurality of DLL files are displayed.

[0098] A program file 821 displayed on the upper left end stores an image or moving image data displayed on the display part during an operation of the air conditioner. Therefore, a user selects an execution file (not shown) displayed through selection of the program file 821 to replace or update the image or moving image data stored in the main memory 202 or the display memory 252.

[0099] A program file 822 displayed on the upper right end stores data regarding a text (i.e., characters) displayed on the display part during an operation of the air conditioner. Therefore, a user selects an execution file (not shown) displayed through selection of the program file 822 to replace or update the text data stored in the main memory 202 or the display memory 252.

[0100] A program file 823 displayed on an intermediate portion stores data exclusively used for the main memory 202 of the air conditioner or necessary data. Therefore, a user selects an execution file (not shown) displayed through selection of the program file 823 to replace or update predetermined data stored in the main memory 202.

[0101] Next, the plurality of DLL files denoted by ***.dll constitute a set of small programs. The DLL files are auxiliary programs remaining not mounted in the display memory 252, and selectively connected when a predetermined program is executed.

[0102] Therefore, a user can update various screen images and texts displayed on the display part 256 according to an operation mode of the air conditioner using the above-described program updating method.

[0103] FIG. 8 is a view illustrating an example of an air conditioner operating mode screen displayed when an air conditioner operating button displayed on the air conditioner start menu screen of FIG. 5 is selected.

[0104] The air conditioner operating mode screen is displayed on the display part 256 in principle, but a user feels as if it were displayed on the touch screen 120. Accordingly, the air conditioner operating mode screen is displayed on the touch screen 120 for convenience in description.

[0105] Referring to FIG. 8, a skiing character (which can be replaced by other character through a configuration setting) is displayed on an upper portion of the touch screen 120 on which the air conditioner operating mode screen is displayed.

[0106] Also, a data window 300 displaying an operation state of the air conditioner, weather data, an indoor temperature, and a desired temperature, and a temperature setting button 316 on which a move key for setting a desired temperature is marked are displayed on a lower portion of the touch screen 120. A mode change button portion 318 for switching into other mode is located below the data window 300 and the temperature setting button 316.

[0107] In detail, the mode change button portion 318

includes a data center button 310 for moving to a data center where a user can set various life-related data, an operation stop button 312 for stopping an operation of the air conditioner, and an operation setting button 314 for setting an operation state of the air conditioner appropriately for user convenience.

[0108] On the data window 300, an operation state of the air conditioner is displayed as strong cooling, the weather data is displayed as cloudy, the indoor temperature is displayed as 19°C, and the desired temperature is displayed as 19°C, for example.

[0109] For the operation state of the air conditioner, a current operating mode of the air conditioner and intensity of wind are displayed. In detail, one of weak/strong/power cooling, turbo-Z weak/strong/power, weak/strong/power dehumidifying, and weak/strong air cleaning is displayed.

[0110] Also, for the weather data, indoor humidity, air cleanness, and weather data are repeatedly displayed in an order of indoor humidity->air cleanness->weather->indoor humidity... using a sliding text method. The sliding text effect is updated by a period of one second. However, when an error code notice informing that part of the air conditioner or the display unit is damaged is displayed, or a remote controller signal reception notice informing that a remote controller signal is suddenly received is displayed, the weather data temporarily disappears. When the notice is cancelled, the weather data is displayed again.

[0111] An indoor temperature between 10-36°C is normally displayed on an indoor temperature display portion 301 of the data window 300. When the indoor temperature is below 10°C, Lo is displayed. On the other hand, when the indoor temperature is greater than 36°C, Hi is displayed.

[0112] Strong/weak wind guide is displayed on a desired temperature display portion 302 of the data window 300 during an air cleaning mode. When a move key of the temperature setting button 316 is pressed, a wind amount increases or decreases. Meanwhile, Ai is displayed during an artificial intelligence mode, and one of -2, -1, 0, 1, and 2 is displayed when a user manipulates the move key of the temperature setting button 316. Also, when the turbo-Z function is turned on, Po is displayed and a temperature in a range of 18-30°C is displayed during the other modes.

[0113] The temperature setting button 316 is an input part for setting a desired temperature in a range of 18-30°C using an up/down move key. When the air conditioner performs only an air cleaning function, the temperature setting button 316 serves as weak/strong changing key for wind intensity. In the case where a desired temperature is set using the up/down move key of the temperature setting button 316, temperature increases/decreases by 1°C.

[0114] Also, four icons (operating state additional icons 31) additionally displaying an operating state of the air conditioner are displayed on the data window 300. A leftmost icon of the operating state additional icons 31 displays whether an air cleaning operation is performed or not. An icon located on the right of the leftmost icon displays whether an outdoor unit operates or not. An icon located to the right of the icon displaying whether the outdoor unit operates or not displays whether a power-saving mode is performed or not. Also, a rightmost icon displays whether a time reservation is set or not. An order in which the four icons are displayed may change. That is, the four icons are displayed from left to right according to an order in which operations corresponding to respective functions are performed. When the air conditioner operates for the purpose of air cleaning only, the operating state additional icons 31 is not displayed. In this case, air cleanness is displayed instead.

[0115] The data window 300 described up to now displays only the above-described data and is not an object to be touched for instruction input.

[0116] Meanwhile, when the data center button 310 of the mode change button portion 318 is selected, a screen on the touch screen 120 moves to the data center menu screen 700. When the operation stop button 312 is selected, the screen on the touch screen 120 moves to the stop mode screen 512. When the operation setting button 314 is selected, the screen on the touch screen 120 moves to an operation state control screen of the air conditioner.

[0117] FIG. 9 is a view illustrating an example of a detailed operation control screen displayed when an operation setting button displayed on the air conditioner operating mode screen of FIG. 8 is selected.

[0118] Referring to FIG. 9, the detailed operation control screen displays a data window 300 for displaying an operating state, weather data, an indoor temperature, and a desired temperature of an air conditioner, and a temperature setting button 316 on which a move key for setting a desired temperature is marked. Since functions of these are the same as the data window 300 and the temperature setting button 316 described with reference to FIG. 8, detailed description thereof will be omitted.

[0119] An operating mode selection portion 810, a window intensity skeleton portion 820, an additional function selection portion 830, and a mode change button portion 840 are sequentially displayed below the data window 300 and the temperature setting button 316.

[0120] In detail, the operating mode selection portion 810 includes a cooling button 811, an artificial intelligence button 812, a dehumidifying button 813, and an air cleaning button 814.

[0121] The window intensity selection portion 820 includes a weak wind button 821, a strong wind button 822, a power wind button 823, and a turbo-Z button 824.

[0122] The additional function selection portion 830 includes a horizontal wind button 831, a vertical wind button 832, and a power-saving button 833.

[0123] The mode change button portion 840 includes a data center button 841, an operation stop button 842, and a setting completion button 843.

[0124] All of the operating mode selection portion 810, the window intensity selection portion 820, and the additional function selection portion 830 can be selected when the air conditioner is operated for the purpose of air conditioning. However, in the case where the air conditioner is used solely for air cleaning, only the weak wind button 821 and the strong wind button 822 of the window intensity selection portion 820 can be selectively pressed. In this case, the power wind button 823, the turbo-Z button 824, and the other functions are disabled and cannot be input.

[0125] When an input from a user is not made for a predetermined time after the detailed operation control screen is displayed, a screen is automatically restored back to the screen of FIG. 8. On the other hand, when an input from the user is made, after about five seconds elapses since a final input, the screen is automatically restored back to the screen of FIG. 8.

[0126] FIG. 10 is a view illustrating the air conditioner operating mode screen of FIG. 8 is displayed as various operating mode animations on a screen according to an operating state of an air conditioner.

[0127] FIGS. 10A, 10B, and 10C illustrate an air conditioner operating mode screen when air conditioners operate in weak/strong/power cooling states, respectively.

[0128] Also, FIGS. 10D, 10E, and 10F illustrate an air conditioner operating mode screen when the air conditioners operate in weak/strong/power turbo-Z states, respectively. FIG. 10G illustrates an air conditioner operating mode screen when the air conditioner operate in a weak dehumidifying state, FIG. 10H illustrates an air conditioner operating mode screen when the air conditioners operate in an artificial intelligence state, and FIG. 10I illustrates an air conditioner operating mode screen when the air conditioners operate in a strong air cleaning state.

[0129] FIG. 11 is a view illustrating the air conditioner operating mode screen of FIG. 8 is displayed as various motion operating mode animations on a screen according to an operating state of an air conditioner. An image displayed on the air conditioner operating mode screen located on an upper portion of the touch screen 120 is a moving image.

[0130] FIGS. 11A to 11I are the same as FIG. 10 except that characters of FIGS. 11A to 11I are modified and displayed as moving images.

[0131] FIG. 12 is a view illustrating an example of a screen state when a signal of a remote controller is suddenly received while an air conditioner operates in a screen state shown in FIG. 10 or 11.

[0132] Referring to FIG. 12, when a remote controller signal is applied, various type remote controller notice windows 1111 to 1114 are displayed on the air conditioner operating mode screen in response to a remote controller signal. In this case, a right-before air conditioner operating mode screen changes into a dim background screen.

[0133] A remote controller reception notice window 1111 of FIG. 12A is a screen displayed when a user intends to control a desired temperature using a remote controller. A remote controller reception notice window 1112 of FIG. 12B is a screen displayed when a user intends to control a wind amount, a remote controller reception notice window 1113 of FIG. 12C is a screen displayed when a user intends to control a vertical wind, and a remote controller reception notice window 1114 of FIG. 12D is a screen displayed when a user intends to control a horizontal wind.

[0134] Each of the remote controller notice windows 1111 to 1114 is displayed for about five seconds and automatically disappears after a remote controller signal is received.

[0135] The remote controller notice windows 1113 and 1114 illustrated in FIGS. 12C and 12D are displayed only when data received from the remote controller are a vertical wind-on and a horizontal wind-on, respectively. When the vertical wind-on is input and immediately the vertical wind-off is input through the remote controller, the remote controller notice windows 1113 is not displayed for five seconds and immediately disappears. Meanwhile, in the case where the screen saver 530 is displayed, the remote controller notice window is displayed after the screen saver 530 disappears.

[0136] When a remote controller signal is received during the data center mode, an operating mode starts after the data center mode disappears. Therefore, the remote controller notice window is not displayed.

[0137] FIG. 13 is a view illustrating a data center mode screen displayed on a front side of a touch screen when a data center button on the air conditioner start menu screen of FIG. 5 is input in a touch manner.

[0138] Referring to FIG. 13, the data center mode screen displays a weather data center button 1210, a photo album button 1220, an anniversary management button 1230, an alarm button 1240, a configuration setting button 1250, a user manual button 1260, and a previous button 1270.

[0139] A screen displayed on the touch screen 120 is switched into a weather data center mode screen 1211 when the weather data center button 1210 is selected, switched into a photo album mode screen 1221 when the photo album button 1220 is selected, switched into an alarm button mode screen 1241 when the alarm button 1240 is selected, switched into a configuration setting mode screen 1251 when the configuration setting button 1250 is selected, and switched into a user manual mode screen 1261 when the user manual button 1260 is selected.

[0140] Meanwhile, when the data center mode screen of FIG. 13 is maintained for a predetermined time, the screen is switched into the stop mode screen 512, and vice versa. When the data center button 310 located at a lower end of an air conditioner operating mode screen 600 is selected, the screen is switched into the screen of FIG. 13.

[0141] When the previous button 1270 located at a lower end of the data center mode screen is selected, the

screen is switched into the air conditioner operating mode screen 600 of FIG. 8 in the case where the air conditioner currently operates, and switched into the stop mode screen 512 in the case where the air conditioner is currently turned off.

[0142] Similarly, when a remote controller signal is applied with the data center mode screen displayed, the air conditioner operating mode screen 600 or the stop mode screen 512 are displayed depending on an operating state of the air conditioner.

[0143] FIG. 14 is a view illustrating an example of a weather data center mode screen selected on the data center mode screen of FIG. 13.

[0144] Referring to FIG. 14, the weather data center mode screen 1211 displays a display part 1211a including a today's weather display portion displaying rain, cloud, cloudy, and fine, an indoor humidity display portion displaying current indoor humidity in a range of 19-99%, and an air cleanness display portion displaying air cleanness in three steps of bad, normal, and good, and a previous button 1211b for moving to the data center mode screen of FIG. 13, which is a right-before screen state.

[0145] Referring to FIG. 14, the previous button 1211b is realized in a touch manner, but the display part 1211a only displays data.

[0146] Next, when the photo album button 1220 of FIG. 13 is selected, a screen on the touch screen 120 is switched from the data center mode screen of FIG. 13 to a photo album mode screen.

[0147] FIG. 15A illustrates a thumbnail screen, which is an initial screen of the photo album mode screen. A plurality of photo files stored in a photo album are displayed as reduced images on the thumbnail screen. Next, FIG. 15B illustrates a sheet view screen displayed when one of the plurality of photo files illustrated in FIG. 15A is selected, FIG. 15C illustrates a screen saver setting screen for selecting a photo to be used for a screen saver, and FIG. 15D illustrates a photo bring screen for bringing a photo file transmitted from an external USB memory, which will be described below.

[0148] FIG. 16 is a view explaining functions performed on the thumbnail screen of FIG. 15.

[0149] Referring to FIG. 16, a thumbnail screen is displayed on an upper left side of FIG. 16A. A sheet view screen appearing when a user selects a predetermined photo displayed on the thumbnail screen is displayed on an upper right side of FIG. 16A. Below the thumbnail screen, page move keys ◄ and ► for moving to other thumbnail screen is located. A menu button for selecting a function realized on the photo album screen is located on a left side of a lowermost end, and a previous button for moving to the data center mode screen of FIG. 13 is located at a right side of a lowermost end.

[0150] Referring to FIG. 16A, nine photo files at the maximum are displayed in one page on the thumbnail screen. When a predetermined photo file on the thumbnail screen is selected, a sheet view screen (FIG. 16B) is displayed.

[0151] When the menu button is selected in FIG. 16A, a menu list (continuous view, screen saver setting, bring photo, delete all, and close menu) illustrated in FIG. 16C is displayed on the thumbnail screen.

[0152] When the previous button is selected in FIG. 16A, the thumbnail screen of FIG. 16 is switched into the data center mode screen (FIG. 16D) explained with referenced to FIG. 13.

[0153] FIG. 17 is a view explaining a function of a sheet view screen designed for enlarging a photo on the thumbnail screen of FIG. 15.

[0154] FIG. 17A illustrates an example of a sheet view screen. Referring to FIG. 17A, an image of a predetermined photo file selected on the photo album screen is enlarged and displayed on the sheet view screen. Move keys ◄ and ► for moving to other photo file on the photo album screen is located below the sheet view screen. A menu button is displayed on the left side at a lower end of the sheet view screen, and a previous button is displayed on the right side at the lower end.

[0155] When a photo is selected in FIG. 17A, the selected photo is displayed over an entire screen as illustrated in FIG. 17B. When the previous button located at the lower end of FIG. 17B is selected, the entire screen moves to a screen of FIG. 17A, which is a main screen of the sheet view screen.

[0156] When the menu button is selected in FIG. 17A, a menu window (FIG. 17C) including rotate photo, delete, and close menu is displayed on the sheet view screen of FIG. 17A.

[0157] When the rotate photo is selected in the menu window of FIG. 17C, a photo rotate window displaying four function buttons for rotating photo horizontally, vertically, 90° clockwise, and 90° counterclockwise, respectively, a OK button for setting function button manipulation after the function button manipulation is completed, and a cancel button for canceling a set state is displayed (FIG. 17D). When the OK or cancel button is selected on the photo rotate window, the screen of FIG. 17D moves to the screen of FIG. 17A, which is a main screen of the sheet view screen.

[0158] When the delete is selected on the menu window of FIG. 17C, a deletion confirmation window for confirming whether to delete a photo file currently displayed is displayed (FIG. 17E). When yes indicating agreement to deletion of the photo file currently displayed is selected on the deletion confirmation window, a corresponding photo file is deleted, and simultaneously, the screen of FIG. 16A, which is the thumbnail screen, is displayed. On the other hand, when No indicating non-agreement to deletion of the photo file currently displayed is selected on the deletion confirmation window, the screen is restored to the screen of FIG. 17A, which is a main screen of the sheet view screen.

[0159] When the close menu displayed on the menu window of FIG. 17C is selected, the screen is immediately restored to the screen of FIG. 17A, which is a main screen of the sheet view screen.

[0160] Meanwhile, the previous button of FIG. 17A is used when the screen is moved to the screen of FIG. 16A, which is a thumbnail screen.

[0161] FIG. 18A illustrates a menu window displayed when the menu button of FIG. 16A is selected. The menu window displays items of continuous view, screen saver setting, bring photo, delete all, and close menu.

[0162] When the continuous view is selected, images of all photo files currently stored in the photo album are updated and displayed by a period of five seconds. When no photo is stored in the photo album, a message saying that the album is empty is displayed.

[0163] When the screen saver setting is selected, the screen is switched to a screen where a user can select a photo to be used as a background photo of a screen saver. When a user selects one of photos displayed on the screen of FIG. 18B and selects a set button, the selected photo is set as a photo for the screen saver, and simultaneously, the screen is switched into the thumbnail screen of Fig. 16A.

[0164] When the previous button is selected in FIG. 18B, the screen is switched into the screen of FIG. 18A.

[0165] Next, a bring photo button of FIG. 18A is designed for downloading a photo stored in the USB memory 162 or the SD card 164, which is an external storage medium 160. When the bring photo button is selected, a predetermined photo can be downloaded. When the previous button is selected, the thumbnail screen of FIG. 16A, which is a right-before screen, is displayed.

[0166] The delete all is a function for deleting all photo files contained in the photo album. When the delete all is selected, a message window conforming deletion of all files is displayed again to a user. After the deletion is confirmed, the delete all operation is performed.

[0167] FIG. 19 is a view illustrating an example of an anniversary management mode screen selected on the data center mode screen of FIG. 13. The anniversary management mode screen includes a calendar screen, an anniversary list screen, and an anniversary edit screen. Initial screens of these are illustrated in FIGS. 19A, 19B, and 19C.

[0168] The calendar screen of FIG. 19A is initially displayed when the anniversary management button 1230 of FIG. 13 is selected, which will be described with reference to FIGS. 20 to 22.

[0169] FIG. 20 is a view explaining a calendar screen and a function thereof.

[0170] Referring to FIG. 20A, the calendar screen displays a calendar, move keys ◄ and ► are displayed below the calendar, and a list view button and a previous button are displayed on a lower end portion of the calendar screen.

[0171] A currently set anniversary is displayed as an icon corresponding to a kind of the anniversary on each date of the calendar. In the case where an alarming function informing a predetermined anniversary is added, a clock-shaped small icon is displayed together as illustrated in FIG. 20B.

[0172] When a date is selected on the calendar, the anniversary edit screen of FIG. 19C is displayed with the selected date, which will be described with reference to FIG. 22.

[0173] The move keys ◄ and ► displayed on the calendar screen of FIG. 20A are designed for moving to a next month or a previous month.

[0174] When the list view button is selected on the calendar screen, the anniversary list screen of FIG. 19B is displayed. When the previous button is selected, the data center mode screen is displayed.

[0175] FIG. 21A illustrates a main screen of the anniversary list screen.

[0176] Referring to FIG. 21A, the anniversary list screen displays a date of an anniversary, a lunar date of a date, an anniversary kind of a date, and alarming state of an anniversary in a list form.

[0177] When a predetermined date is selected on the anniversary list screen, the anniversary edit screen is displayed as illustrated in FIG. 21B just like the anniversary edit screen is displayed when a date is selected on the calendar screen of FIG. 20A.

[0178] The move keys displayed on the anniversary list screen are used for moving to an anniversary on a next page or a previous page. Also, the delete all button located on a lower left side of the anniversary list screen is designed for deleting all anniversary currently stored. When the delete all button is selected, a confirmation window conforming a delete all operation is displayed.

[0179] Last, the previous button located on a lower right side of the anniversary list screen is selected, a calendar screen of FIG. 20A, which is a right-before screen, is displayed.

[0180] FIG. 22 is a view illustrating an anniversary editing screen and a function thereof.

[0181] Referring to FIG. 22, a date to be managed as an anniversary is displayed in an order of year, month, and day on an upper end of the anniversary editing screen.

[0182] Below the date to be managed as an anniversary, horizontal move keys for selecting a kind of an anniversary is located. The kind of the anniversary is displayed on an intermediate portion between the horizontal move keys when the horizontal move keys are pressed. The kind of the anniversary includes a birth day, a wedding anniversary, and religious service. Therefore, a user can determine one of the anniversaries by pressing the horizontal move keys.

[0183] Horizontal move keys for selecting a hero of an anniversary is located below the kind of the anniversary, and the hero is displayed on an intermediate portion between the horizontal move keys. The hero includes father/mother, grand father/mother, and son/daughter. Therefore, a user can determine one of heroes by pressing the horizontal move keys.

[0184] An alarming set selection portion for determining whether to add an alarm function via a speaker to an anniversary is located below the horizontal move keys

for selecting the hero. The alarming set selection portion includes an on-button and an off-button. When the on-button is selected, an alarm set date, a set time, and a repeat set that are located below the alarming set selection portion can be selected, but the off-button is selected, the alarm set date, the set time, and the repeat set are disabled and cannot be selected.

[0185] One of one, two, three days, and one week before an anniversary, can be determined as the alarm set date using horizontal move keys. Regarding the set time, a time at which an alarming for an anniversary is to be performed can be determined using horizontal move keys. The repeat set is designed for determining whether to perform the alarming only one year or every year.

[0186] A storing button, a deletion button, and a previous button are displayed from left to right on a lower end of the anniversary edit screen.

[0187] When a user selects the storing button, a set data regarding the set anniversary is stored. When the user selects the delete button, the set data regarding the set anniversary is deleted.

[0188] When one of the storing button, the delete button, and the previous button is selected, the anniversary edit screen of FIG. 22 is switched into a calendar screen of FIG. 21A.

[0189] FIG. 23 is a view illustrating an example of a screen displayed on a touch screen depending on a kind of an anniversary of FIG. 22.

[0190] That is, FIG. 23A illustrates an image displayed when an anniversary is a birthday or a wedding anniversary, FIG. 23B illustrates an image displayed for other anniversary, and FIG. 23C illustrates an image displayed when an anniversary is a religious service.

[0191] The image shown in FIG. 23 is displayed on the touch screen 120 when an anniversary arrives. The image is constantly displayed during the anniversary until a user checks it.

[0192] FIG. 24 is a view illustrating an alarm setting screen appearing when the alarm button 1240 of FIG. 13 is selected. For setting an alarm, an on-button for setting an alarm is selected, and a desired alarm setting can be set using horizontal keys of a relevant item for setting an alarm.

[0193] In the alarm setting screen, a continuation time denotes an alarm continuation time. The alarm continuation time can be selected as one of thirty seconds, one minute, and three minutes. A repeat setting is designed for determining a date on which an alarming function operates. The alarming function can be set to operate every day or on one of weakdays and Saturday. An alarm sound is designed for selecting one of different melodies as an alarming sound.

[0194] The storing button located on the left side of a lower end of the alarm setting screen is designed for setting an alarm to the above-described setting. When the storing button is selected or a predetermined time elapses with the alarm setting screen displayed, the alarm setting screen is switched to the data center mode screen of FIG. 13.

[0195] The cancel button located on the right side of the lower end of the alarm setting screen is designed for moving to the data center mode screen of FIG. 13.

[0196] FIG. 25 is a view illustrating a main screen of the configuration setting screen of FIG. 13.

[0197] Referring to FIG. 25, the configuration setting screen displays an operating mode button, a stop mode button, a screen saver button, a screen brightness button, a date/time button, and an effect sound button.

[0198] The operating mode button is designed for selecting and setting a screen displayed on the touch screen during an operation of the air conditioner. The stop mode button is designed for setting a stop mode screen displayed during the stop mode described with reference to FIG. 6, and the screen saver button is designed for setting a screen displayed during the screen saver mode described with reference to FIG. 6. Also, the screen brightness button is designed for controlling brightness of the touch screen, the date/time button is designed for setting a date and a time, and the effect sound button is designed for setting a button sound.

[0199] When the previous button located at the lower end of the configuration setting screen is selected, the configuration setting screen of FIG. 25 is restored back to the data center mode screen of FIG. 13.

[0200] Functions illustrated in FIG. 25 will be described with reference to FIGS. 26 to 31.

[0201] FIG. 26 is a view illustrating an operating mode setting screen for setting a screen displayed on a touch screen during an operating mode.

[0202] Referring to FIG. 26, a user can determine a kind of a screen displayed during an operation of the air conditioner by selecting an image (a character theme or a motion theme) appearing on the operating mode screen and selecting the storing button. When the storing is completed, the operating mode screen is switched into the configuration setting screen of FIG. 24.

[0203] The preview button of FIG. 26 is designed for previously viewing how the selected image is displayed on the touch screen, and the cancel button is designed for moving to the configuration setting screen of FIG. 25.

[0204] FIG. 27 is a view illustrating a stop mode setting screen for setting a screen displayed on a touch screen during a stop mode.

[0205] Referring to FIG. 27, the stop mode setting screen displays a variety of images that can be displayed during the stop mode for each theme (time, date, indoor temperature, and none), and each background (the deep sea, under the sea, and the sky) on the stop mode setting screen. A user can previously view how the image is displayed during the stop mode by selecting the preview button or can allow the image to be displayed during the stop mode by selecting the storing button after selecting one of these images.

[0206] When the storing button or the cancel button is selected, the stop mode screen is switched into the configuration setting screen of FIG. 24.

[0207] FIG. 28 is a view illustrating a screen saver setting screen for setting a screen saver displayed during the screen saver state of FIG. 5.

[0208] The screen saver setting screen displays a variety of images for each theme (album, landscape, famous picture, and none) and each frame (wave patterns, black, lattice patterns, and none). A user can select and store one of these.

[0209] The functions of the preview, storing, cancel buttons displayed on the lower end of the screen saver setting screen are the same as those described with reference to FIGS. 27 and 28.

[0210] FIG. 29 is a view illustrating a screen brightness setting screen for controlling screen brightness displayed on a touch screen.

[0211] The screen brightness is divided into ten steps in total. A user can control the screen brightness using a (-) button and a (+) button for each step. The user can control desired screen brightness by changing the brightness of an image for brightness control displayed on the screen brightness setting screen. When the storing button or the cancel button is selected after the brightness control is completed, the configuration setting screen of FIG. 25 is displayed.

[0212] FIG. 30 is a view illustrating a date/time setting screen. Referring to FIG. 30, the date/time setting screen is divided into a portion for setting a date and a portion for setting a time.

[0213] The portion for setting the date includes horizontal move keys for controlling year, month, and day, respectively. The portion for setting the time includes horizontal move keys for controlling am/pm, hour, and minute, respectively. A user can control a desired date or time using the corresponding horizontal move keys. Also, the user can set a date and a time by selecting the storing button located on the left side of the lower end of the date/time setting screen.

[0214] When the storing button or the cancel button located on the right side of the storing button is selected, the date/time setting screen is switched into the configuration setting screen of FIG. 25.

[0215] FIG. 31 is a view illustrating an effect sound setting screen.

[0216] Referring to FIG. 31, the effect sound setting screen includes a button sound setting portion for setting pitch of a button sound output whenever a user touches a predetermined button on the touch screen, and an operating mode background music setting portion for setting pitch of a background music output during the operating of the air conditioner.

[0217] The button sound setting portion includes an on-button, an off-button, and a sound control button for controlling pitch of a sound. A user can gradually control a sound using (-) and (+) of the sound control button after selecting the on-button of the button sound setting portion.

[0218] When the off-button of the button sound setting portion is selected, a sound control cannot be made. In this case, even when a predetermined button is touched on the touch screen, a sound is not output.

[0219] The operating mode background music setting portion includes an on-button, an off-button, and a sound control button for controlling pitch of a sound. Using method of these buttons are the same as those of the button sound setting portion.

[0220] FIG. 32 is a view illustrating a main screen of a user manual in which information regarding a using method of an air conditioner is stored.

[0221] Referring to FIG. 32, a user manual screen displays ten detailed items in total, which include an inside description button, a button guide button, a filter cleaning button, a weather data center button, a plasma clean system cleaning button, a bring photo button, a HEPA filter exchange method button, an anniversary management button, a storing method button, and a user option set button.

[0222] When a user selects the inside description button, the user can view a manual screen to which an inner construction view of the air conditioner and a description thereof are added. When the user selects the button guide button, the user can view a manual screen in which descriptions for functions of buttons used on the touch screen and using methods of the buttons are made. When the user selects the filter cleaning button, the user can view a manual screen in which descriptions of kinds of filters used for the air conditioner and a cleaning method thereof are made. When the user selects the weather data center button, the user can view a manual screen regarding a using method of the weather data center.

[0223] Also, when the user selects the plasma clean system cleaning button, the user can view a manual screen in which a method for operating an air cleaning function during an operation or a non-operation of the air conditioner is described. When the user selects the bring photo button, the user can view a manual screen in which a method for storing photo files stored the external USB memory 162 in an inside is described. When the user selects the HEPA filter exchange method button, the user can view a manual screen in which a position of the HEPA filter and an exchange method of the HEPA filter are described. When the user selects the anniversary management button, the user can view a manual screen in which a method for manipulating buttons related to anniversary management is described. When the user selects the storing method button, the user can view a manual screen in which a method for storing the air conditioner for each season is described. When the user selects the user option set button, the user can view a manual screen in which items that can be modified according to user convenience are described.

[0224] A previous button is located at a lower end of the user manual screen. When the previous button is selected, the user manual screen is switched into the configuration setting screen of FIG. 25.

[0225] FIGS. 33A and 33B illustrate a manual screen displayed when the filter cleaning button on the user man-

ual screen is selected, and a manual screen displayed when the inside description button is selected.

[0226] Referring to FIG. 33A, 1/3 located on a central portion between horizontal move keys means that a first page of filter cleaning manual screens is displayed. A user can view descriptions regarding a filter cleaning method while moving to a next or previous page using the horizontal move keys.

[0227] FIG. 33B illustrates an example of a one page manual screen of an inside description regarding a construction of the air conditioner.

[0228] In FIGS. 33A and 33B, when a previous button located at a lower end of each manual screen is selected, the screen is restored to the user manual screen of FIG. 32.

[0229] Though examples of respective manual screens regarding the detailed items are not illustrated, the manual screens are similar to those shown in FIGS. 33A and 33B.

[0230] It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention. Thus, it is intended that the present invention covers the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

Claims

1. An air conditioner comprising:

a main machine constituting an appearance; and
a display unit provided to the main machine to display an operating state of the main machine and receive a signal for controlling an operation of the main machine,
wherein the display unit displays a function button for displaying an operating state of the main machine and controlling an operation of the main machine, and includes a touch screen allowing a user touch a button to select the button.

2. The air conditioner according to claim 1, wherein the display unit comprises a storage medium mounting part in which an external storage medium is mounted.

3. The air conditioner according to claim 2, wherein the external storage medium is one of a USB (universal serial bus) memory and an SD (secure digital) card.

4. The air conditioner according to claim 2, wherein the display unit further comprises a display memory part for storing data stored in the external storage medium.

5. The air conditioner according to claim 1, wherein the display unit further includes a speaker for representing an operating state of the air conditioner in one of an acoustic sound and a voice.

6. The air conditioner according to claim 1, wherein the touch screen is attached to a display part displaying an operation state display portion for displaying an operating state of the main machine and a button portion for controlling an operating state of the main machine.

7. An air conditioner comprising:

a main machine constituting an appearance;
a front panel constituting a front appearance of the main machine; and
a display unit provided to the front panel to display an operating state of the main machine and receive a signal for controlling an operation of the main machine,
wherein the display unit includes a display part displaying an operating state display portion for displaying an operating state of the main machine and a button portion for controlling an operation of the main machine, and a touch screen for selecting the button part in a touch manner.

8. The air conditioner according to claim 7, wherein when power for an operation of the main machine is applied, a booting screen informing a booting state of the main machine is displayed on the display part, and then an air conditioner start menu screen displaying a button portion for operating the main machine is displayed on the display part.

9. The air conditioner according to claim 8, wherein the button portion displayed on the air conditioner start menu screen comprises:

an air conditioner operation execution button selected when the main machine is operated to perform an air conditioning function;
an air cleaning operation button selected when the main machine is operated to perform an air cleaning function; and
a data center button selected when the operating state display portion is operated to display personal data and living data.

10. The air conditioner according to claim 9, wherein when a touch is not made for a predetermined time while a screen regarding an operating mode selected by touching the button portion displayed on the air conditioner start menu screen and a sub-menu screen of the screen regarding the operating mode are displayed, the screens are switched into a screen saving screen.

11. The air conditioner according to claim 8, wherein when an input for operating the main machine is not received for a predetermined time while the air conditioner start menu screen is displayed, the air conditioner start menu screen is switched into a stop mode screen on which a date and a temperature are displayed.

12. The air conditioner according to claim 11, wherein when a touch with respect to the touch screen is made while the stop mode screen is displayed, the stop mode screen is switched into the air conditioner start menu screen.

13. The air conditioner according to claim 7, wherein data displayed on the operating state display portion is updatable into data transmitted from an external apparatus.

14. The air conditioner according to claim 13, wherein the external apparatus is mountable on the display unit.

15. A method for updating a program for an air conditioner, the method comprising:

mounting an external storage medium in which an update program file is stored in a storage medium mounting part provided to a main machine of the air conditioner;
displaying the update program file stored in the external storage medium on a display part; and
selecting and executing the update program file.

16. The method according to claim 15, wherein the update program file comprises various kinds of image files and text files corresponding to operating states of the air conditioner.

17. The method according to claim 15, wherein the storage medium mounting part comprises at least one of a USB mounting part and an SD mounting part.

18. The method according to claim 15, wherein the storage medium mounting part is provided to a front panel constituting a front appearance of the main machine.

19. The method according to claim 15, wherein the main machine comprises a touch screen allowing a button portion displayed on the display part to be selected in a touch manner, and the displaying of the update program file, and the selecting and executing of the update program file are performed in a touch manner.

20. The method according to claim 19, wherein an operating state display portion for displaying an operating state of the main machine, and a button portion for controlling an operation of the main machine are displayed on the touch screen, and the displaying of the update program file is performed by touching the operating state display portion.

21. The method according to claim 15, wherein the executed program file is stored in the main machine.

22. The method according to claim 15, further comprising, after the executing of the update program file, removing the external storage medium from the storage medium mounting part.

23. A method for updating a program for an air conditioner, the method comprising:

mounting an external storage medium in which an update program file is stored in a storage medium mounting part formed in a main machine of the air conditioner;
touching a touch screen formed on the main machine; displaying the update program file on the touch screen; and
selecting and executing the update program file.

Fig.1

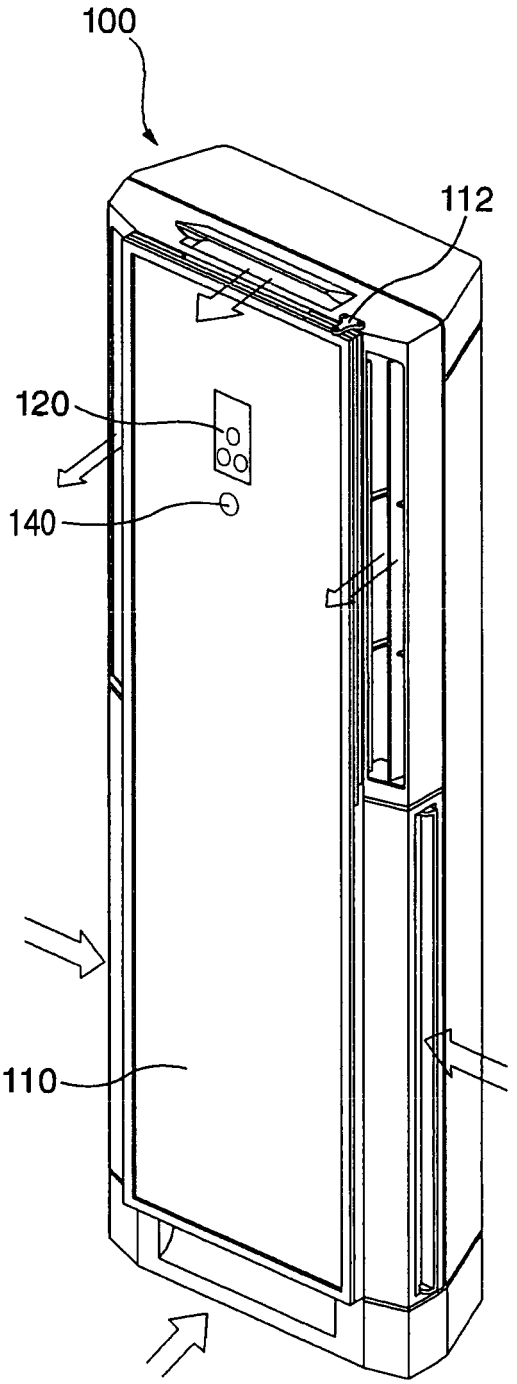


Fig.2

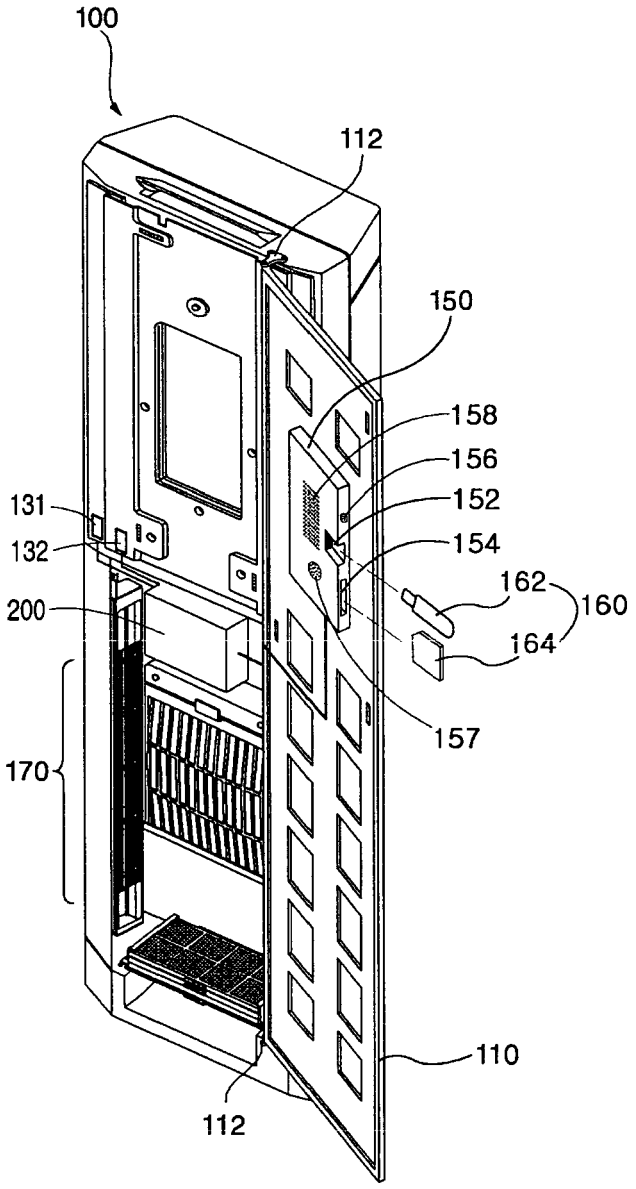

100
112
150
158
156
152
154
162
160
164
131
132
200
157
170
110
112

Fig.3

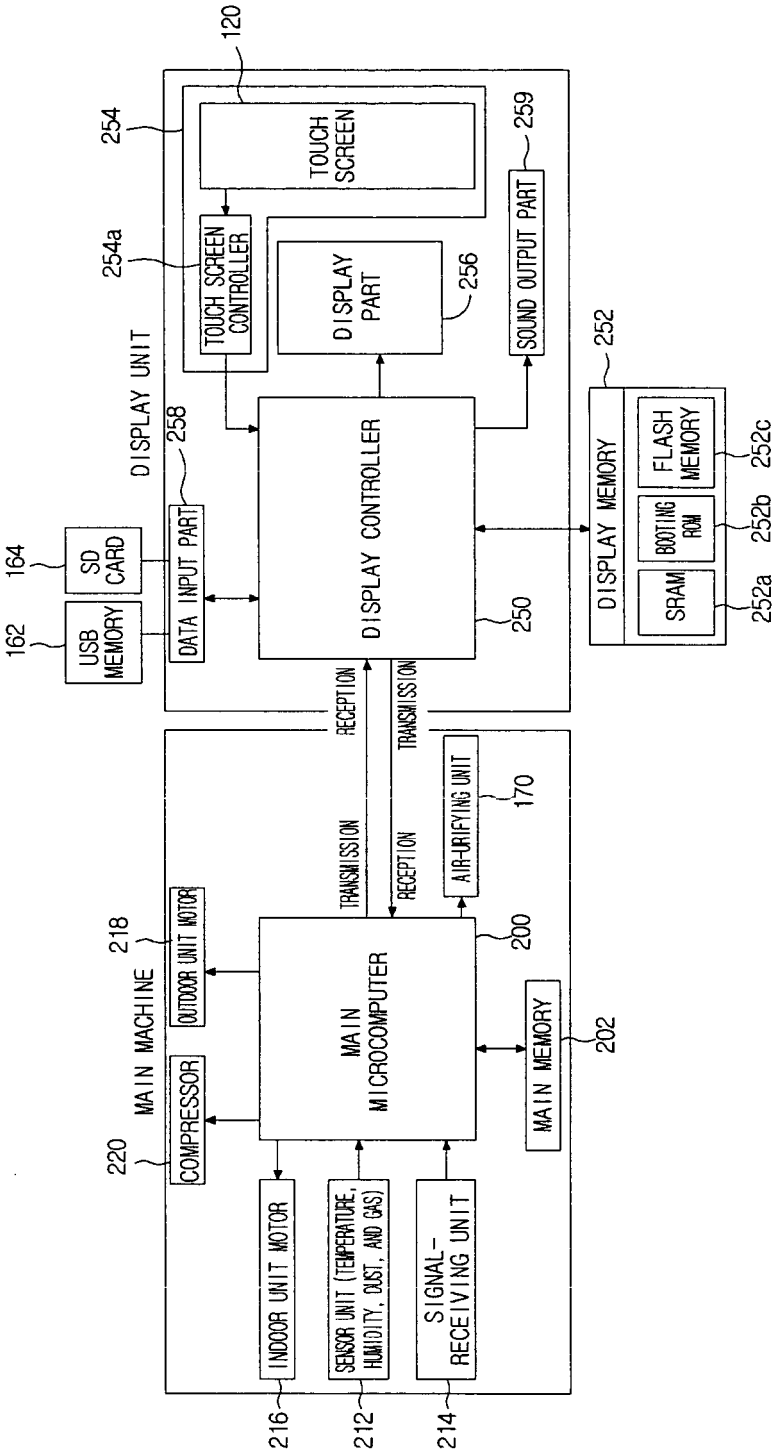

120
254
TOUCH SCREEN
259
254a
TOUCH SCREEN CONTROLLER
DISPLAY PART
256
SOUND OUTPUT PART
DISPLAY UNIT
258
252
DISPLAY MEMORY
FLASH MEMORY
252c
164
SD CARD
DATA INPUT PART
DISPLAY CONTROLLER
BOOTING ROM
252b
162
USB MEMORY
250
SRAM
252a
RECEPTION
TRANSMISSION
TRANSMISSION
RECEPTION
AIR-PURIFYING UNIT
170
218
OUTDOOR UNIT MOTOR
MAIN MICROCOMPUTER
200
MAIN MACHINE
MAIN MEMORY
202
220
COMPRESSOR
INDOOR UNIT MOTOR
SENSOR UNIT (TEMPERATURE, HUMIDITY, DUST, AND GAS)
SIGNAL-RECEIVING UNIT
216
212
214

Fig.4

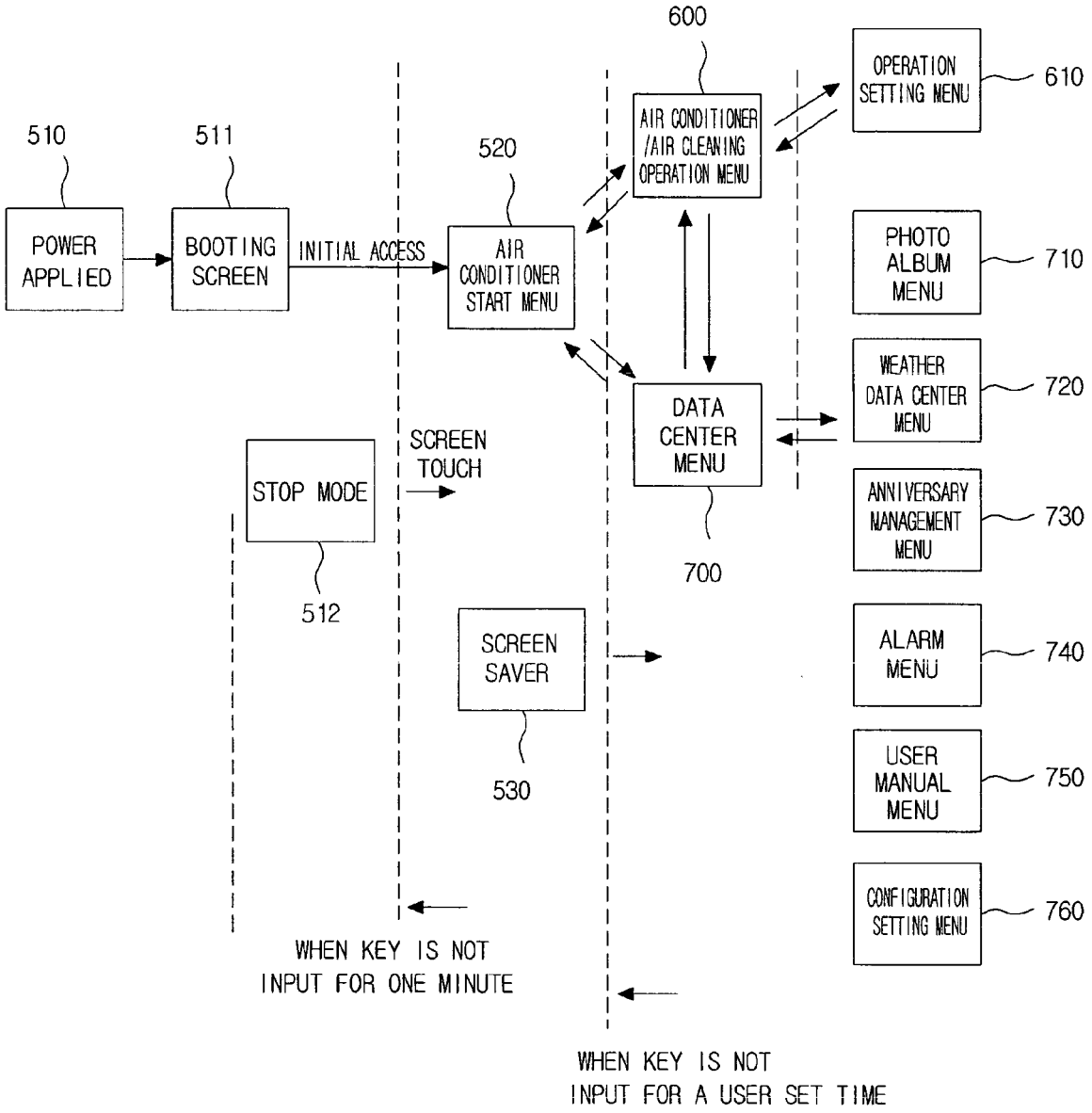

600
OPERATION SETTING MENU
610
510
511
520
AIR CONDITIONER /AIR CLEANING OPERATION MENU
POWER APPLIED
BOOTING SCREEN
INITIAL ACCESS
AIR CONDITIONER START MENU
PHOTO ALBUM MENU
710
WEATHER DATA CENTER MENU
720
DATA CENTER MENU
SCREEN TOUCH
STOP MODE
ANNIVERSARY MANAGEMENT MENU
730
700
512
SCREEN SAVER
ALARM MENU
740
USER MANUAL MENU
750
530
CONFIGURATION SETTING MENU
760
WHEN KEY IS NOT INPUT FOR ONE MINUTE
WHEN KEY IS NOT INPUT FOR A USER SET TIME

Fig.5

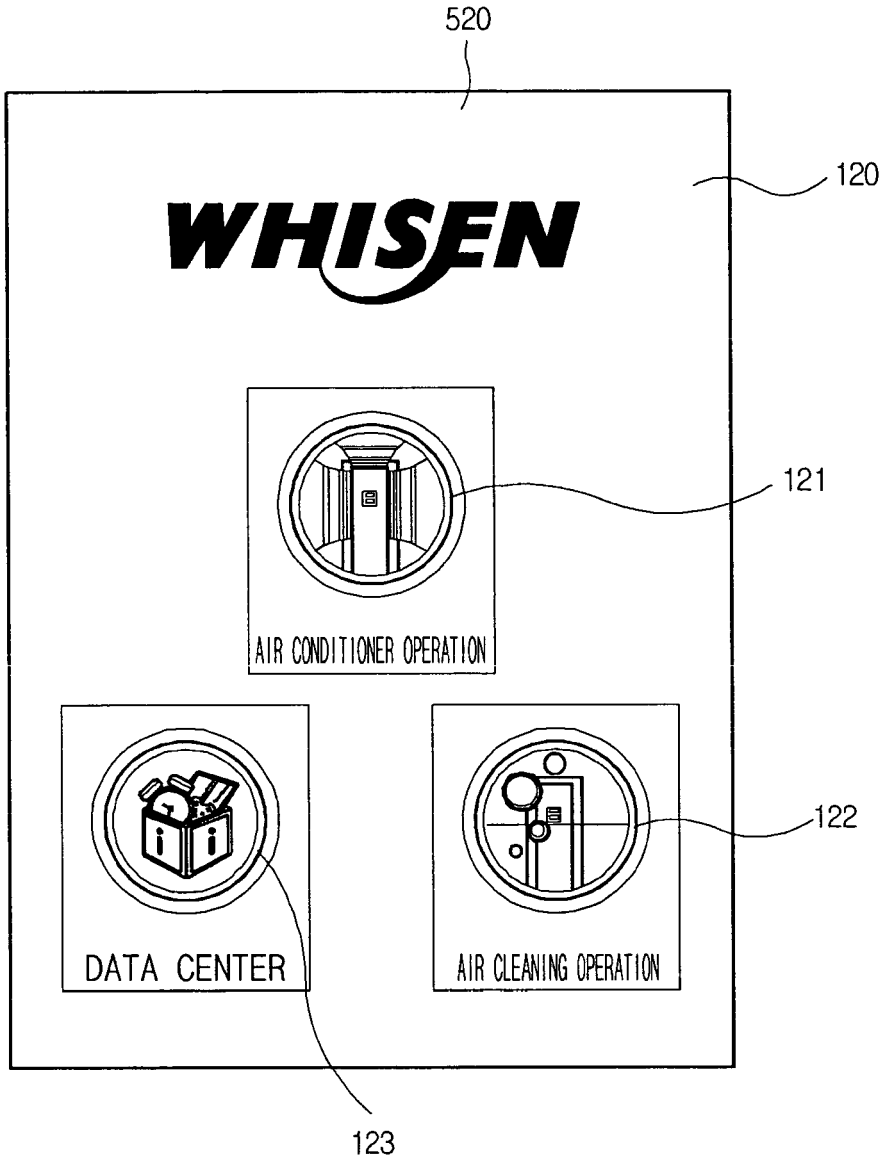

520
120
WHISEN
121
AIR CONDITIONER OPERATION
122
DATA CENTER
AIR CLEANING OPERATION
123

Fig.6

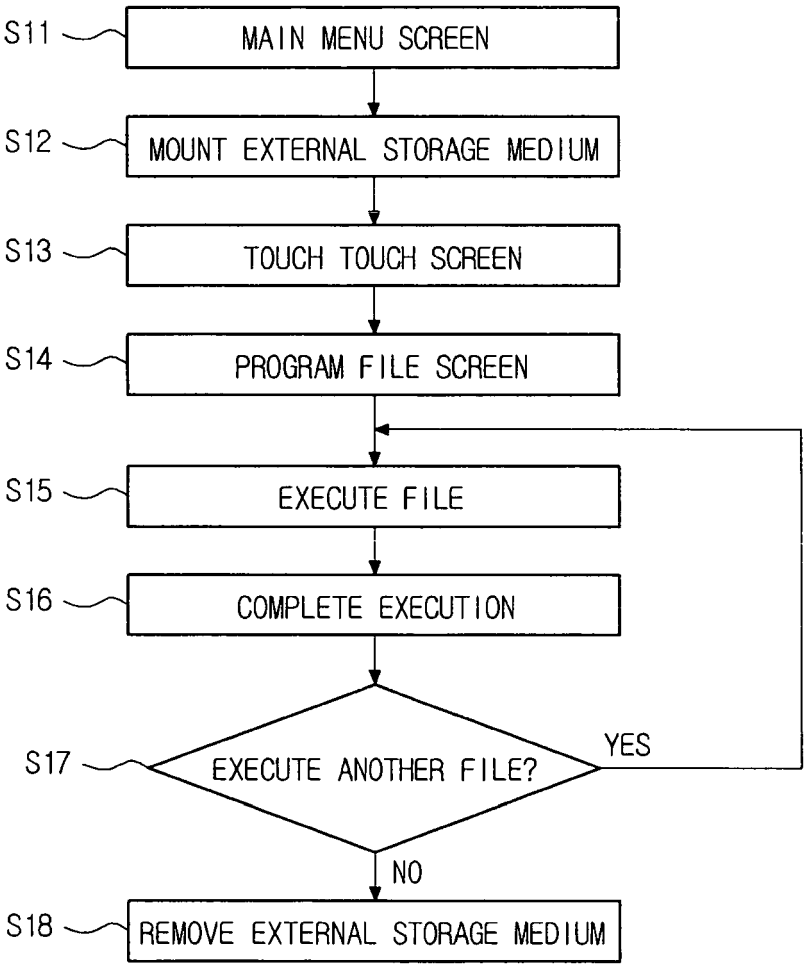
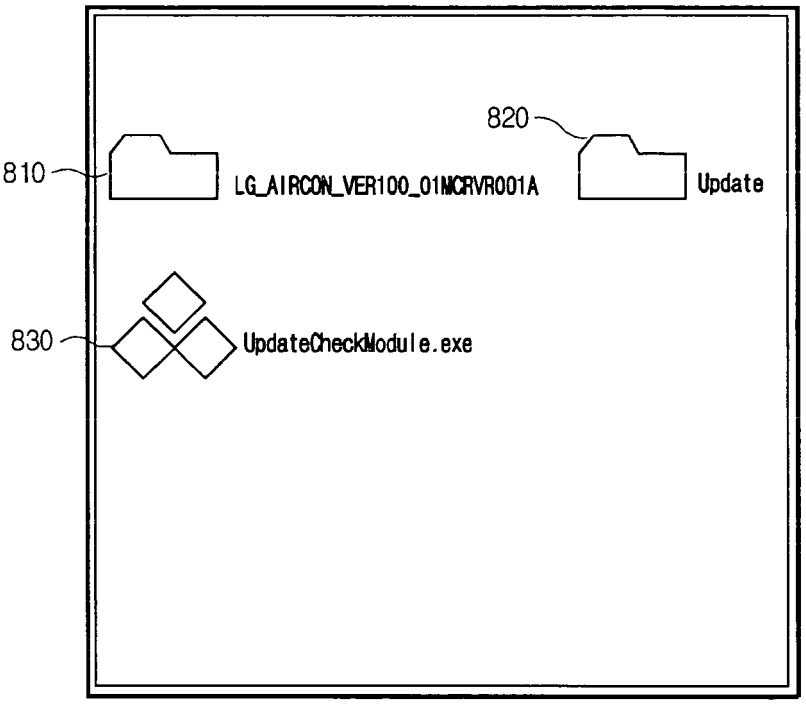

S11
MAIN MENU SCREEN
S12
MOUNT EXTERNAL STORAGE MEDIUM
S13
TOUCH TOUCH SCREEN
S14
PROGRAM FILE SCREEN
S15
EXECUTE FILE
S16
COMPLETE EXECUTION
S17
EXECUTE ANOTHER FILE?
YES
NO
S18
REMOVE EXTERNAL STORAGE MEDIUM

Fig.7

(a)


820
810
LG_AIRCON_VER100_01MCRVR001A
Update
830
UpdateCheckModule.exe

(b)

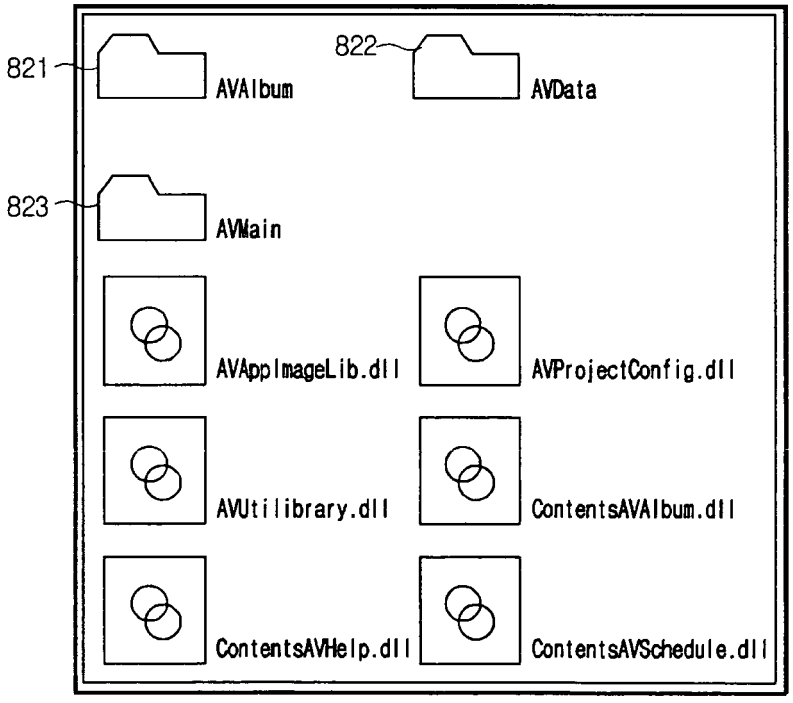

822
821
AVAlbum
AVData
823
AVMain
AVAppImageLib.dll
AVProjectConfig.dll
AVUtilibrary.dll
ContentsAVAlbum.dll
ContentsAVHelp.dll
ContentsAVSchedule.dll

Fig.8

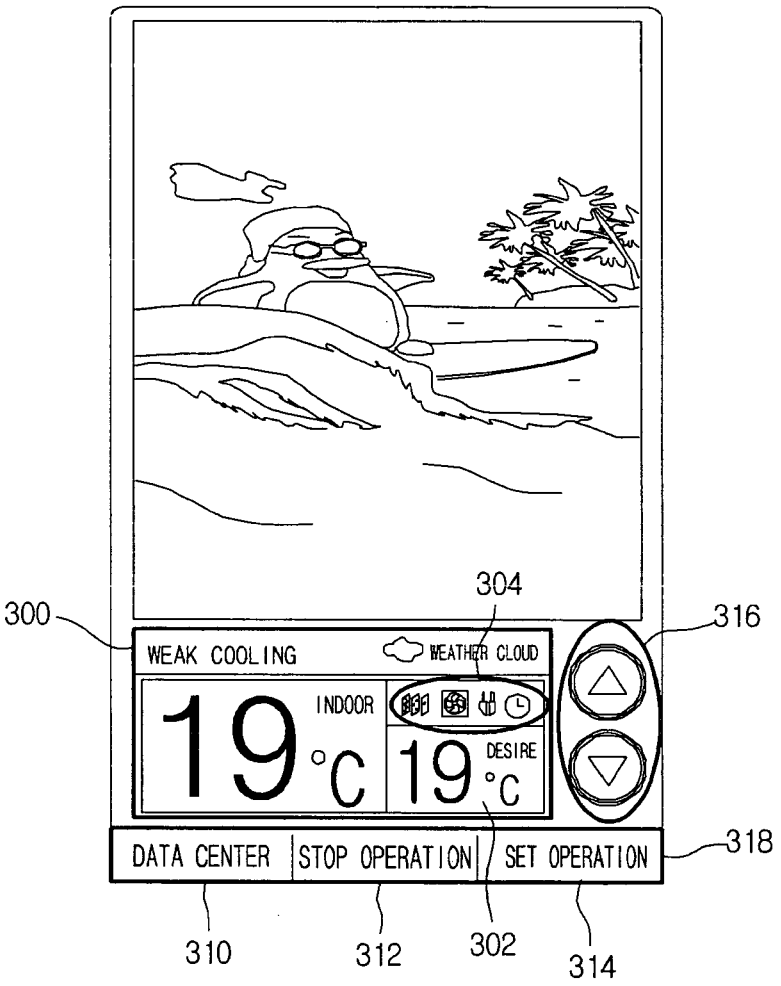

300
304
316
WEAK COOLING
WEATHER CLOUD
19 °C
INDOOR
19 °C
DESIRE
DATA CENTER
STOP OPERATION
SET OPERATION
318
310
312
302
314

Fig.9

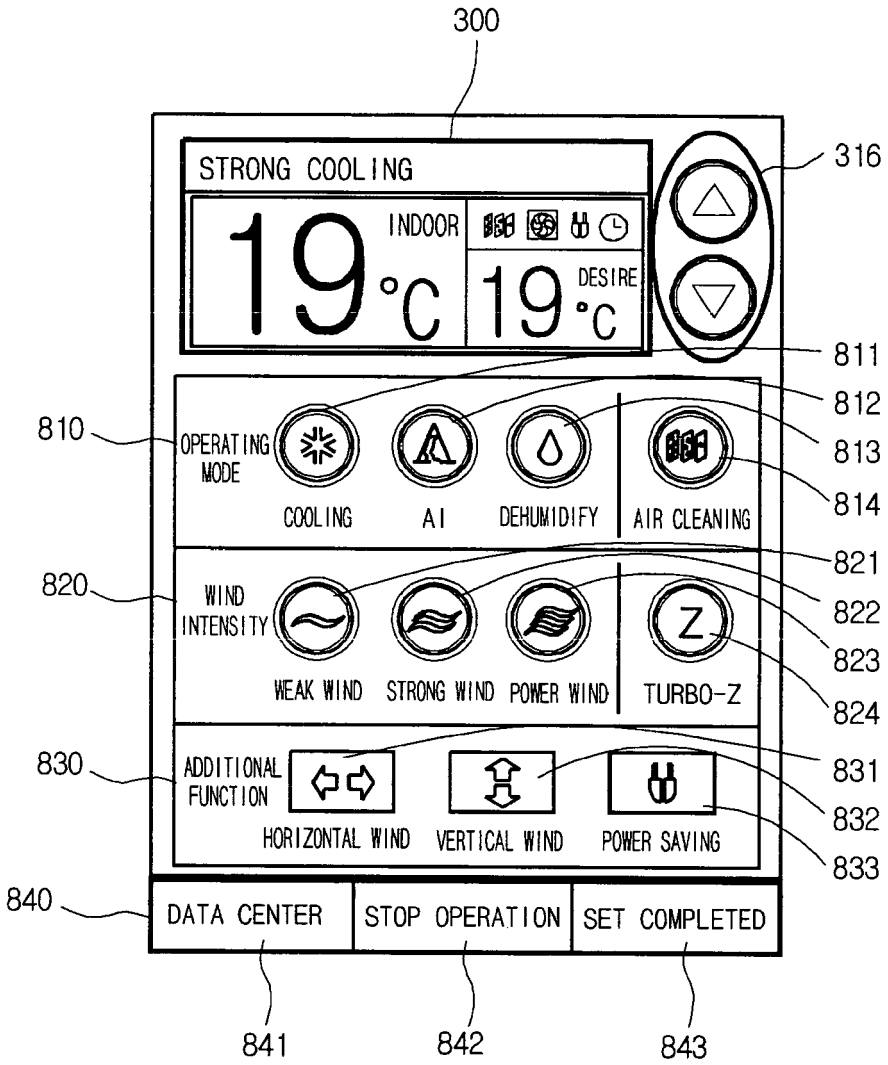

300
STRONG COOLING
19 °C
INDOOR
19 °C
DESIRE
316
811
812
813
814
810
OPERATING MODE
COOLING
AI
DEHUMIDIFY
AIR CLEANING
821
822
823
824
820
WIND INTENSITY
WEAK WIND
STRONG WIND
POWER WIND
TURBO-Z
831
832
833
830
ADDITIONAL FUNCTION
HORIZONTAL WIND
VERTICAL WIND
POWER SAVING
840
DATA CENTER
STOP OPERATION
SET COMPLETED
841
842
843

Fig.10

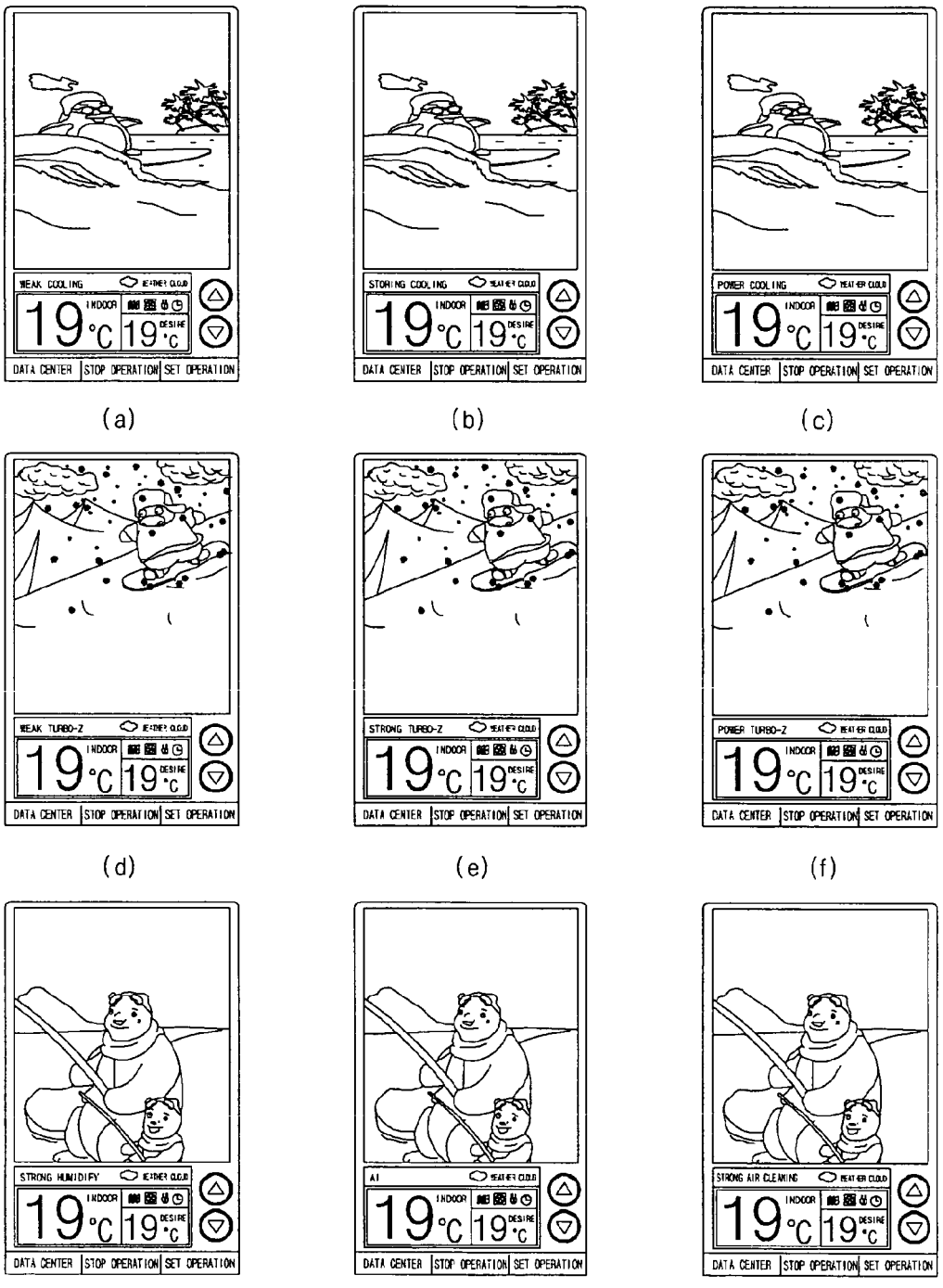

WEAK COOLING
STORING COOLING
POWER COOLING
WEAK TURBO-Z
STRONG TURBO-Z
POWER TURBO-Z
STRONG HUMIDIFY
AI
STRONG AIR CLEANING
WEATHER CLOUD
INDOOR
DESIRE
19 °C
DATA CENTER
STOP OPERATION
SET OPERATION
(a)
(b)
(c)
(d)
(e)
(f)
(g)
(h)
(i)

Fig.11

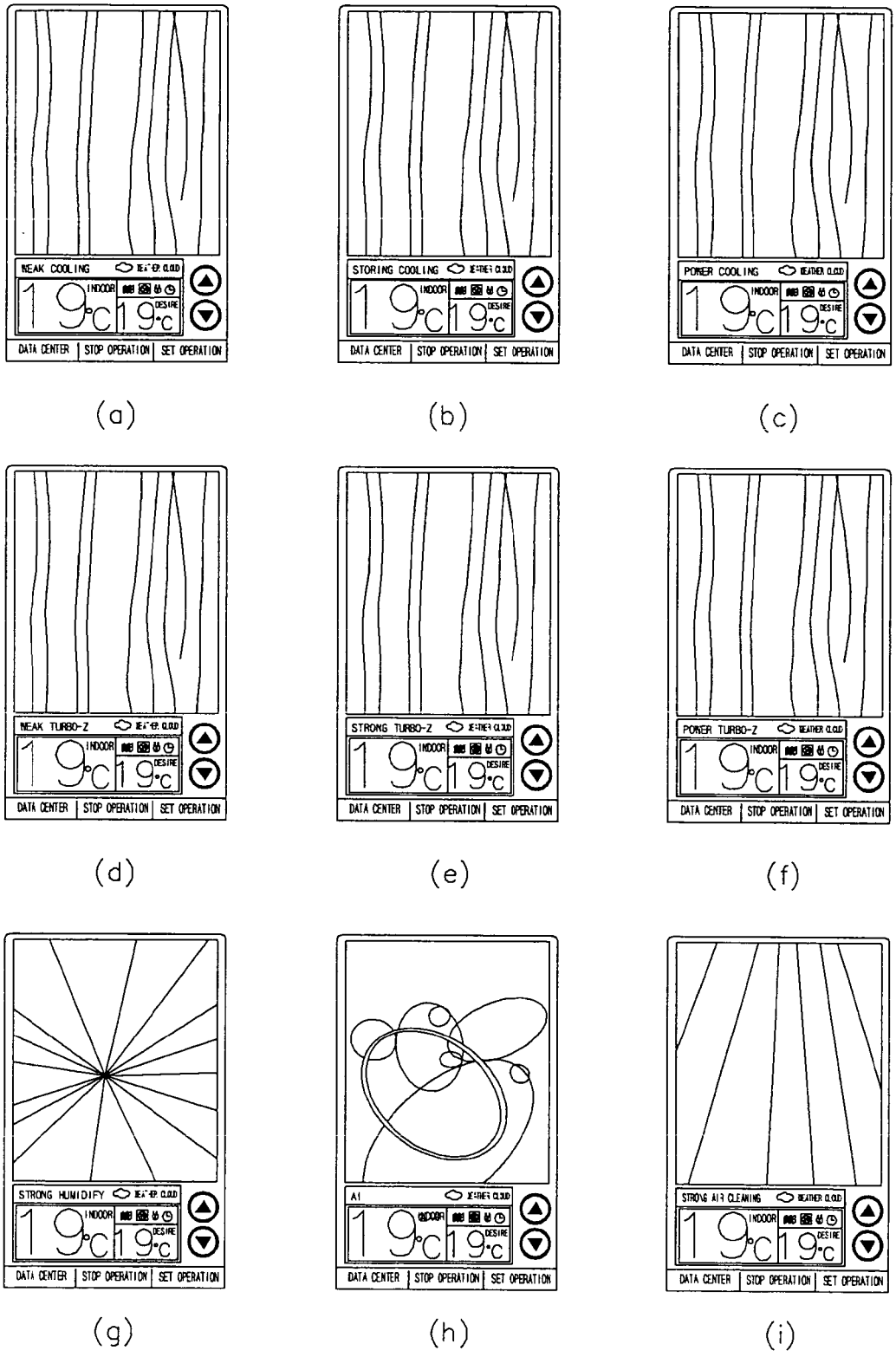

WEAK COOLING
STORING COOLING
POWER COOLING
WEAK TURBO-Z
STRONG TURBO-Z
POWER TURBO-Z
STRONG HUMIDIFY
A1
STRONG AIR CLEANING
INDOOR
DESIRE
19°C
DATA CENTER
STOP OPERATION
SET OPERATION
(a)
(b)
(c)
(d)
(e)
(f)
(g)
(h)
(i)

Fig.12

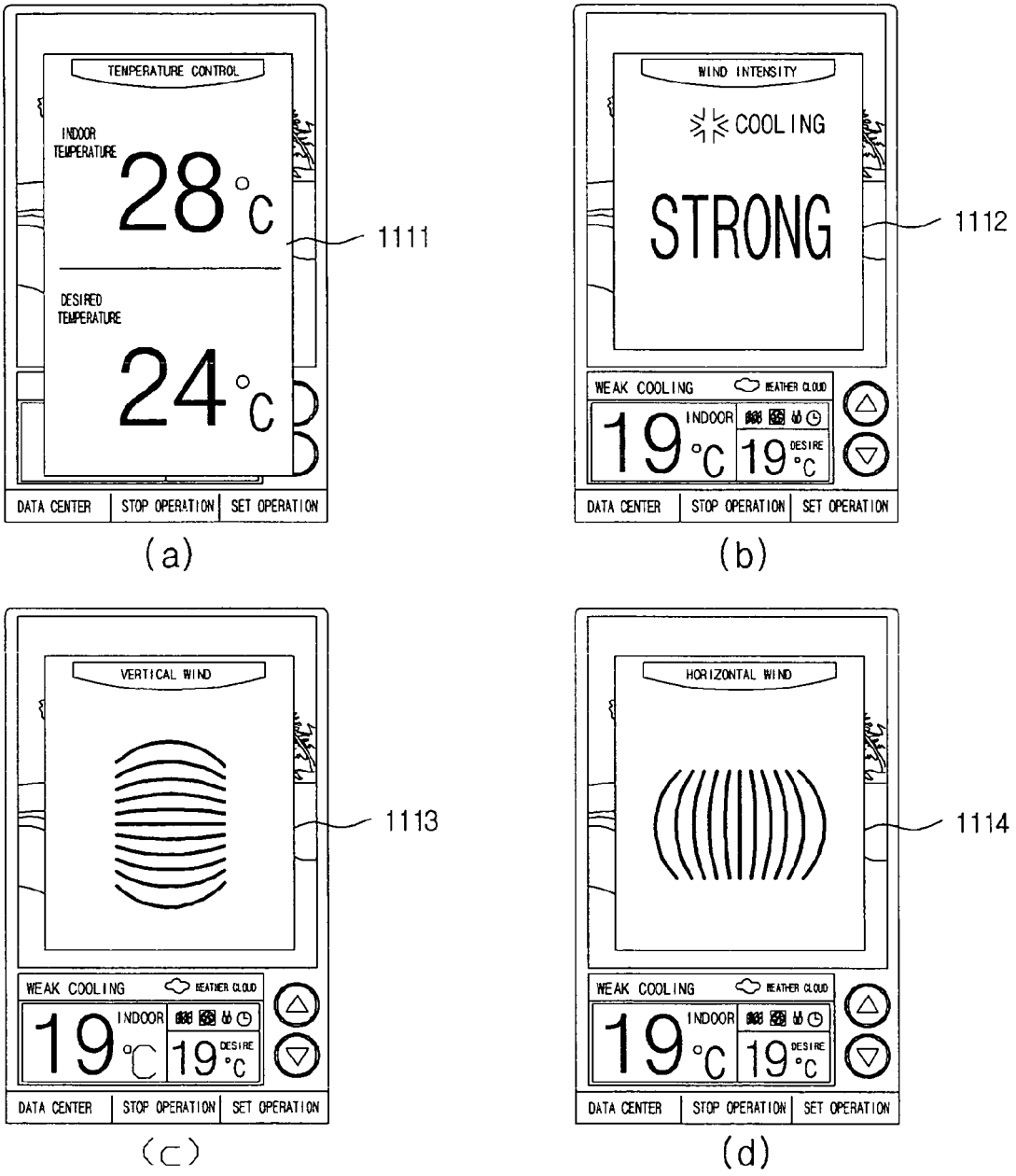

TEMPERATURE CONTROL
INDOOR TEMPERATURE
28°C
DESIRED TEMPERATURE
24°C
1111
DATA CENTER
STOP OPERATION
SET OPERATION
(a)
WIND INTENSITY
COOLING
STRONG
1112
WEAK COOLING
WEATHER CLOUD
19°C INDOOR
19°C DESIRE
DATA CENTER
STOP OPERATION
SET OPERATION
(b)
VERTICAL WIND
1113
WEAK COOLING
WEATHER CLOUD
19°C INDOOR
19°C DESIRE
DATA CENTER
STOP OPERATION
SET OPERATION
(c)
HORIZONTAL WIND
1114
WEAK COOLING
WEATHER CLOUD
19°C INDOOR
19°C DESIRE
DATA CENTER
STOP OPERATION
SET OPERATION
(d)

Fig.13

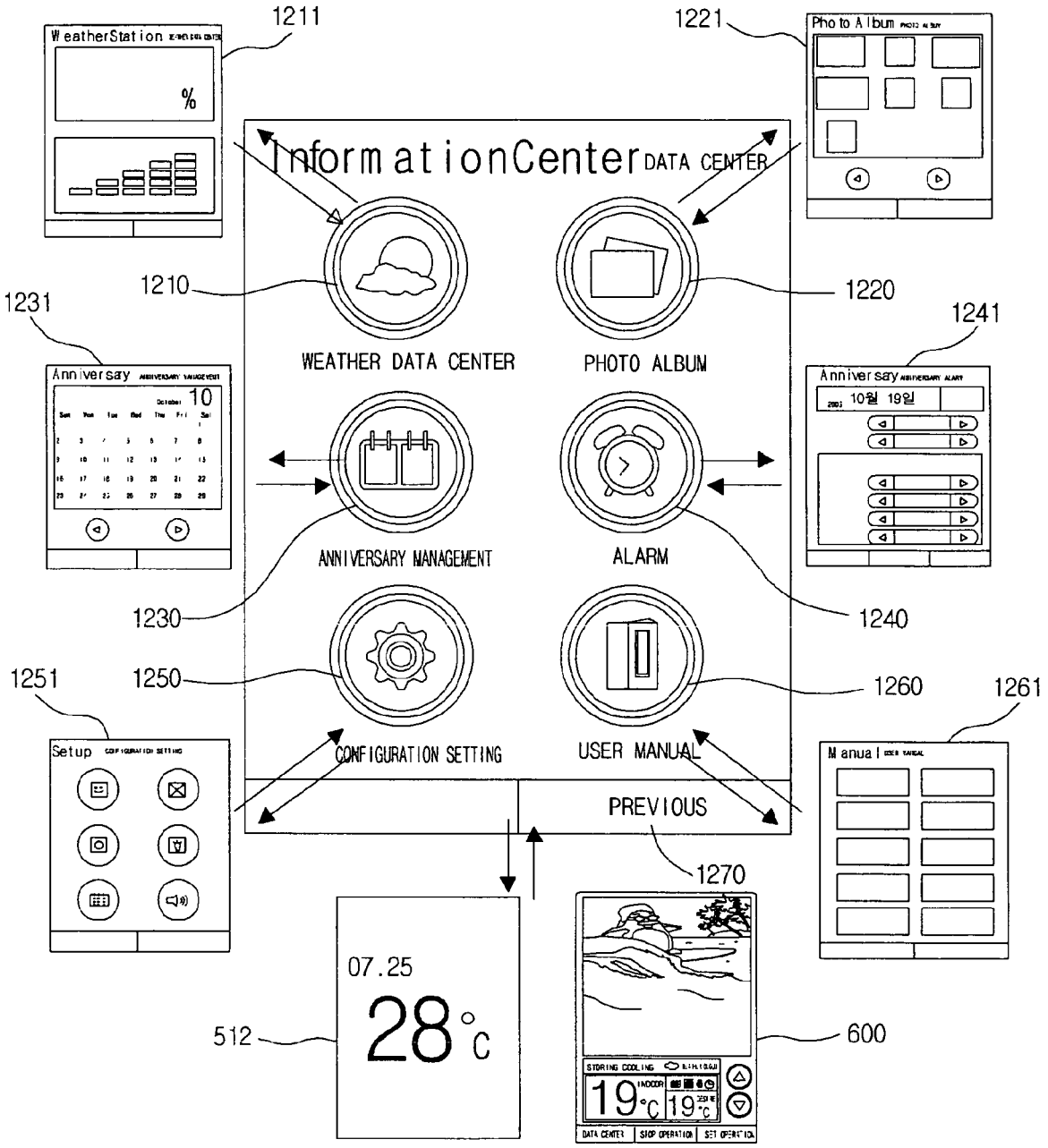

1211
1221
WeatherStation
%
Photo Album
InformationCenter
DATA CENTER
1210
1220
1231
1241
WEATHER DATA CENTER
PHOTO ALBUM
Anniversay
October 10
Anniversay
2003 10월 19일
ANNIVERSARY MANAGEMENT
ALARM
1230
1240
1251
1250
1260
1261
Setup
CONFIGURATION SETTING
USER MANUAL
Manual
PREVIOUS
1270
07.25
28°C
512
600
STORING COOLING
19°C INDOOR
19°C
DATA CENTER
STOP OPERATION
SET OPERATION

Fig.14

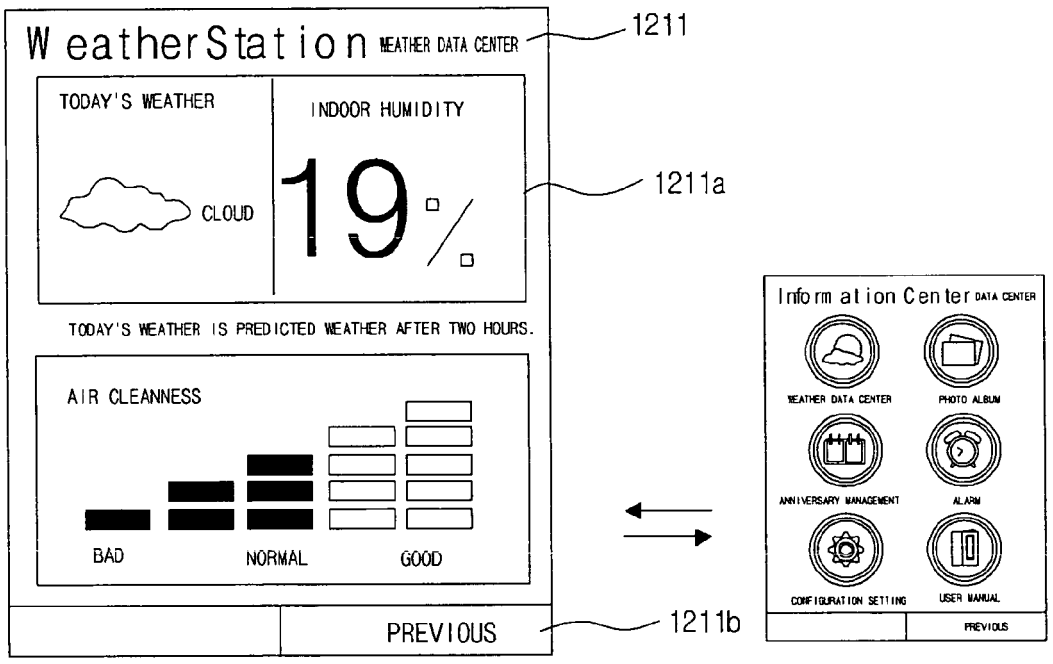

WeatherStation
WEATHER DATA CENTER
1211
TODAY'S WEATHER
CLOUD
INDOOR HUMIDITY
19%
1211a
TODAY'S WEATHER IS PREDICTED WEATHER AFTER TWO HOURS.
AIR CLEANNESS
BAD
NORMAL
GOOD
PREVIOUS
1211b
Information Center
DATA CENTER
WEATHER DATA CENTER
PHOTO ALBUM
ANNIVERSARY MANAGEMENT
ALARM
CONFIGURATION SETTING
USER MANUAL
PREVIOUS

Fig.15

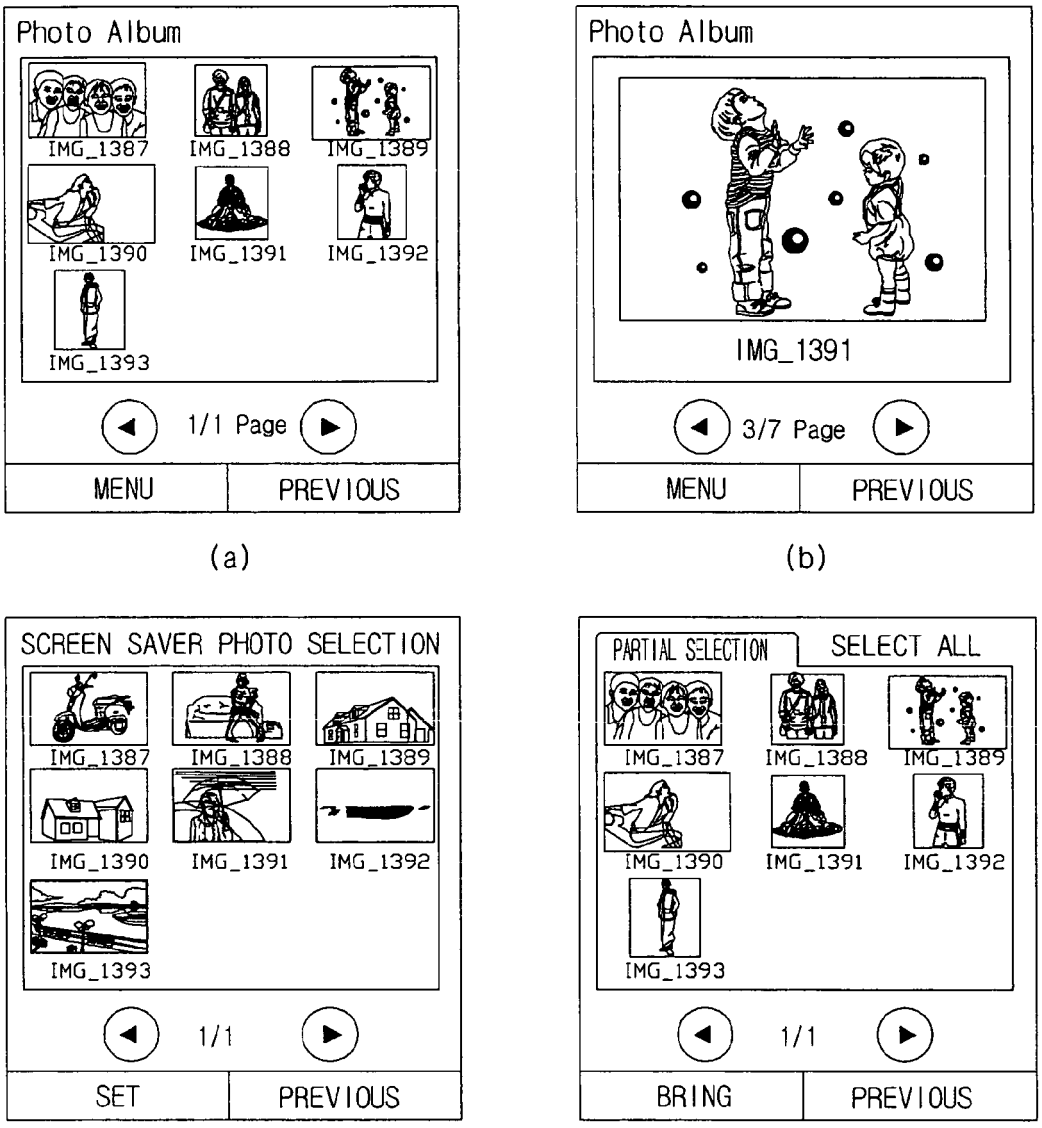


Photo Album
IMG_1387
IMG_1388
IMG_1389
IMG_1390
IMG_1391
IMG_1392
IMG_1393
1/1 Page
MENU
PREVIOUS
(a)
Photo Album
IMG_1391
3/7 Page
MENU
PREVIOUS
(b)
SCREEN SAVER PHOTO SELECTION
IMG_1387
IMG_1388
IMG_1389
IMG_1390
IMG_1391
IMG_1392
IMG_1393
1/1
SET
PREVIOUS
(c)
PARTIAL SELECTION
SELECT ALL
IMG_1387
IMG_1388
IMG_1389
IMG_1390
IMG_1391
IMG_1392
IMG_1393
1/1
BRING
PREVIOUS
(d)

Fig.16

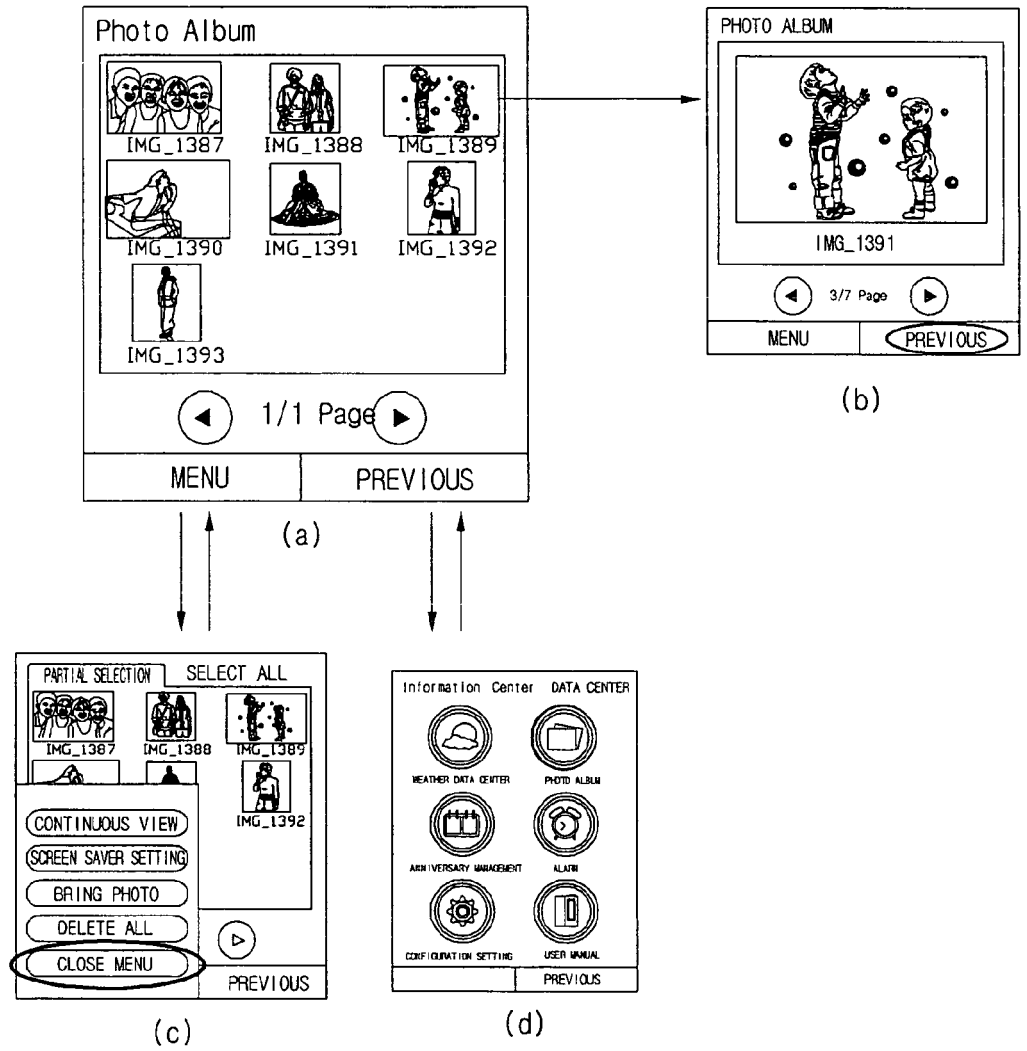


Photo Album
IMG_1387
IMG_1388
IMG_1389
IMG_1390
IMG_1391
IMG_1392
IMG_1393
1/1 Page
MENU
PREVIOUS
(a)
PHOTO ALBUM
IMG_1391
3/7 Page
MENU
PREVIOUS
(b)
PARTIAL SELECTION
SELECT ALL
IMG_1387
IMG_1388
IMG_1389
IMG_1392
CONTINUOUS VIEW
SCREEN SAVER SETTING
BRING PHOTO
DELETE ALL
CLOSE MENU
PREVIOUS
(c)
Information Center
DATA CENTER
WEATHER DATA CENTER
PHOTO ALBUM
ANNIVERSARY MANAGEMENT
ALARM
CONFIGURATION SETTING
USER MANUAL
PREVIOUS
(d)

Fig.17

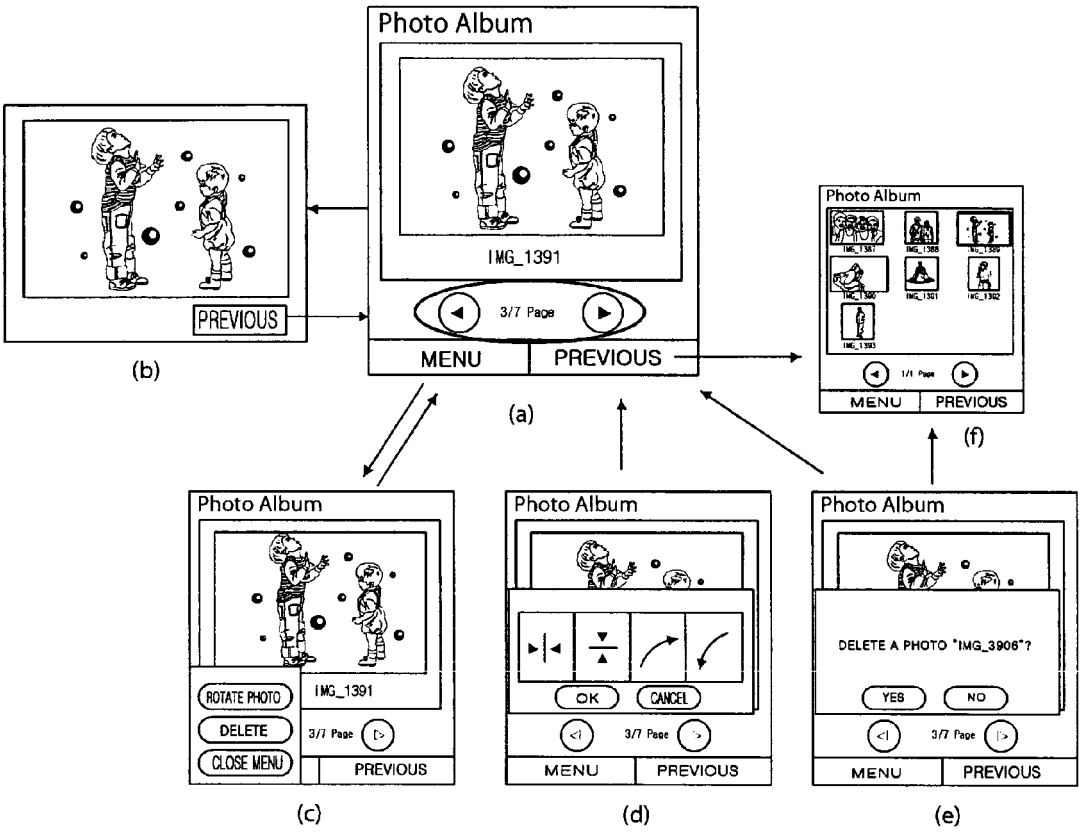


Photo Album
IMG_1391
3/7 Page
MENU
PREVIOUS
(a)
PREVIOUS
(b)
Photo Album
1/1 Page
MENU
PREVIOUS
(f)
Photo Album
ROTATE PHOTO
DELETE
CLOSE MENU
IMG_1391
3/7 Page
PREVIOUS
(c)
Photo Album
OK
CANCEL
3/7 Page
MENU
PREVIOUS
(d)
Photo Album
DELETE A PHOTO "IMG_3906"?
YES
NO
3/7 Page
MENU
PREVIOUS
(e)

Fig.18

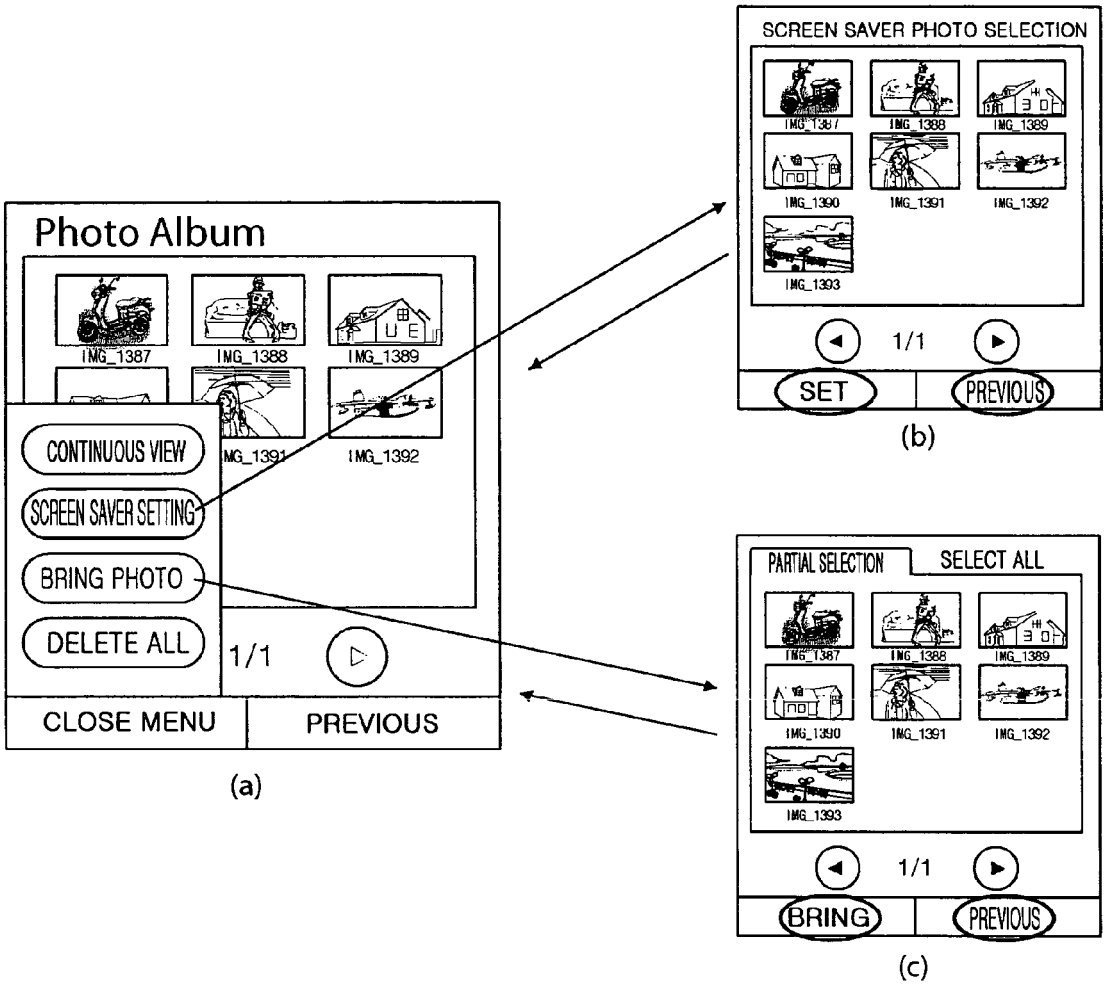
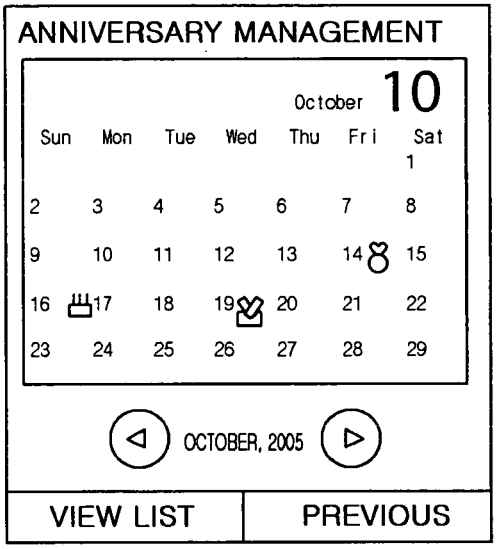
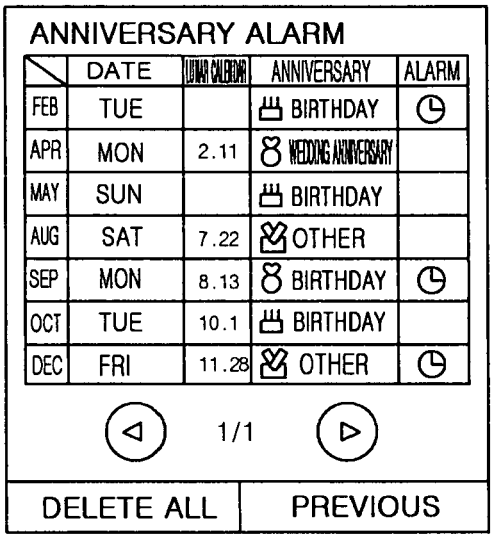


Photo Album
IMG_1387
IMG_1388
IMG_1389
IMG_1391
IMG_1392
CONTINUOUS VIEW
SCREEN SAVER SETTING
BRING PHOTO
DELETE ALL
1/1
CLOSE MENU
PREVIOUS
(a)
SCREEN SAVER PHOTO SELECTION
IMG_1387
IMG_1388
IMG_1389
IMG_1390
IMG_1391
IMG_1392
IMG_1393
1/1
SET
PREVIOUS
(b)
PARTIAL SELECTION
SELECT ALL
IMG_1387
IMG_1388
IMG_1389
IMG_1390
IMG_1391
IMG_1392
IMG_1393
1/1
BRING
PREVIOUS
(c)

Fig.19


ANNIVERSARY MANAGEMENT
October 10
Sun Mon Tue Wed Thu Fri Sat
1
2 3 4 5 6 7 8
9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
OCTOBER, 2005
VIEW LIST
PREVIOUS

(a)


ANNIVERSARY ALARM
DATE
LUNAR CALENDAR
ANNIVERSARY
ALARM
FEB TUE BIRTHDAY
APR MON 2.11 WEDDING ANNIVERSARY
MAY SUN BIRTHDAY
AUG SAT 7.22 OTHER
SEP MON 8.13 BIRTHDAY
OCT TUE 10.1 BIRTHDAY
DEC FRI 11.28 OTHER
1/1
DELETE ALL
PREVIOUS

(b)


ANNIVERSARY MANAGEMENT
OCTOBER, 2005
SOLAR CALENDAR
LUNAR CALENDAR
KIND OF ANNIVERSARY
BIRTHDAY
HERO
FATHER
ALARM SETTING
ON
OFF
SET DATE
ONE DAY BEFORE
SET TIME
7:00 AM
REPEAT SETTING
ONLY ONCE
STORE
DELETE
PREVIOUS

(c)

Fig.20

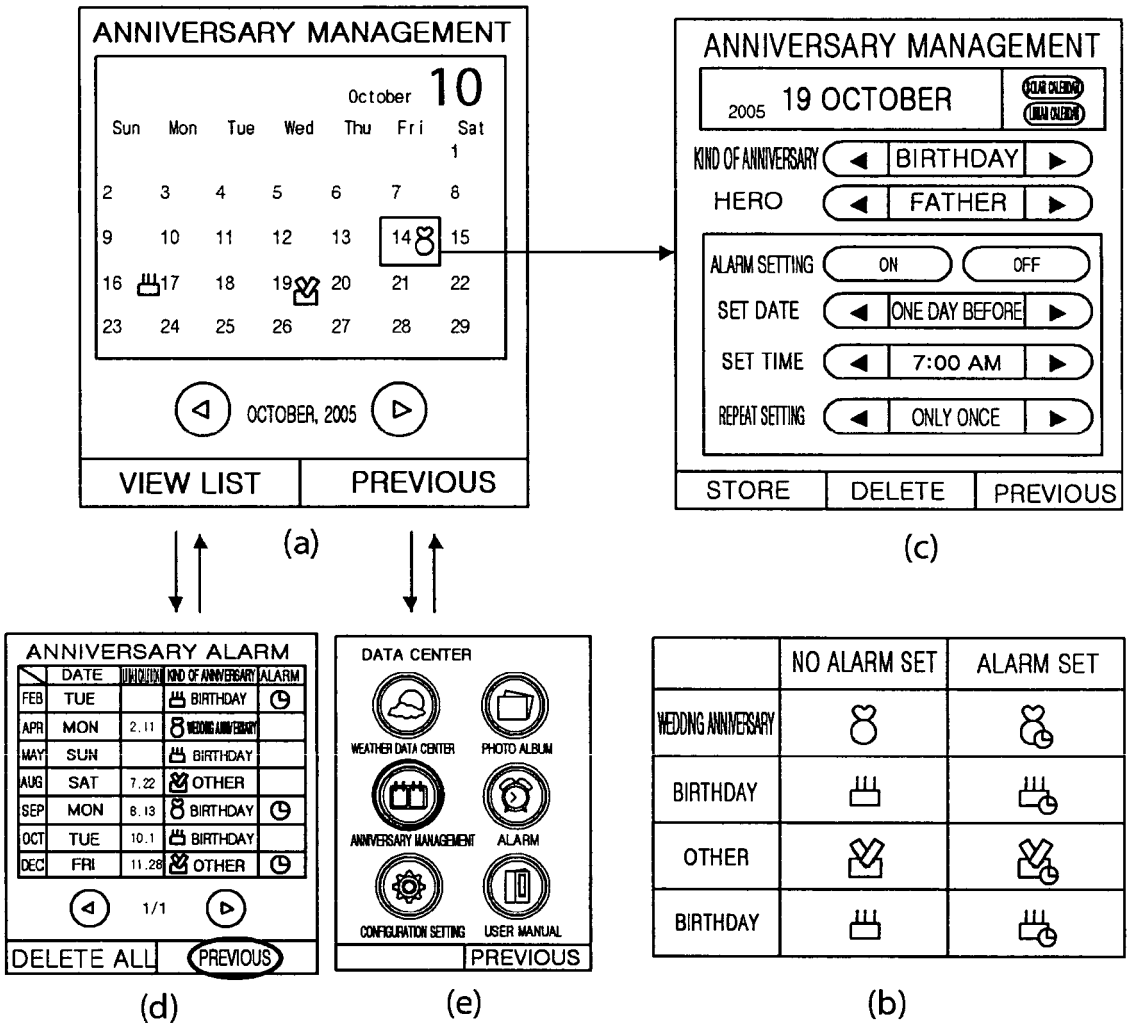

ANNIVERSARY MANAGEMENT
October 10
Sun Mon Tue Wed Thu Fri Sat
OCTOBER, 2005
VIEW LIST
PREVIOUS
(a)
ANNIVERSARY MANAGEMENT
2005 19 OCTOBER
KIND OF ANNIVERSARY
BIRTHDAY
HERO
FATHER
ALARM SETTING
ON
OFF
SET DATE
ONE DAY BEFORE
SET TIME
7:00 AM
REPEAT SETTING
ONLY ONCE
STORE
DELETE
PREVIOUS
(c)
ANNIVERSARY ALARM
DATE
KIND OF ANNIVERSARY
ALARM
1/1
DELETE ALL
PREVIOUS
(d)
DATA CENTER
WEATHER DATA CENTER
PHOTO ALBUM
ANNIVERSARY MANAGEMENT
ALARM
CONFIGURATION SETTING
USER MANUAL
PREVIOUS
(e)
NO ALARM SET
ALARM SET
WEDDING ANNIVERSARY
BIRTHDAY
OTHER
BIRTHDAY
(b)

Fig.21

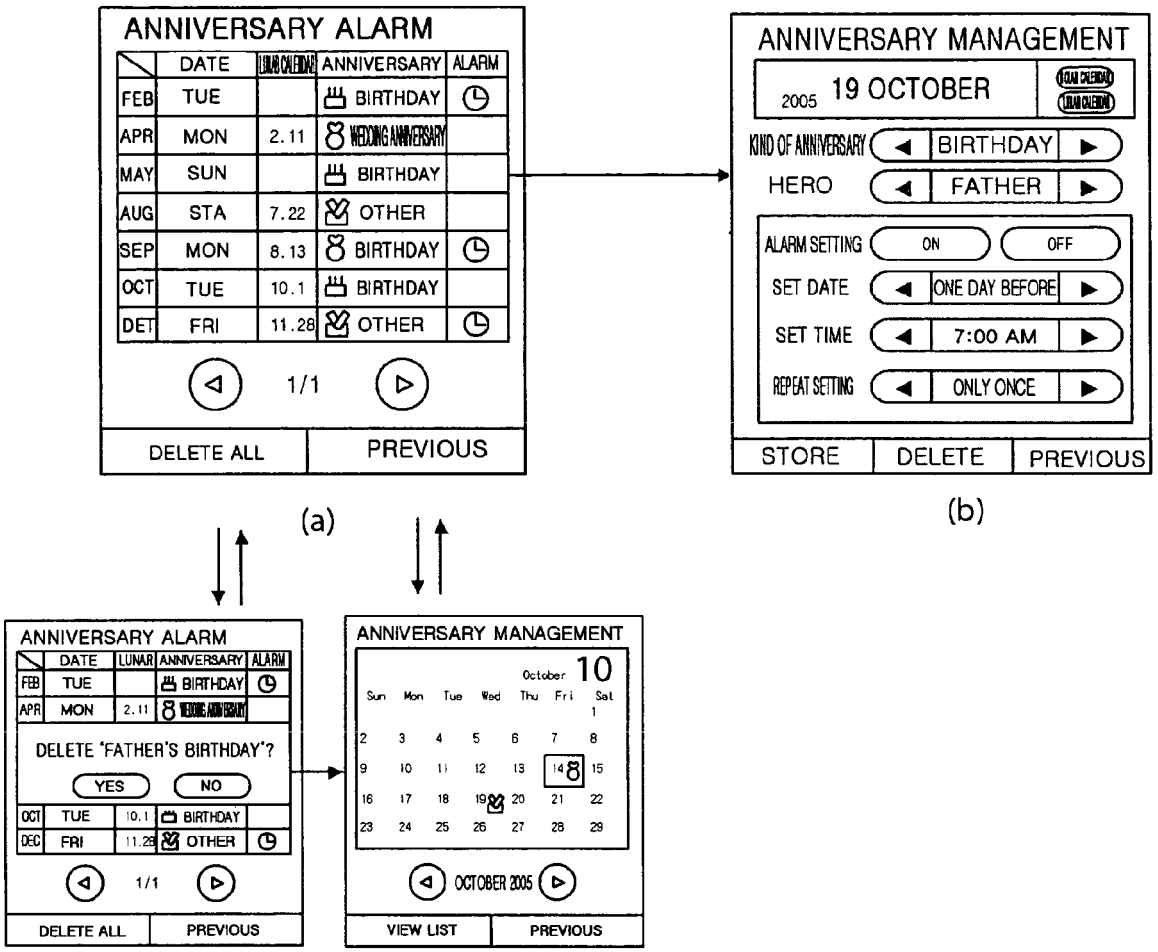

ANNIVERSARY ALARM
DATE
LUNAR CALENDAR
ANNIVERSARY
ALARM
FEB TUE BIRTHDAY
APR MON 2.11 WEDDING ANNIVERSARY
MAY SUN BIRTHDAY
AUG STA 7.22 OTHER
SEP MON 8.13 BIRTHDAY
OCT TUE 10.1 BIRTHDAY
DET FRI 11.28 OTHER
1/1
DELETE ALL
PREVIOUS
(a)
ANNIVERSARY MANAGEMENT
2005 19 OCTOBER
SOLAR CALENDAR
LUNAR CALENDAR
KIND OF ANNIVERSARY
BIRTHDAY
HERO
FATHER
ALARM SETTING
ON
OFF
SET DATE
ONE DAY BEFORE
SET TIME
7:00 AM
REPEAT SETTING
ONLY ONCE
STORE
DELETE
PREVIOUS
(b)
ANNIVERSARY ALARM
DELETE 'FATHER'S BIRTHDAY'?
YES
NO
DELETE ALL
PREVIOUS
ANNIVERSARY MANAGEMENT
October 10
Sun Mon Tue Wed Thu Fri Sat
OCTOBER 2005
VIEW LIST
PREVIOUS

Fig.22

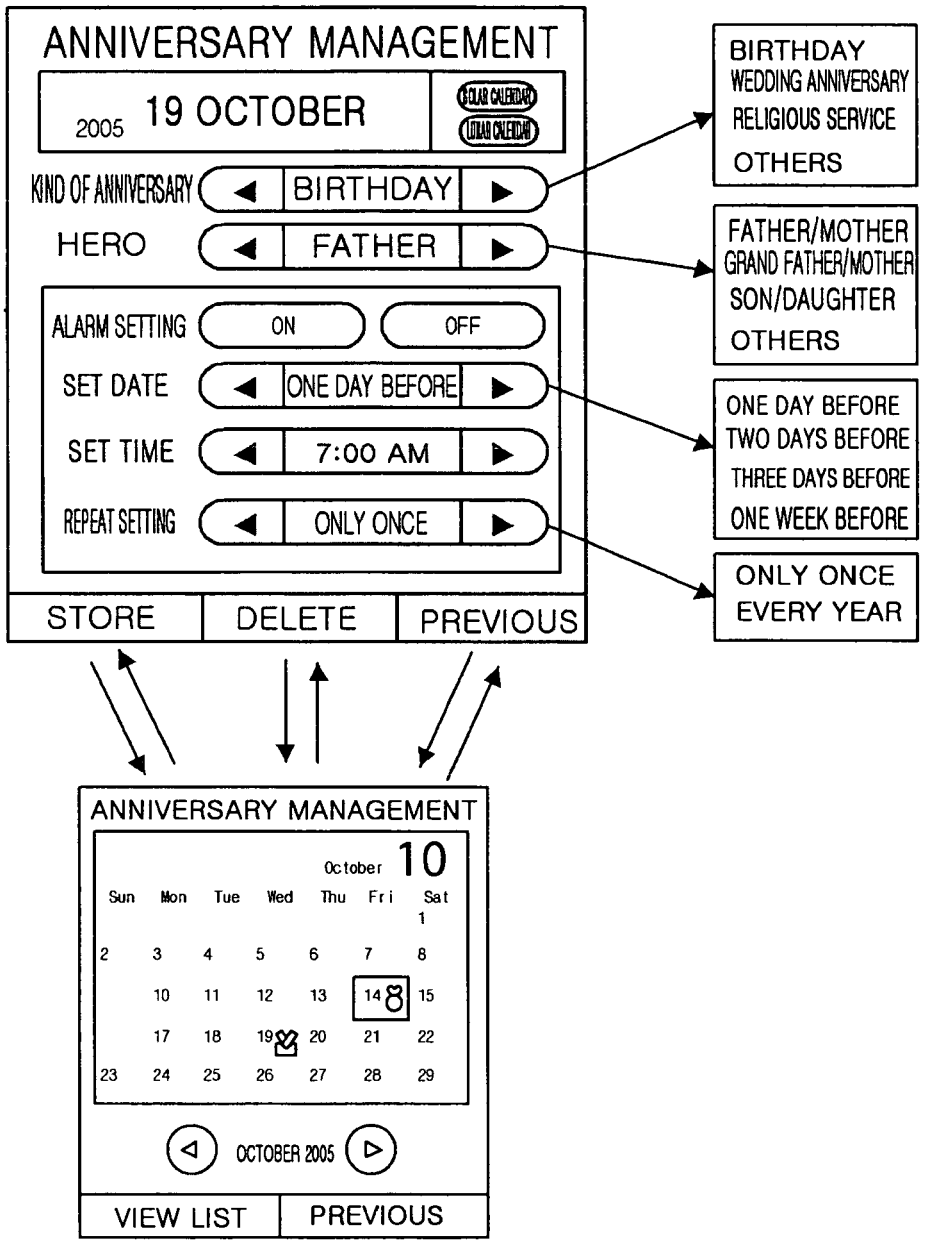
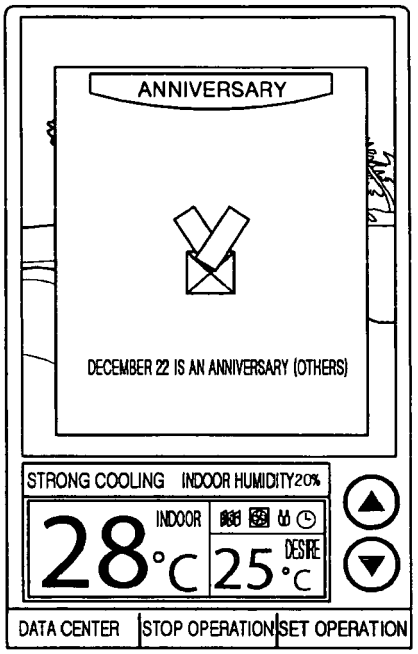

ANNIVERSARY MANAGEMENT
2005 19 OCTOBER
SOLAR CALENDAR
LUNAR CALENDAR
KIND OF ANNIVERSARY
BIRTHDAY
HERO
FATHER
ALARM SETTING
ON
OFF
SET DATE
ONE DAY BEFORE
SET TIME
7:00 AM
REPEAT SETTING
ONLY ONCE
STORE
DELETE
PREVIOUS
BIRTHDAY
WEDDING ANNIVERSARY
RELIGIOUS SERVICE
OTHERS
FATHER/MOTHER
GRAND FATHER/MOTHER
SON/DAUGHTER
OTHERS
ONE DAY BEFORE
TWO DAYS BEFORE
THREE DAYS BEFORE
ONE WEEK BEFORE
ONLY ONCE
EVERY YEAR
ANNIVERSARY MANAGEMENT
October 10
Sun Mon Tue Wed Thu Fri Sat
OCTOBER 2005
VIEW LIST
PREVIOUS

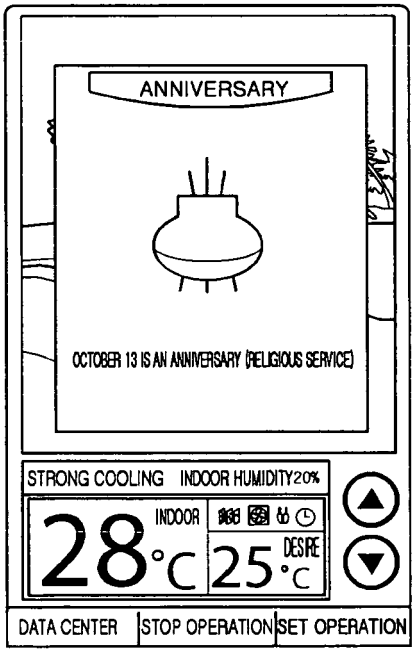
Fig.23


CONGRATULATIONS!
CONGRATULATIONS ON A BABY'S BIRTHDAY OF OCTOBER 25.
OK

(a)


ANNIVERSARY
DECEMBER 22 IS AN ANNIVERSARY (OTHERS)
STRONG COOLING
INDOOR HUMIDITY 20%
28°C
INDOOR
25°C
DESIRE
DATA CENTER
STOP OPERATION
SET OPERATION

(b)


ANNIVERSARY
OCTOBER 13 IS AN ANNIVERSARY (RELIGIOUS SERVICE)
STRONG COOLING
INDOOR HUMIDITY 20%
28°C
INDOOR
25°C
DESIRE
DATA CENTER
STOP OPERATION
SET OPERATION

(c)

Fig.24

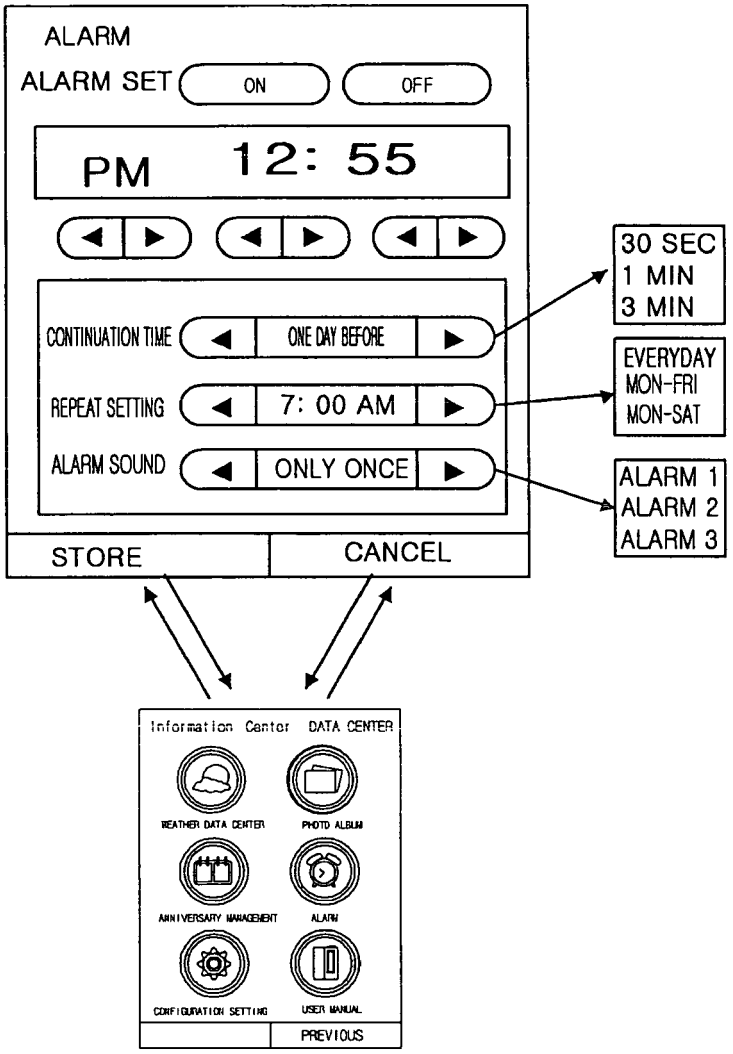

ALARM
ALARM SET
ON
OFF
PM 12: 55
CONTINUATION TIME
ONE DAY BEFORE
REPEAT SETTING
7: 00 AM
ALARM SOUND
ONLY ONCE
30 SEC
1 MIN
3 MIN
EVERYDAY
MON-FRI
MON-SAT
ALARM 1
ALARM 2
ALARM 3
STORE
CANCEL
Information Center
DATA CENTER
WEATHER DATA CENTER
PHOTO ALBUM
ANNIVERSARY MANAGEMENT
ALARM
CONFIGURATION SETTING
USER MANUAL
PREVIOUS

Fig.25

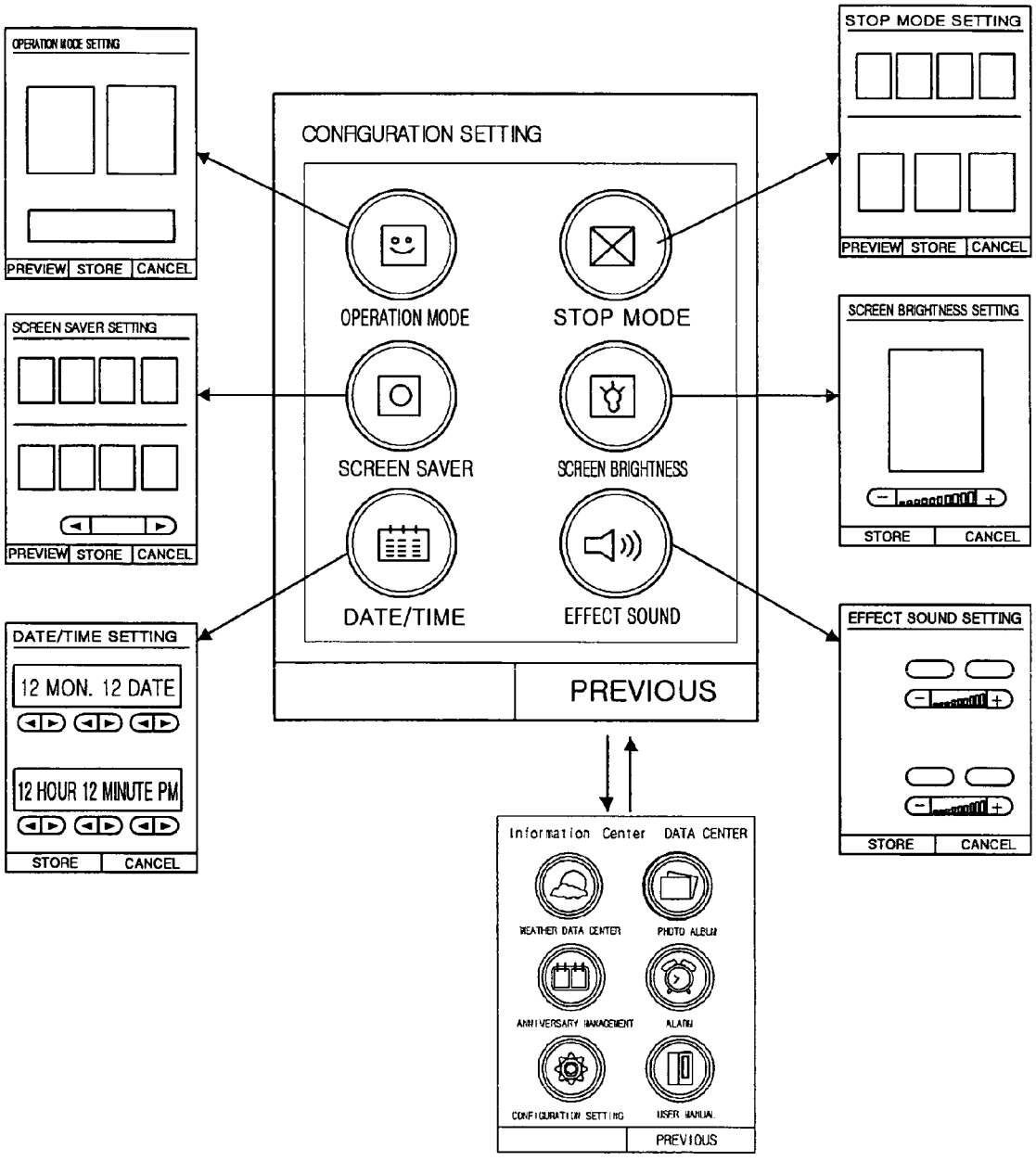

OPERATION MODE SETTING
PREVIEW
STORE
CANCEL
CONFIGURATION SETTING
OPERATION MODE
STOP MODE
SCREEN SAVER
SCREEN BRIGHTNESS
DATE/TIME
EFFECT SOUND
PREVIOUS
STOP MODE SETTING
PREVIEW
STORE
CANCEL
SCREEN SAVER SETTING
PREVIEW
STORE
CANCEL
SCREEN BRIGHTNESS SETTING
STORE
CANCEL
DATE/TIME SETTING
12 MON. 12 DATE
12 HOUR 12 MINUTE PM
STORE
CANCEL
EFFECT SOUND SETTING
STORE
CANCEL
Information Center
DATA CENTER
WEATHER DATA CENTER
PHOTO ALBUM
ANNIVERSARY MANAGEMENT
ALARM
CONFIGURATION SETTING
USER MANUAL
PREVIOUS

Fig.26

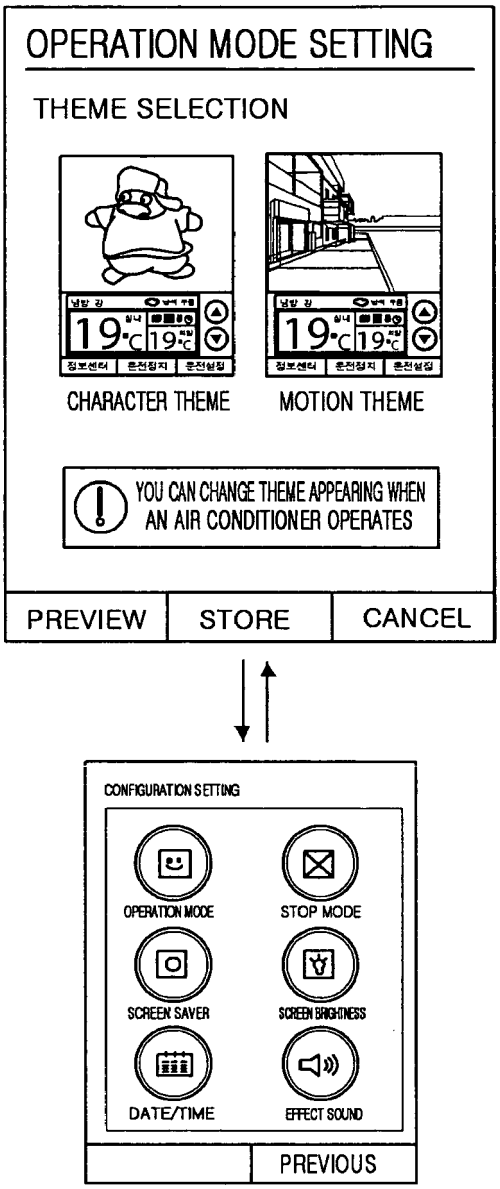

OPERATION MODE SETTING
THEME SELECTION
CHARACTER THEME
MOTION THEME
YOU CAN CHANGE THEME APPEARING WHEN AN AIR CONDITIONER OPERATES
PREVIEW
STORE
CANCEL
CONFIGURATION SETTING
OPERATION MODE
STOP MODE
SCREEN SAVER
SCREEN BRIGHTNESS
DATE/TIME
EFFECT SOUND
PREVIOUS

Fig.27

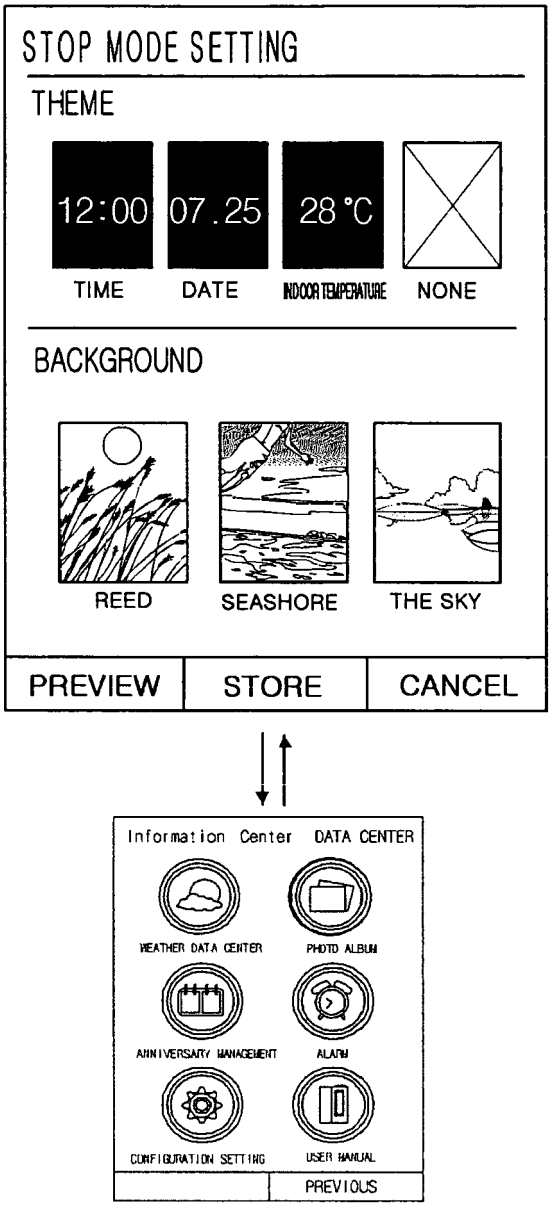

STOP MODE SETTING
THEME
12:00
07.25
28 °C
TIME
DATE
INDOOR TEMPERATURE
NONE
BACKGROUND
REED
SEASHORE
THE SKY
PREVIEW
STORE
CANCEL
Information Center
DATA CENTER
WEATHER DATA CENTER
PHOTO ALBUM
ANNIVERSARY MANAGEMENT
ALARM
CONFIGURATION SETTING
USER MANUAL
PREVIOUS

Fig.28

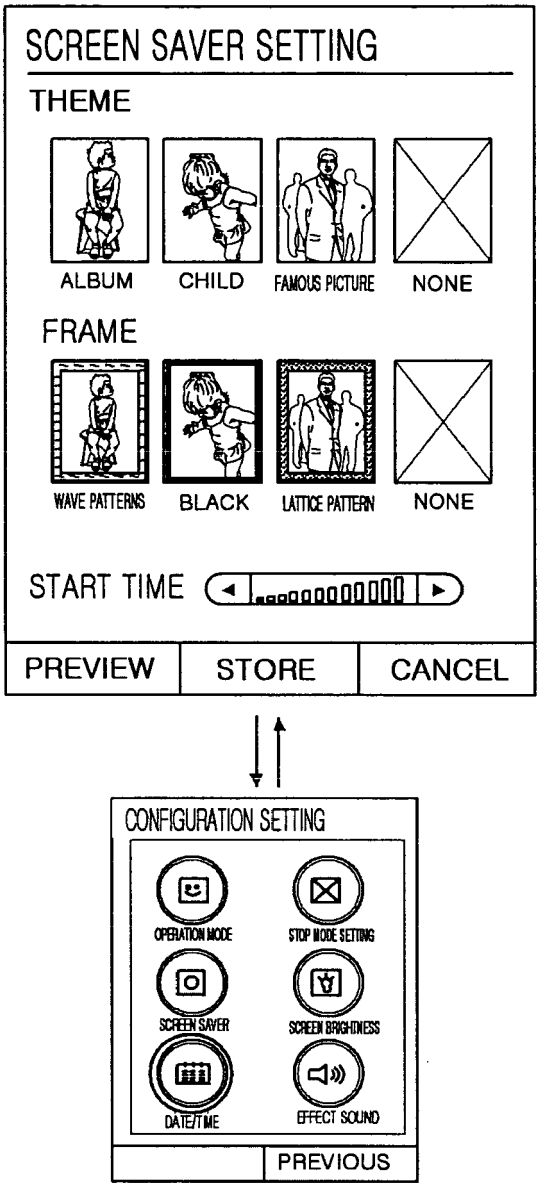

SCREEN SAVER SETTING
THEME
ALBUM
CHILD
FAMOUS PICTURE
NONE
FRAME
WAVE PATTERNS
BLACK
LATTICE PATTERN
NONE
START TIME
PREVIEW
STORE
CANCEL
CONFIGURATION SETTING
OPERATION MODE
STOP MODE SETTING
SCREEN SAVER
SCREEN BRIGHTNESS
DATE/TIME
EFFECT SOUND
PREVIOUS

Fig.29

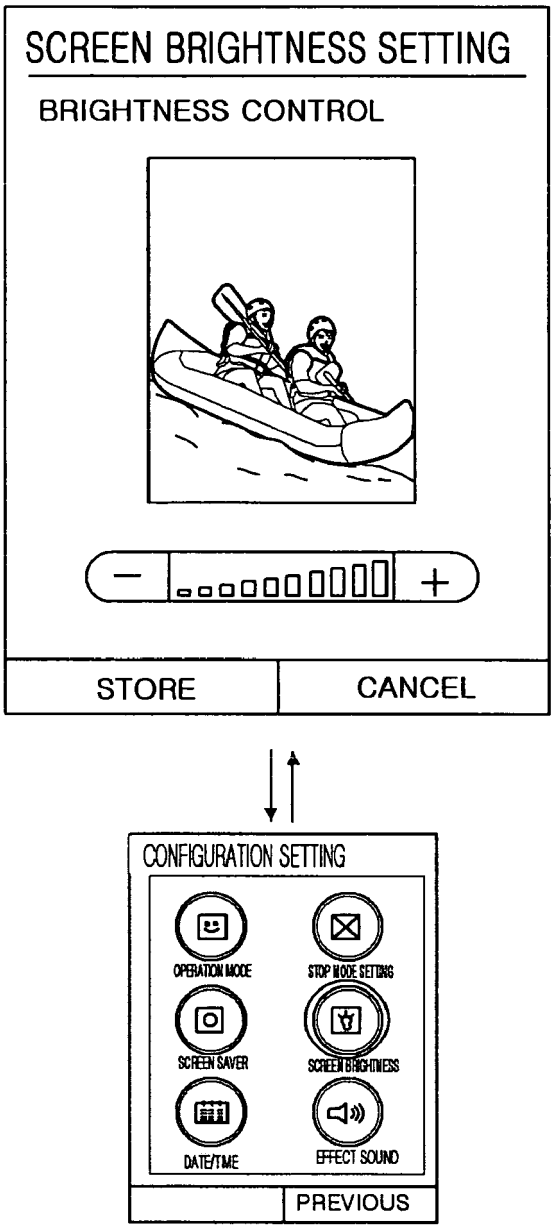

SCREEN BRIGHTNESS SETTING
BRIGHTNESS CONTROL
−
+
STORE
CANCEL
CONFIGURATION SETTING
OPERATION MODE
STOP MODE SETTING
SCREEN SAVER
SCREEN BRIGHTNESS
DATE/TIME
EFFECT SOUND
PREVIOUS

Fig.30

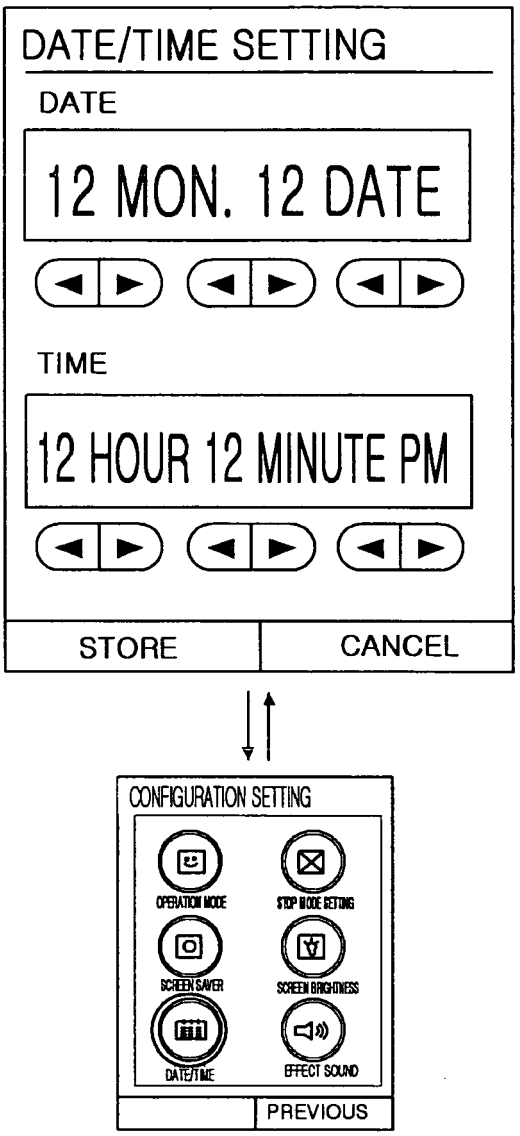

DATE/TIME SETTING
DATE
12 MON. 12 DATE
TIME
12 HOUR 12 MINUTE PM
STORE
CANCEL
CONFIGURATION SETTING
OPERATION MODE
STOP MODE SETTING
SCREEN SAVER
SCREEN BRIGHTNESS
DATE/TIME
EFFECT SOUND
PREVIOUS

Fig.31

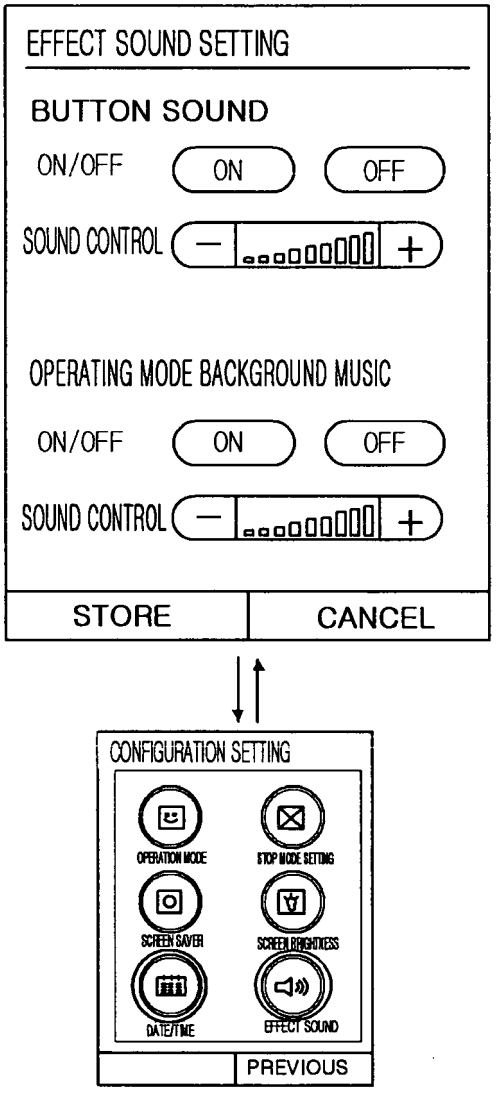

EFFECT SOUND SETTING
BUTTON SOUND
ON/OFF
ON
OFF
SOUND CONTROL
OPERATING MODE BACKGROUND MUSIC
ON/OFF
ON
OFF
SOUND CONTROL
STORE
CANCEL
CONFIGURATION SETTING
OPERATION MODE
STOP MODE SETTING
SCREEN SAVER
SCREEN BRIGHTNESS
DATE/TIME
EFFECT SOUND
PREVIOUS

Fig.32

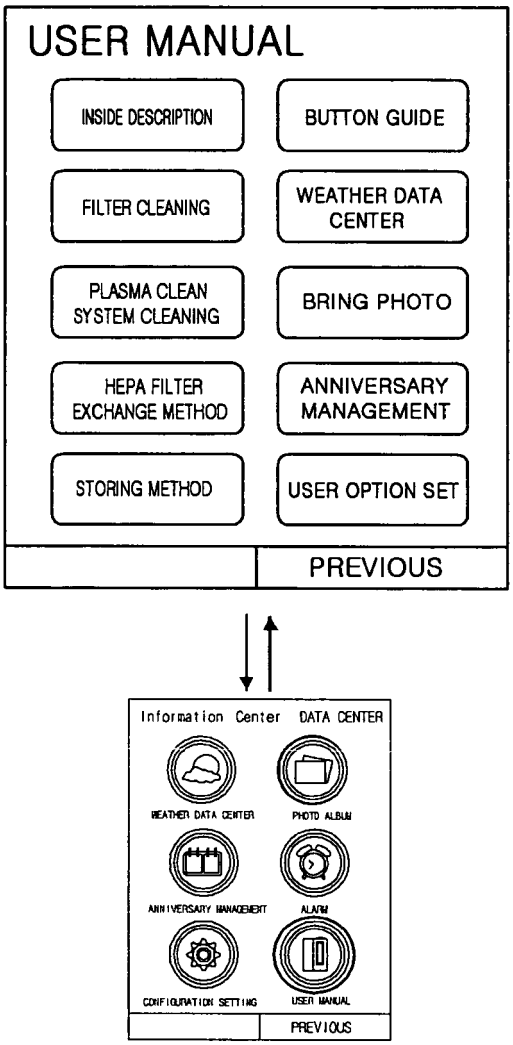
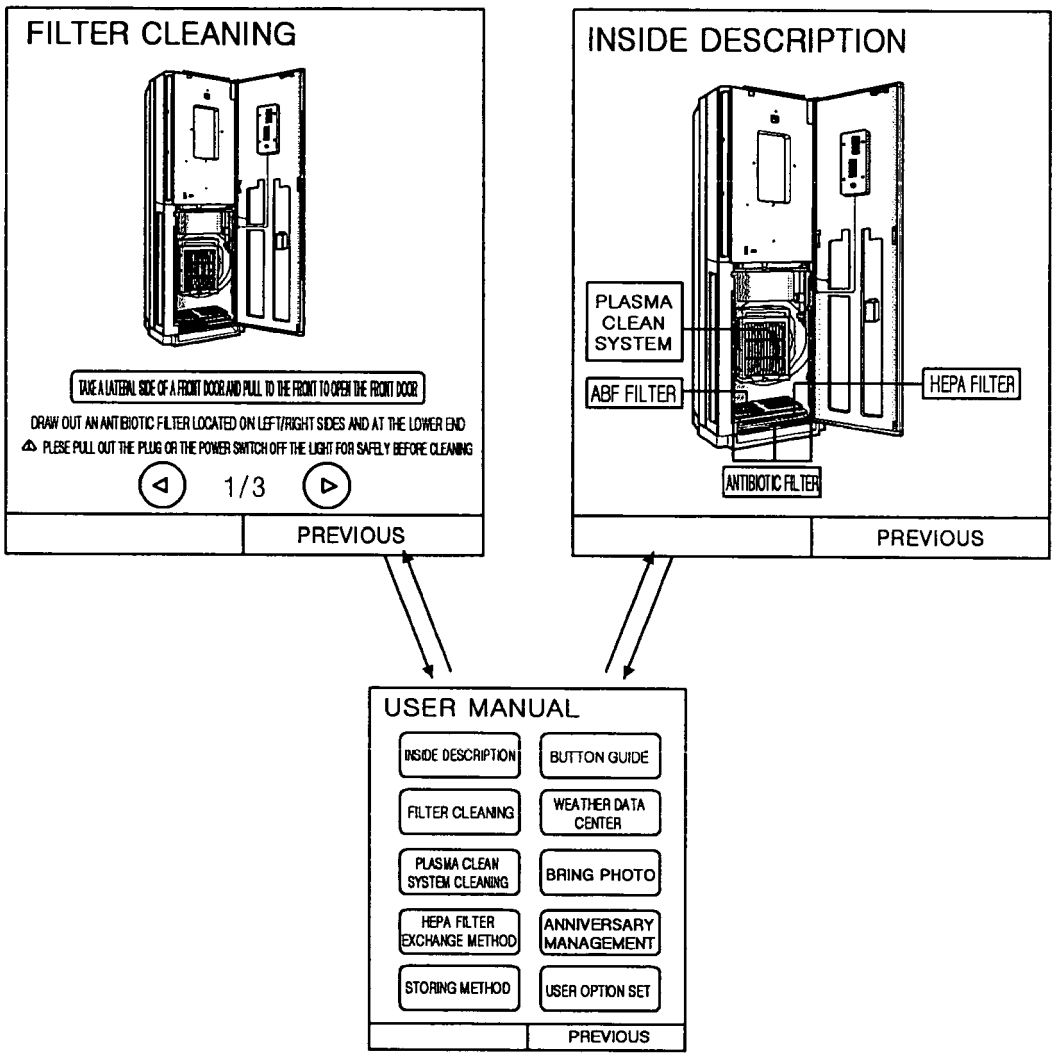

USER MANUAL
INSIDE DESCRIPTION
BUTTON GUIDE
FILTER CLEANING
WEATHER DATA CENTER
PLASMA CLEAN SYSTEM CLEANING
BRING PHOTO
HEPA FILTER EXCHANGE METHOD
ANNIVERSARY MANAGEMENT
STORING METHOD
USER OPTION SET
PREVIOUS
Information Center DATA CENTER
WEATHER DATA CENTER
PHOTO ALBUM
ANNIVERSARY MANAGEMENT
ALARM
CONFIGURATION SETTING
USER MANUAL
PREVIOUS

Fig.33


FILTER CLEANING
TAKE A LATERAL SIDE OF A FRONT DOOR AND PULL TO THE FRONT TO OPEN THE FRONT DOOR
DRAW OUT AN ANTIBIOTIC FILTER LOCATED ON LEFT/RIGHT SIDES AND AT THE LOWER END
PLESE PULL OUT THE PLUG OR THE POWER SWITCH OFF THE LIGHT FOR SAFELY BEFORE CLEANING
1/3
PREVIOUS
INSIDE DESCRIPTION
PLASMA CLEAN SYSTEM
ABF FILTER
HEPA FILTER
ANTIBIOTIC FILTER
PREVIOUS
USER MANUAL
INSIDE DESCRIPTION
BUTTON GUIDE
FILTER CLEANING
WEATHER DATA CENTER
PLASMA CLEAN SYSTEM CLEANING
BRING PHOTO
HEPA FILTER EXCHANGE METHOD
ANNIVERSARY MANAGEMENT
STORING METHOD
USER OPTION SET
PREVIOUS