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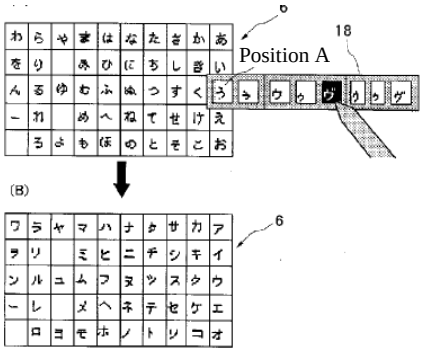
(54) [TITLE OF THE INVENTION] CHARACTER INPUT DEVICE, CHARACTER INPUT METHOD, AND INFORMATION RECORDING MEDIUM STORING PROGRAM HAVING CHARACTER INPUT FUNCTIONS

(57) [Abstract]

[PROBLEM TO BE SOLVED:] To provide a character input device which can easily and accurately input characters and has a small display area of a character list display means, to provide a character input method and also to provide an information recording medium which stores a program having character input functions.

[SOLUTION:] Each character list display means 6 shows plural types of character information consisting of characters relevant to a specific character type and is shown on each display means. When the optional one of characters of the character list display means 6 is designated by a designating means 3, the character relevant to at least a character type applicable to the designated character is shown on a character type display means 18. Then a character applicable to an optional character type of the character type display means 18 is designated by the designating means 3 and a finger is removed from the designated character, the character information relevant to the type of the character shown at the position where the finger is removed is shown on the character list display means 6.



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(57) [Scope of Patent Claims]

[Claim 1]

A character input device for instructing and inputting a desired character by means of an instruction means for instructing any character of character information, in a state where a plurality of character information comprising characters applicable to a specific character type is displayed on an applicable display means, characterized in that

the character input device has

a character information storage means for storing character information, and

a character information display means for displaying on a display means a character list display means in order to display character information in a list or a character type display means for displaying characters applicable to at least one type of characters in respect of the character information of any type of character,

wherein the character list display means for displaying a plurality of character information configured from characters applicable to specific character types is displayed on the respective display means, and

when any character in the character list display means is instructed by the instruction means, a character applicable to at least one type of character applicable to the instructed character is displayed on the character type display means for the purpose of the display thereof, and

when a character applicable to any of the character types in the character type display means is instructed and detached,

the character information applicable to the character type of the character displayed on the detached position is displayed on the character list display means.

[Claim 2]

The character input device according to claim 1, wherein

the character type is a combination of a resonant sound, a voiced sound, a p - sound in the kana syllabary, a contracted sound or a geminate consonant, specific characters for conventional use, full-width hiragana, half-width hiragana, full-width katakana or half-width katakana, and the character type is upper and lower cases when inputting any other languages.

[Claim 3]

The character input device according to claim 1, wherein

characters for each character type displayed on the character type display means are respectively arranged in a longitudinal direction, a transverse direction, or in the shape of a grid.

[Claim 4]

The character input device according to claim 1, wherein

an instruction means is a pointing device or a mouse pointer for instructing on a tablet.

[Claim 5]

A character input device for instructing and inputting a desired character by an instruction means for instructing any character of character information, in a state where a plurality of character information comprising characters applicable to a specific character type are displayed on a display means, characterized in that

the character input device has

a character information storing means for storing character information, and

a character information display means for displaying a first character list display means for displaying the character information in a list and a character type display means for displaying a character applicable to at least one character type for any character of the character information on the display means, wherein

the first character list display means for displaying a plurality of character information comprising characters applicable to a specific character type is displayed on the display means,

when any character in the first character list display means is instructed by the instruction means, a second character list display means showing character information more detailed than those in the first character list display means is displayed on the display means,

when any character in the second character list display means is instructed by the instruction means, the character type display means for displaying the character applicable to at least one other character type applicable to the instructed character is displayed on the display means, and

when a character of any character type in the character type display means is instructed by the instruction means and detached from its position, character information applicable to the character type currently displayed at the detached position in the character type display means is displayed on the first character list display means.

[Claim 6]

A character input device for instructing and inputting a desired character by an instruction means for instructing any character of character information, in a state where a plurality of character information comprising characters applicable to a specific character type are displayed on a display means, characterized in that

the character input device has

a character information storing means for storing character information, and

a character information display means for displaying a character list display means for displaying character information in a list and a character type display means for displaying a character applicable to at least one character type for any character of character information on the display means, wherein

a character list display means for displaying a plurality of character information applicable to a specific character type is displayed on the display means,

when any character in the character list display means displayed on the display means is continued to be instructed for a predetermined time by the instruction means, the character type display means for displaying a character applicable to at least one other character type applicable to the instructed character is displayed on a display means, and

when any character in the character type display means is instructed by an instruction means so as to slide on the character type display means and detached from its position, the character information applicable to the character type of the character displayed at the detached position in the character type display means is displayed on the character list display means.

[Claim 7]

A character input method, characterized in that

a character list display means for displaying a plurality of character information comprising characters applicable to a specific character type is displayed on a display means,

when any character in the character list display means is instructed by an instruction means, a character type display means for displaying a character applicable to at least one other character type applicable to the instructed character is displayed on the display means, and

when a character applicable to any character type in the character type display means is instructed to be detached by an instruction means,

the character information applicable to the character type of the character displayed at the detached position is displayed on the character list display means.

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[Claim 8]

The character input method according to claim 7, wherein

the character type is the combination of a resonant sound, a voiced sound, a p - sound in the kana syllabary, a contracted sound or a geminate consonant, specific characters for conventional use, and a full-width hiragana, a half-width hiragana, full-width katakana or half-width katakana when inputting Japanese characters, and a character type is upper and lower cases when inputting any other languages.

[Claim 9]

The character input method according to claim 7, wherein

characters for each character type displayed on the character type display means are respectively arranged in a longitudinal direction, a transverse direction, or in the shape of a grid.

[Claim 10]

A character input method, characterized in that

a first character list display means for displaying a plurality of character information comprising characters applicable to a specific character type is displayed on a display means,

when any character in the first character list display means is instructed by an instruction means, a second character list display means showing character information more detailed than those in the first character list display means is displayed on the display means,

when any character in the second character list display means is instructed by the instruction means, a character type display means for displaying a character applicable to at least one other character type applicable to the instructed character is displayed on the display means, and

when a character of any character type in the character type display means is instructed by instruction means and detached from its position, the character information applicable to the character type currently displayed at the detached position in the character type display means is displayed on the first character list display means.

[Claim 11]

A character input method, characterized in that

a character list display means for displaying a plurality of character information applicable to a specific character type is displayed on a display means,

when any character in the character list display means displayed on the display means is continued to be instructed for a predetermined time by an instruction means, a character type display means for displaying a character applicable to at least one other character type applicable to the instructed character is displayed on the display means, and

when any character in the character type display means is instructed by the instruction means so as to slide on a character type display means and detached from its position, the character information applicable to the character type of a character displayed at the detached position in the character type display means is displayed on the character list display means.

[Claim 12]

An information recording medium, characterized in that

a program that has a character input function is recorded, in which

a character list display means for displaying a plurality of character information comprising characters applicable to a specific character type is displayed on a display means,

when any character in the character list display means is instructed by an instruction means, a character type display means for displaying a character applicable to at least one other character type applicable to the instructed character is displayed on the display means,

when a character applicable to any character type in the character type display means is instructed to be detached by the instruction means, the character information applicable to the character type of the character displayed at the detached position is displayed on the character list display means.

[Claim 13]

The information recording medium according to claim 12, wherein

a program that has a character input function is recorded, in which

the character type is the combination of a resonant sound, a voiced sound, a p - sound in the kana syllabary, a contracted sound or a geminate consonant, specific characters for conventional use, and a full-width hiragana, a half-width hiragana, full-width katakana or half-width katakana when inputting Japanese character, and a character type is upper and lower cases when inputting any other languages.

[Claim 14]

The information recording medium according to claim 12, wherein

a program that has a character input function is recorded, in which

characters for each character type displayed on a character type display means are respectively arranged in a longitudinal direction, a transverse direction, or in the shape of a grid.

[Claim 15]

An information recording medium, characterized in that

a program that has a character input function is recorded, in which

a first character list display means for displaying a plurality of character information comprising characters applicable to a specific character type is displayed on a display means,

when any character in the first character list display means is instructed by an instruction means, a second character list display means showing character information more detailed than those in the first character list display means is displayed on a display means,

when any character in the second character list display means is instructed by the instruction means, a character type display means for displaying a character applicable to at least one other character type applicable to the instructed character is displayed on the display means, and

when a character of any character type in the character type display means is instructed by instruction means and detached from its position, the character information applicable to the character type currently displayed at the detached position in the character type display means is displayed on the first character list display means.

[Claim 16]

An information recording medium, characterized in that

a program that has a character input function is recorded, in which

a character list display means for displaying a plurality of character information applicable to a specific character type is displayed on a display means,

when any character in the character list display means displayed on the display means is continued to be instructed for a predetermined time by an instruction means, a character type display means for displaying a character applicable to at least one other character type applicable to the instructed character is displayed on the display means, and

when any character in the character type display means is instructed by the instruction means so as to slide on the character type display means and detached from its position, the character information applicable to the character type of a character displayed at the detached position in the character type display means is displayed on the character list display means.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

This invention relates to a character input device for inputting a character, a character input method, and an information recording medium in which a program that has a character input function is recorded.

[0002]

[Prior Art] In recent years, the development in the information industry triggered the active use of various information. For example, a personal computer, portable information terminal equipment (hereinafter will be called information equipment), and

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the like, are used to manage business and individual information and to further use this information. For example, when the above-mentioned information equipment is used as an example, this information equipment is operated by a user using a predetermined pointing device, for example, to operate a screen displayed by a predetermined software installed in a display unit provided to the information equipment. Such screens employ a user interface usually called a GUI (Graphical User Interface) to allow easy operation by a user. There has been much competition to improve performance and to make such information equipment smaller and smaller to allow easy portability by a user.

[0003] Thus, the smaller the information equipment is, the smaller the display surface area of a display unit naturally becomes. Therefore, the object to be displayed on a display unit by a predetermined software becomes small, deteriorating the operability of GUI, which is a drawback. For example, drawbacks in a software keyboard which is an object to be displayed on a display unit as an example will specifically be described below. A "software keyboard" refers to the software that has a keyboard function that can input a character into the information equipment.

[0004]

[Problem to be Solved by the Invention] FIG. 25-FIG. 27 are drawings respectively illustrating a conventional software keyboard in the display state displayed on a display unit. In FIG. 25, a software keyboard 106 has a full-width hiragana display area 107, a full-width katakana display area 108, and a half-width katakana display area 109, for example. Therefore, when the software keyboard 106 is displayed on a display unit having a small display area, each character becomes small and hard to see, so a large display area according to the character type such as hiragana and katakana, and full width and half width, becomes necessary.

[0005] In FIGS. 26(A)-(C), the software keyboard 106 is devised so that the character information of a plurality of character types is displayed on one screen in order to eliminate the drawback shown in FIG. 25. Therefore, the software keyboard 106 has a full-width hiragana button 106a, a full-width katakana button 106b, and a half-width katakana button 106c, for example, in addition to the display area for displaying the character information. With the software keyboard 106 shown in FIGS. 26 (A)-(C), a user needs to operate each button to display the character information by distinguishing the full-width hiragana, the full-width katakana, and the half-width katakana as a character type.

[0006] In FIG. 27, the software keyboard 106 is provided with input sections (a voiced sound key 106e and a p - sound key 106f, or a small character button 106b [sic: d] shown in FIG. 27) in order to reduce the size of display area of the character information as shown in FIGS. 26 (A)-(C); these input sections are used for adding a voiced sound mark or a P-sound consonant mark, or for converting an upper case display to a lower case display or vice versa in the software keyboard capable of inputting Roman alphabets. In such a software keyboard 106, a user must switch to the character information according to the desired character type every time.

[0007] The objective of the present invention is to eliminate the problems described above and to provide a character input device that can perform a character input simply and correctly and has a small display area of a character list display means, as well as to provide a character input method, and an information recording medium for storing a program having a character input function.

[0008]

[Means for Solving the Problem] In the present invention, the objective described above is achieved by a character input device for instructing and inputting a desired character by an instruction means for instructing any character of the character information, in a state where a plurality of the character information comprising characters applicable to a specific character type are displayed on a display means, characterized in that the character input device has a character information storing means for storing the character information, and a character information display means for displaying a character list display means for displaying the character information in a list and a character type display means for displaying a character applicable to at least one character type for any character of the character information on a display means ; wherein the character list display means for displaying a plurality of character information comprising characters applicable to a specific character type is displayed on a display means; when any character in the character list display means is instructed by the instruction means, a character type display means for displaying a character applicable to at least one other character type applicable to the instructed character is displayed on a display means; and when a character applicable to any character type in the character type display means is instructed to be detached by the instruction means, the character information applicable to the character type of the character displayed at the detached position is displayed on a character list display means.

[0009]

In this invention, a character list display means for displaying a plurality of character information comprising characters applicable to a specific character type is displayed on a display means. A user instructs any character of the character list display means by an instruction means. Then, a character type display means for displaying the character applicable to at least one other character type applicable to the character instructed by the instruction means is displayed on a display means. A user instructs a desired character of the character type display means by the instruction means and detaches the instruction means. Thereby, the character information applicable to the character type of the character currently displayed at the detached position in the character type display means is displayed on the display means.

[0010]

[Mode for Carrying Out the Invention]

Preferred embodiments of this invention will be described in detail below based on the accompanying drawings.

The embodiments described below are the preferred examples of this invention with various technically preferred limitations; however, the scope of this invention is not limited to these embodiments as long as there is a specific statement to that effect.

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[0011] In the following descriptions, a “character type” refers to the combination of a straight syllable, a voiced sound, a p‑ sound in the kana syllabary, a contracted sound, a geminate consonant, a conventional special character, a hiragana, katakana, the full width and half width thereof in the case of Japanese character input, and refers to upper and lower cases in the case of other language input (for example, English). The “character information” refers to a plurality of characters for each character type. It is described below that a keyboard is displayed by a software in order to enter characters in an information equipment; however, a “key” shall refer to a key displayed by a software applicable to the key of typical keyboard key (softkey).

[0012]

First Embodiment

FIG. 1 is a perspective view showing the state of inputting a character to a character input device as a first embodiment of this invention.

The character input device 1 is information equipment for managing portable information, for example. The character input device 1 has a main body 1a as a housing, a tablet 7 (instruction means) provided on one surface of the main body 1a, and a display unit 5 (display means) provided between the tablet 7 and the main body 1a so as to closely attached to the tablet 7. The display unit 5 is a liquid crystal display, for example, and a software keyboard 6 (character list display means as a part of program that has a character input function) as a character input software that will be described below is displayed. The main body 1a has a control circuit 8 as shown in FIG. 2 mentioned below in the inside.

[0013] FIG. 2 is a configuration diagram showing a configuration example of a simplified control circuit in the character input device of FIG. 1.The control circuit 8 has a control unit 9, a storage unit 11, an external storage unit 13, the tablet 7 (instruction means), and the display unit 5 (display means). The control circuit 8 may be a configuration provided with a mouse as a pointing device of the display unit 5, or the like, in place of the tablet 7.

[0014] The control unit 9 is a CPU (central processing unit), for example. The control unit 9 is connected to the storage unit 11, the external storage unit 13, the tablet 7, and the display unit 5. The control unit 9 controls the entire character input device 1 based on the information, and the like, recorded in the storage unit 11.

[0015] The storage unit 11 is a RAM (Random Access Memory) or ROM (Read Only Memory), for example. The storage unit 11 is a workspace for the software keyboard 6 (and the operating system, or the like) to operate.

[0016] The external storage unit 13 is a hard disk, for example. The external storage unit 13 stores the software keyboard 6 mentioned above. When the software keyboard 6 is launched, it operates on the storage unit 11 by the control unit 9, for example. The software keyboard 6 will be described below.

[0017] The tablet 7 is a pen touch-type touch panel, for example. This tablet 7 is an input device in which a user touches a predetermined position of the tablet 7 with a pointing device 3 (instruction means) of a pen type having a sharp point form, for example, a voltage generated at a predetermined electrode changes by the contact of an upper and lower two-layer resistance layer, and the control unit 9 shown in FIG. 2 mentioned below recognizes the position. The tablet 7 is a transparent component, and the display unit 5 is arranged at the lower layer thereof. Thereby, a user can visually recognize the display of the display unit 5 via the transparent tablet 7.

[0018] FIG. 3 is a functional block diagram illustrating the functional example of the software keyboard of FIG. 1. The software keyboard 6 has a drag menu information table 17 (character information storing means) and a character information display means 19. A “drag” in the description below refers to a state when a user contacts the tip 3a of the pointing device 3 to the software keyboard 6, or the like, displayed on the display unit 5, for example, and slides the top of the surface of the tablet 7.

[0019] The drag menu information table 17 stores the characters for each character type, for example. The information (hereinafter will be called drag menu information) of the drag menu information table 17 for displaying the drag menu 18 when the drag menu 18 (character type display means) shown in FIG. 8 is displayed is read by the character information display means 19 that will be described below. The form shown in FIG. 4 is an example of the drag menu information. That is, characters for each character type applicable to the key pressed in the software keyboard 6 when the tablet 7 is touched (hereinafter will be referred to the task when the software keyboard 6 is instructed with the pointing device 3) are stored.

[0020] The character information display means 19 is a software that uses the storage unit 11 as a workspace by the control of the control unit 9 shown in FIG. 2, for example. The character information display means 19 searches the drag menu information table 17 when the software keyboard 6 is displayed on the display unit 5 shown in FIG. 1, displaying the character information for each character type as shown in FIGS. 6 (A)-(C), for example. The character information display means 19 searches the drag menu information table 17 and displays the drag menu information when the drag menu 18 shown in FIG. 8, for example, is displayed after a user touches the tablet 7 (this position is called the first position A), when the software keyboard 6 is displayed on the display unit 5 (FIG. 7).

[0021] The character information display means 19 displays a screen shown in FIG. 8 as the drag menu 18 on the display unit 5. This drag menu 18 searches the drag menu information table 17 shown in FIG. 4 based on the character touched with the pointing device 3 and displays characters applicable to all character types. The drag menu 18 preferably searches the drag menu information table 17 of FIG. 4 to be classified into each character type (selection options of the drag menu shown in FIG. 4) by some character units as shown in FIG. 8. This is done so that a user can easily recognize the character for each character type when using the software keyboard 6.

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