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Yoon, II(10) **Pub. No.: US 2006/0058659 A1**(43) **Pub. Date: Mar. 16, 2006**(54) **SYSTEM AND METHOD FOR PROVIDING
ASSISTANCE IN ULTRASOUND
EQUIPMENT****Publication Classification**(51) **Int. Cl.****A61B 8/00** (2006.01)(52) **U.S. Cl.** **600/437**(57) **ABSTRACT**

The present invention relates to a system and a method for dynamically providing help information associated with the functions of ultrasound equipment. A system for providing help information in a medical ultrasound equipment comprises: a storage unit for storing help information associated with a plurality of functions of the medical ultrasound equipment; an input unit for inputting a plurality of user operation instructions, each of the user operation instructions being associated with at least one of the functions of the ultrasound equipment; an output unit for outputting the help information; and a control unit responsive to a user's input of one of the user operation instructions for controlling a particular help information associated with a particular function of the ultrasound equipment, which in turn is associated with the inputted user operation instruction, to be outputted through the output unit.

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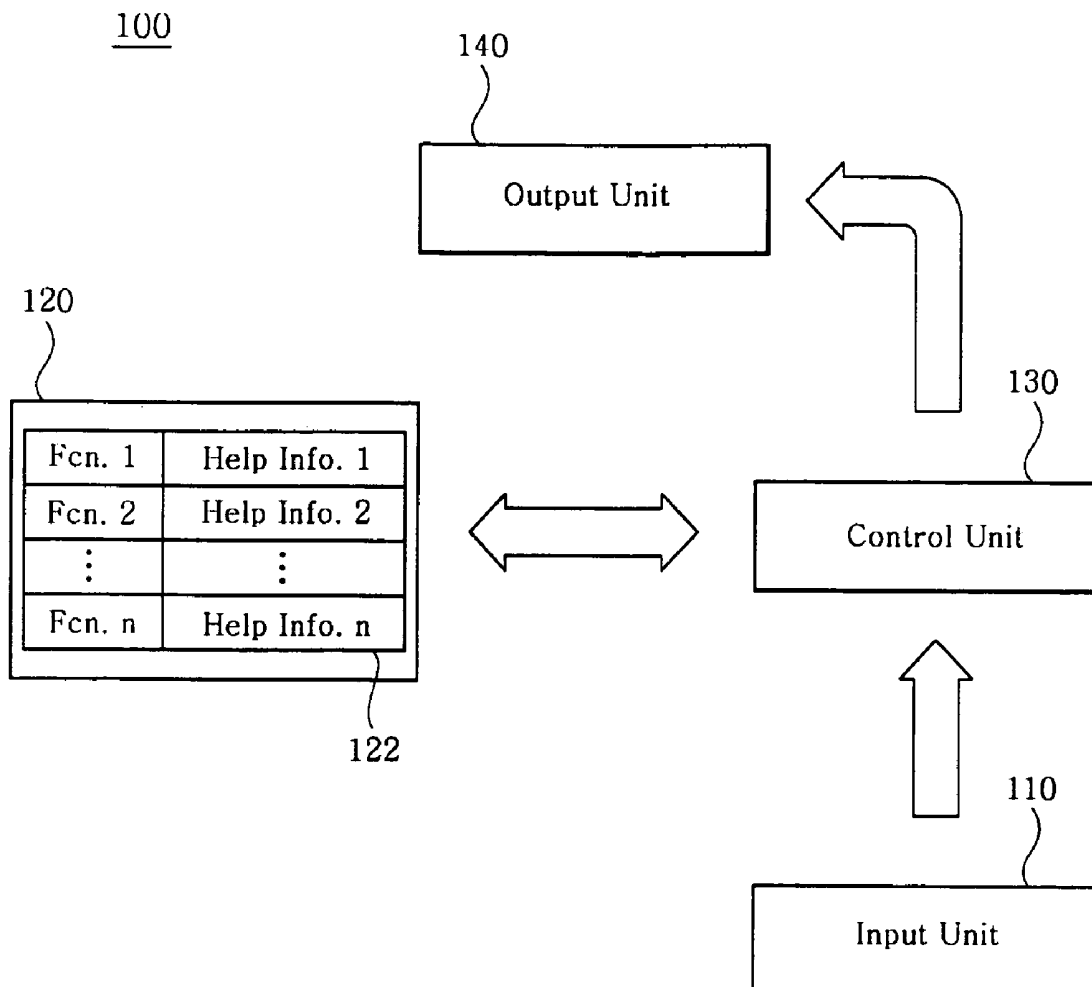


Fig. 1

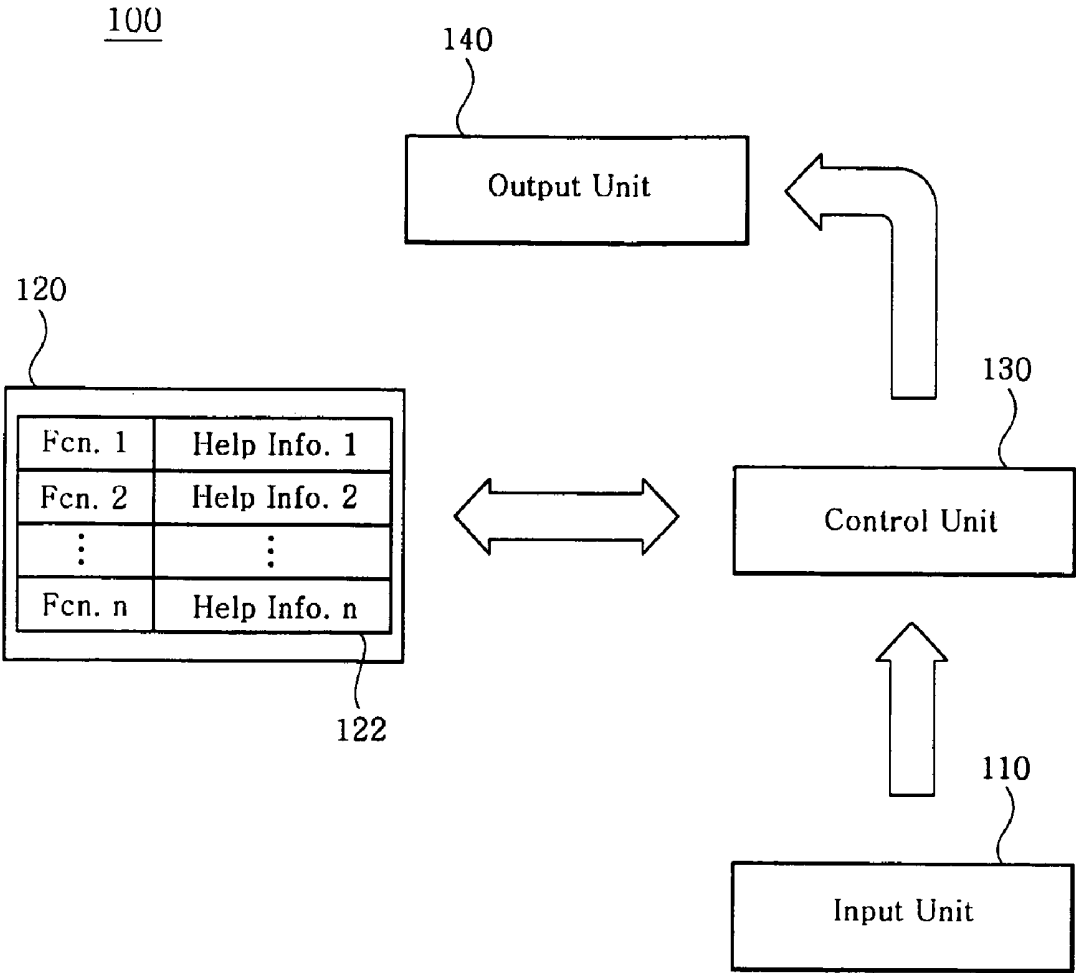
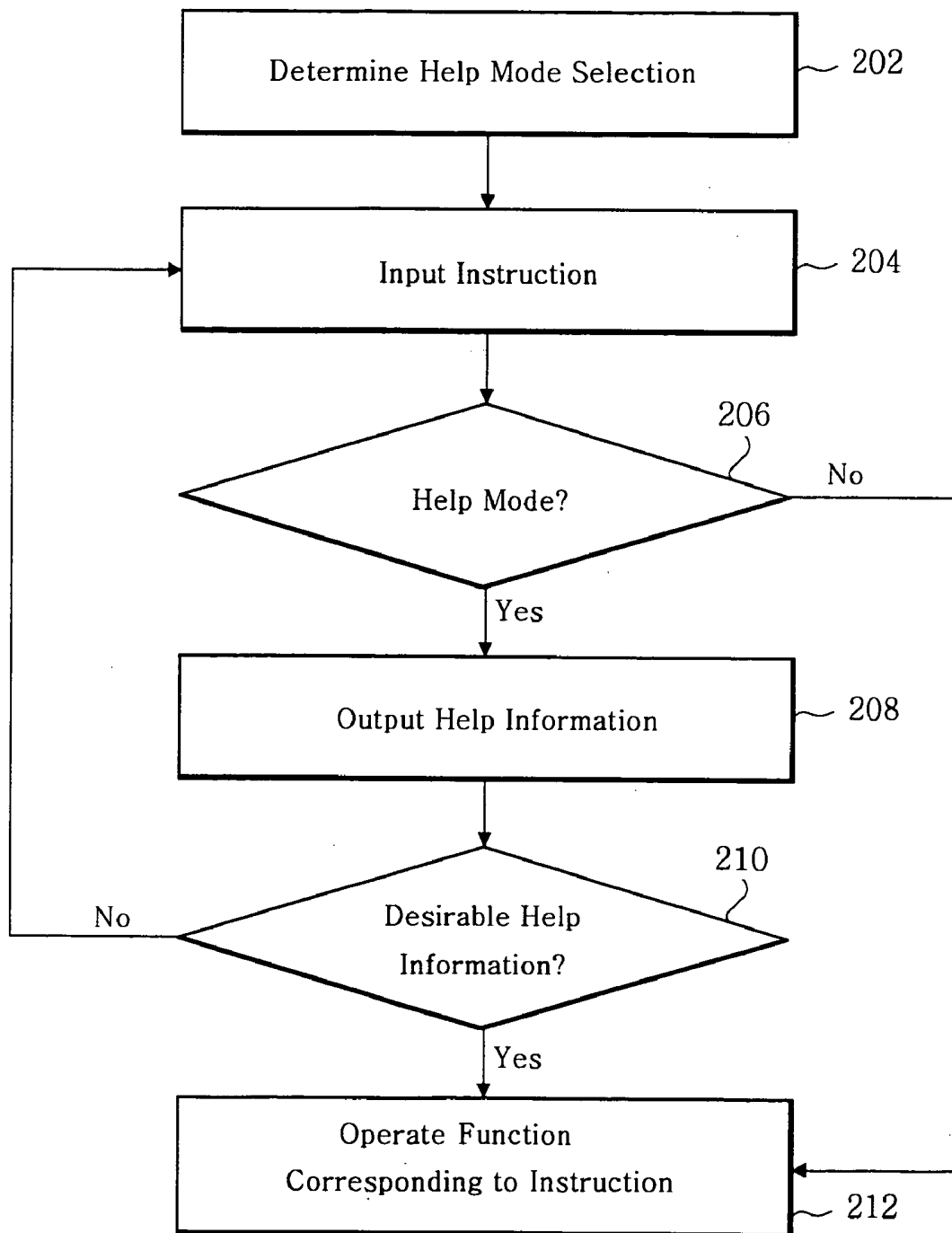


Fig. 2



SYSTEM AND METHOD FOR PROVIDING ASSISTANCE IN ULTRASOUND EQUIPMENT

FIELD OF THE INVENTION

[0001] The present invention generally relates to ultrasound equipment, and more particularly to a system and a method for dynamically providing assistance associated with functions of the ultrasound equipment to a user.

BACKGROUND OF THE INVENTION

[0002] A user of ultrasound equipment often desires to be provided with information associated with various functions of the ultrasound equipment in order to acquire knowledge of how to operate the relevant functions. To this end, the user may either refer to an operation manual or search for an explanation of a relevant function by using a help function provided on the ultrasound equipment itself. However, the user who is unfamiliar with the functions of the ultrasound equipment may feel it inconvenient to refer to a manual every time a need arises for the user to operate some of the functions of the equipment.

[0003] A conventional help function used in the ultrasound equipment provides information if the user activates a help window by using a key (or a shortcut key) placed on a key panel in the ultrasound equipment. The user can then search for desired information on the help window.

[0004] However, to properly operate the conventional help function, the user is required to repeat the search process every time when a need arises to acquire information on the functions of the equipment. In such a case, the user is confronted with a difficulty in that he/she must input a proper keyword so as to search for the desired information. Also, there is a disadvantage in that it takes a long time to search for the desired information. Furthermore, since a screen region where information is displayed is limited, the help window has to be activated whenever the user requires the information associated with the function, in which the help window must then be closed again for the operation of the ultrasound image equipment. Thus, a process for providing the information associated with the functions of the ultrasound equipment becomes very complicated.

[0005] Further, in the operation of the ultrasound equipment, since the text provided on the key panel of the ultrasound equipment is not in a descriptive language but in a summarized format, there is a problem in that it is difficult for the user to understand the meaning of the function represented by each key.

SUMMARY OF THE INVENTION

[0006] It is an objective of the present invention to provide to a system and a method for dynamically providing help information associated with the functions of ultrasound equipment by using a help mode.

[0007] In accordance with an aspect of the present invention, there is provided a system for providing help information in medical ultrasound equipment, which comprises: a storage unit for storing help information associated with a plurality of functions of the medical ultrasound equipment; an input unit for inputting a plurality of user operation instructions, each of the user operation instructions being associated with at least one of the functions of the ultrasound

equipment; an output unit for outputting the help information; and a control unit responsive to a user's input of one of the user operation instructions for controlling a particular help information associated with a particular function of the ultrasound equipment, which in turn is associated with the inputted user operation instruction, to be outputted through the output unit.

[0008] In accordance with another aspect of the present invention, there is provided a method for providing help information in medical ultrasound equipment, which comprises the following steps: a) storing help information associated with a plurality of functions of the medical ultrasound equipment; b) inputting a user operation instruction for operating one of the functions of the ultrasound equipment; and c) controlling a particular help information to be outputted in response to the inputted operation instruction.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The above and other objects and features of the present invention will become apparent from the following description of preferred embodiments provided in conjunction with the accompanying drawings, in which:

[0010] **FIG. 1** is a block diagram showing a system for providing help information in ultrasound equipment in accordance with the present invention; and

[0011] **FIG. 2** is a flow chart showing a method for providing help information by using a help mode in ultrasound equipment in accordance with the present invention.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

[0012] **FIG. 1** is a block diagram showing a system for providing help information in medical ultrasound equipment in accordance with the present invention.

[0013] Referring to **FIG. 1**, the system **100** includes an input unit **110**, a storage unit **120**, a control unit **130** and an output unit **140**.

[0014] The input unit **110** receives the user's operation instructions associated with a help mode selection and functions of the ultrasound equipment. The input unit **110** may be a keyboard, a touch screen and/or a pointing device like a mouse. An additional key (e.g., a help mode selection key) may be provided to select the help mode. Also, the help mode selection can be carried out by using a combination of keys assigned to other functions of the ultrasound equipment. The help mode may be selected before operating the function of the ultrasound equipment or while operating the function of the ultrasound equipment.

[0015] The storage unit **120** stores help information associated with each function of the ultrasound equipment. The help information represents detailed information associated with the functions to be selected by the user. The help information associated with the functions may be stored in a memory, a hard disk or a database in a table format **122**.

[0016] When the user chooses one of the functions of the ultrasound equipment through the input unit **110**, the control unit **130** checks whether the user selects the help mode. If it is determined that the user selects the help mode, the control unit **130** searches for suitable help information associated with the chosen function in the storage unit **120**. Thereafter,

the control unit **130** reads out the help information from the storage unit **120**, which is associated with the function chosen by the user. The control unit **130** outputs the chosen help information through the output unit **140**. The output unit **140** may be a display device such as a CRT (Cathode Ray Tube) or LCD (Liquid Crystal Display) displaying the help information with text or graphics, or a speaker outputting the help information through sound.

[0017] Also, the control unit **130** receives the help information through the input unit **110** from the user for updating the help information associated with the functions of the ultrasound equipment, which are stored in the storage unit **120**.

[0018] On the other hand, if it is determined that the help mode is not selected, then the control unit **130** directly operates the function in the ultrasound equipment, which is chosen by the user, without searching for the help information stored in the storage unit **120**.

[0019] A method for providing the help information associated with the functions of the ultrasound equipment to the user in response to a selection of the help mode will be described below in view of **FIG. 2**.

[0020] **FIG. 2** is a flow chart showing a method for providing the help information in response to a selection of the help mode in accordance with the present invention.

[0021] Referring to **FIG. 2**, the user determines whether to select the help mode before operating the ultrasound equipment or at the time of operating the ultrasound equipment at step **202**. The help information associated with the functions of the ultrasound equipment is set at the initial setup stage of the ultrasound equipment and may be updated by the user when the user operates the ultrasound equipment. The help information is stored in the storage unit **120** for reference by the control unit **130**.

[0022] When the user inputs a certain operation instruction for choosing one of the functions of the ultrasound equipment through the input unit **110** at step **204**, the control unit **130** checks whether the help mode is selected at step **206**. If it is determined that the user selected the help mode, the help information associated with the corresponding function is outputted through the output unit **140** before the corresponding function of the ultrasound equipment actually operates at step **208**.

[0023] On the other hand, if the user does not wish to confirm the help information associated with the function corresponding to the operation instruction because the user is familiar with the function of the ultrasound equipment, the user does not have to select the help mode. That is, when the help mode is not selected, the corresponding function of the ultrasound equipment is directly executed in response to the operation instruction without the help information associated with the corresponding function being outputted through the output unit **140** at step **212**.

[0024] If the help mode is selected, it is determined whether the help information, which is outputted through the output unit **140** in response to the user's operation instruction, is associated with the function of the ultrasound equipment intended by the user at step **210**. In case that the outputted help information is associated with the function of

the ultrasound equipment intended by the user, the current function of the ultrasound equipment is executed at step **212**.

[0025] On the other hand, in case that the outputted help information is independent from the information associated with the function intended by the user, the current function of the ultrasound equipment is canceled and the process returns to step **204** for inputting another operation instruction.

[0026] As mentioned above, the help information can be provided to the user who is unfamiliar with the ultrasound equipment and may be not provided to the user who is familiar with the ultrasound equipment in accordance with the present invention. That is, the help information associated with the functions of the ultrasound equipment can be dynamically provided by selectively setting the help mode in accordance with the present invention.

[0027] While the present invention has been described and illustrated with respect to a preferred embodiment of the invention, it will be apparent to those skilled in the art that variations and modifications are possible without deviating from the broad principles and teachings of the present invention which should be limited solely by the scope of the claims appended hereto.

What is claimed is:

1. An system for providing help information in a medical ultrasound equipment, comprising:

a storage unit for storing help information associated with a plurality of functions of the medical ultrasound equipment;

an input unit for inputting a plurality of user operation instructions, each of the user operation instructions being associated with at least one of the functions of the ultrasound equipment;

an output unit for outputting the help information; and

a control unit responsive to a user's input of one of the user operation instructions for controlling a particular help information associated with a particular function of the ultrasound equipment, which in turn is associated with the inputted user operation instruction, to be outputted through the output unit.

2. The system as recited in claim 1, wherein the input unit includes a help mode selection key for selecting a help mode.

3. The system as recited in claim 1, wherein the output unit is a display device for providing the help information with text or graphics or a speaker for providing the help information with sound.

4. The system as recited in claim 1, wherein the help information is stored at an initial setup stage of the ultrasound equipment.

5. The system as recited in claim 4, wherein the help information is updated by inputting help information at the time of operating the ultrasound equipment through the input unit.

6. A method for providing help information in a medical ultrasound equipment, comprising the steps of:

a) storing the help information associated with a plurality of functions of the medical ultrasound equipment;

b) inputting a user operation instruction for operating one of the functions of the ultrasound equipment; and

c) controlling a particular help information to be outputted in response to the inputted operation instruction.

7. The method as recited in claim 6, wherein step c) includes the steps of:

c-1) checking whether a help mode is selected in response to the inputted operation instruction;

c-2) searching for the particular help information when the help mode is selected; and

c-3) reading out the particular help information.

8. The method as recited in claim 7, further comprising the step of updating the help information by inputting the help information.

9. The method as recited in claim 6, wherein step c) further comprises the step of c-4) outputting the particular help information through a display device or a speaker.

10. The method as recited in claim 6, further comprising the steps of:

d) checking whether the help information corresponds to the function of the ultrasound equipment intended by a user; and

e) if the help information is independent from the function of the ultrasound equipment intended by the user, inputting another user operation instruction.

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专利名称(译)	用于在超声设备中提供辅助的系统和方法		
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摘要(译)

本发明涉及用于动态地提供与超声设备的功能相关联的帮助信息的系统和方法。一种用于在医学超声设备中提供帮助信息的系统，包括：存储单元，用于存储与医学超声设备的多个功能相关联的帮助信息；输入单元，用于输入多个用户操作指令，每个用户操作指令与超声设备的至少一个功能相关联；输出单元，用于输出帮助信息；响应于用户输入用户操作指令之一的控制单元，用于控制与超声设备的特定功能相关联的特定帮助信息，该特定帮助信息又与输入的用户操作指令相关联，以通过输出输出单元。

