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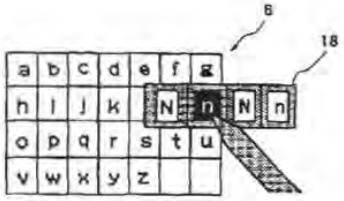

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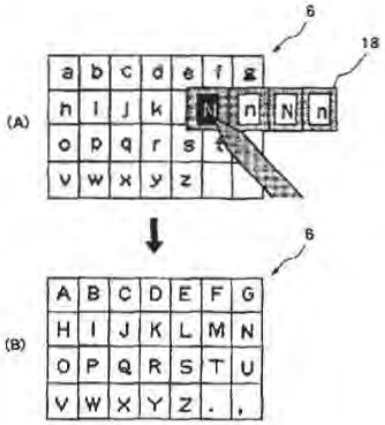
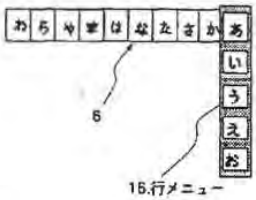


【図１３】

【図１４】



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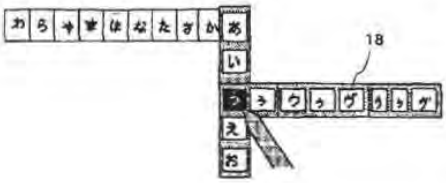

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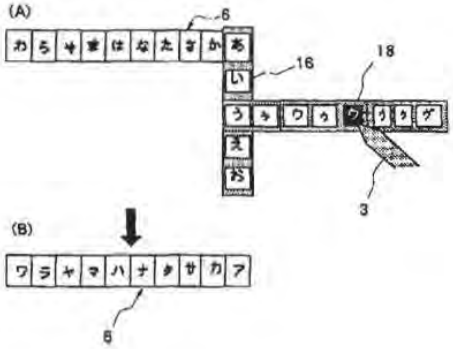
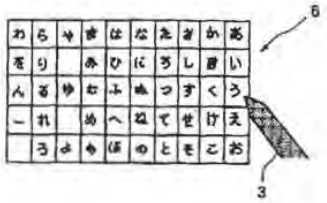


【図１７】

【図１８】



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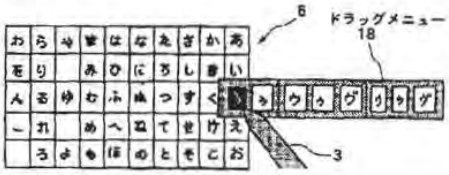
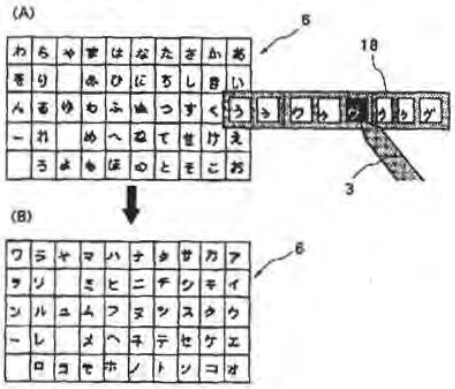


【図２０】



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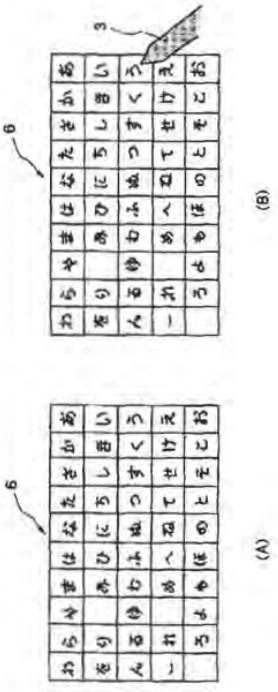
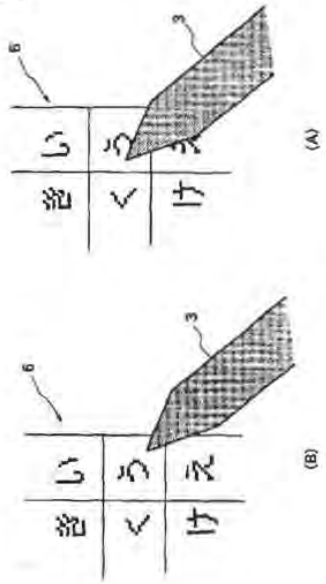


【図２２】



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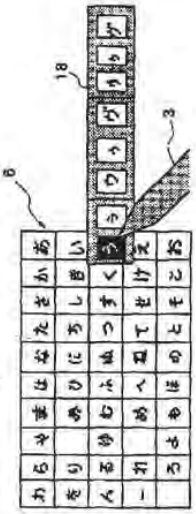
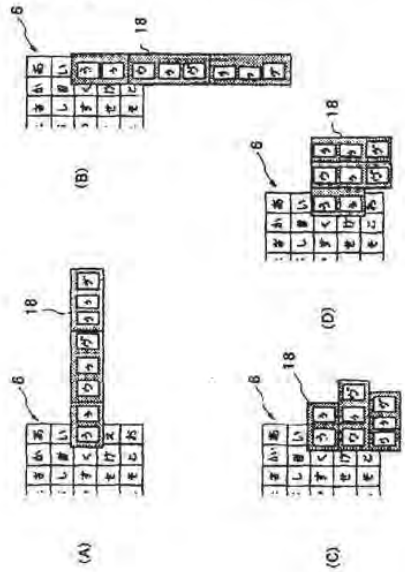


【図２４】



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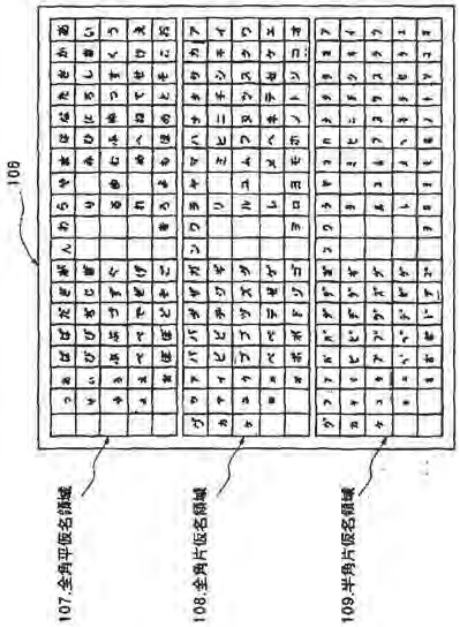
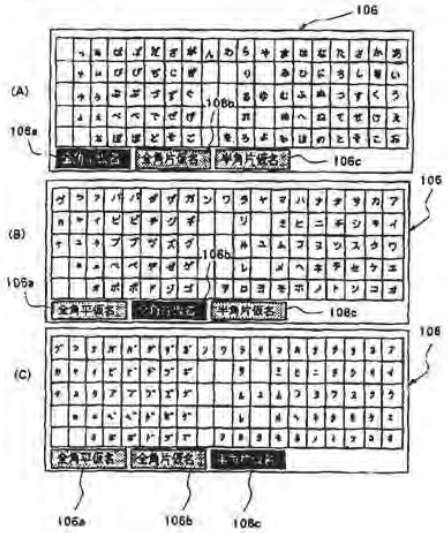
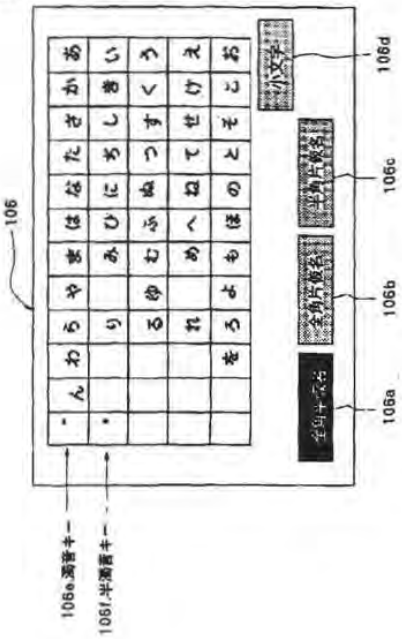


【図２６】



【図２７】



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H03M 11/04-11/24

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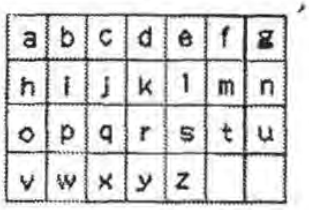
(73)特許権者　000002185
ソニー株式会社
東京都港区港南１丁目７番１号
(74)代理人　100094053
弁理士　佐藤　隆久
(72)発明者　坂田　雅章
神奈川県横浜市保土ヶ谷区神戸町１３４番地　ソニー・エルエスアイ・デザイン株式会社内

審査官　篠塚　隆

(56)参考文献　特開平０７－２００１２３(ＪＰ，Ａ)
特開平０９－０８１３２０(ＪＰ，Ａ)
特開平０９－０４４２８５(ＪＰ，Ａ)
最終頁に続く

(54)【発明の名称】文字入力装置、文字入力方法及び文字入力機能を有するプログラムを記録した情報記録媒体

【図１０】



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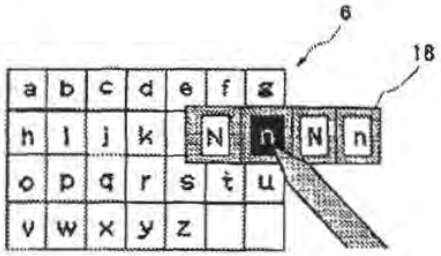
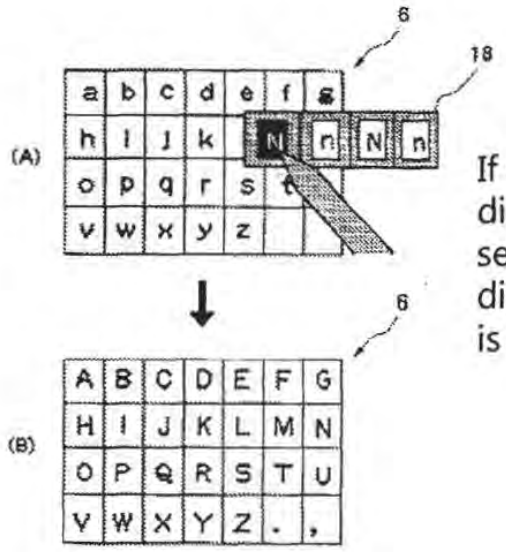


Actually the invention didn't disclose concept of 'pre-determined time'. However, it disclosed similar concept to select secondary character corresponding to one key button.

Figure 11 disclosed a example of the invention, if user select character 'n' in a keyboard display by using pen or his finger, then selectable other characters are displayed along with original character(in this case 'n').

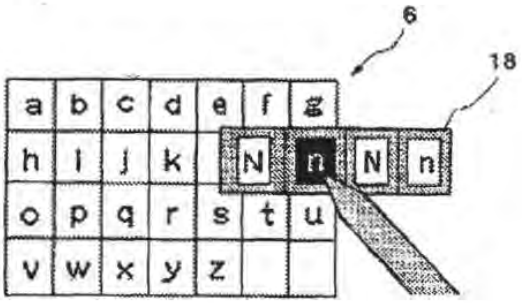
So, if user takes his pen off while selecting 'n' then original character(primary character) is selected.

【図１２】



If user select other character while displaying selectable candidates, then selected character (secondary character) is displayed or corresponding new key board is displayed.

【図１１】



When user selects one of the character of the keyboard, primary character is selected basically. And user has to move his pen to select secondary character.

The patent doesn't disclose timing concept, but selecting secondary character via primary character of keyboard is obvious in light of the invention.

Patent Record Full View Tuesday, March 18 2014 THOMSON INNOVATION

Patent/Publication: JP0401951 2B2

Bibliography

DWPI Title

Input of characters for text composition from soft keyboard over touch-type display avails several character sets requisitioned through separately displayed menu

Assignee/Applicant

Original: SONY CORP, JP

DWPI Assignee/Applicant

SONY CORP (SONY-C)

DWPI Inventor

SAKATA M

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2007-12-12 (B2)

DWPI Accession / Update

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JP1998227000A / 1998-08-11

Priority Number / Date / Country

JP1998227000A / 1998-08-11 / JP

Abstract

DWPI Abstract

(JP2000056912A_)

Novelty

A character set (6) is presented over a touch-type display screen in a tabular form. Individual characters can be chosen through a stylus, manually from the array. By contacting one of a special subset of characters in the particular array, a separate menu (18) is brought forward onto the display, from which menu of a different character set (6B) can be generated.

Use

Portable computers come with specialized software/interfaces that accept manual inputs through a hand held stylus, for instance characters pertaining to Japanese language.

Advantage

It leads to accurate composition of text through an operationally simple procedure, accessing characters classified under specific formats.

Drawing Description

The figure shows the typical perspective view of character input unit.

18 - Menu.

6A, B - Tabular arrays of characters.

Classes/Indexing

IPC

Current IPC	Invention	Version	Additional	Version
Full	G06F 3/023 H03M 11/04 G06F 3/00 G06F 3/041 G06F 3/048 G06F 17/22	20060101 20060101 20060101 20060101 20060101 20060101	-	-
Main Group	-	-	-	-
Subclass	-	-	-	-

Original IPC	Invention	Version	Additional	Version
Advanced/Full	G06F 3/023 G06F 3/041 G06F 3/048 G06F 17/22 H03M 11/04	20060101 20060101 20060101 20060101 20060101	-	-
Core/Main Group	G06F 3/023 G06F 3/041 G06F 3/048 G06F 17/22 H03M 11/04	20060101 20060101 20060101 20060101 20060101	-	-
Subclass	-	-	-	-

DWPI Manual Codes

Expand DWPI Manual Codes

Legal Status

INPADOC Legal Status

Gazette Date	Code	Description
2010-10-05	LAPS -	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES
2007-10-11	FPAY +	RENEWAL FEE PAYMENT (PRS DATE IS RENEWAL DATE OF DATABASE) PAYMENT UNTIL: 20101005

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2007-10-05	FPAY +	RENEWAL FEE PAYMENT (PRS DATE IS RENEWAL DATE OF DATABASE) PAYMENT UNTIL: 20101005
2007-10-04	A61 +	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE) JAPANESE INTERMEDIATE CODE: A61 2007-09-17
2007-09-05	A01 +	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL) JAPANESE INTERMEDIATE CODE: A01 2007-09-04
2007-08-29	TRDD +	DECISION OF GRANT OR REJECTION WRITTEN
2007-08-18	A521	WRITTEN AMENDMENT JAPANESE INTERMEDIATE CODE: A523 2007-08-17
2007-06-20	A131 -	NOTIFICATION OF REASONS FOR REFUSAL JAPANESE INTERMEDIATE CODE: A131 2007-06-19
2007-06-14	A977	REPORT ON RETRIEVAL JAPANESE INTERMEDIATE CODE: A971007 2007-06-14
2005-03-01	A621 +	WRITTEN REQUEST FOR APPLICATION EXAMINATION JAPANESE INTERMEDIATE CODE: A621 2005-02-28

Get Family Legal Status

Family

Family

Expand INPADOC Family (2)

Expand DWPI Family (2); Countries (1)

Claims

Claims

Collapse All Claims (16)

Claims (English)

1. It is a character input device for instruct|indicating and inputting a desired character by the indication means for instruct|indicating the arbitrary characters of character information in the state which each displayed several character information comprised in the character applicable to a specific character classification on the display means,
Comprising:
A character-information storing means to store character information,
The character-information display means for displaying the character list display means for displaying character information as a list, and the character classification display means for displaying the character applicable to at least 1 character classification in the arbitrary characters of character information on a display means,
It has these,
The character list display means for displaying several character information comprised in the character applicable to a specific character classification is displayed on a display means,
Indication means' instruction|indication of the arbitrary characters of the character list display means will display the character classification display means for displaying the character applicable to at least 1 other character classification corresponding to the instruct|indicated character on a display means,
If the character applicable to the arbitrary character classification of the character classification display means is instruct|indicated and released|separated by indication means, the character information applicable to the character classification of the character which was being displayed on the released|separated position will be displayed on a character list display means.
The character input device characterized by the above-mentioned.

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2. Character classification is a combination of a unvoiced sound, a voiced sound, a semivoiced consonant sound, palatal sounds or assimilated obstruent sound, and a full-size hiragana, a half-width hiragana, full-size katakana or half-width katakana, when inputting a Japanese language,
When inputting the language of other than that, they are a capital letter and a small letter.
The character input device of Claim 1.

3. The character for every character classification displayed on a character classification display means is each arranged the vertical direction, a horizontal direction, or in the shape of squares.
The character input device of Claim 1.

4. Indication means is the pointing device or mouse pointer instruct|indicated with respect to a tablet.
The character input device of Claim 1.

5. It is a character input device for instruct|indicating and inputting a desired character by the indication means for instruct|indicating the arbitrary characters of character information in the state which each displayed several character information comprised in the character applicable to a specific character classification on the display means,
Comprising:
A character-information storing means to store character information,
The character-information display means for displaying the 1st character list display means for displaying character information as a list, and the character classification display means for displaying the character applicable to at least 1 character classification in the arbitrary characters of character information on a display means,
It has these,
The 1st character list display means for displaying several character information comprised in the character applicable to a specific character classification is displayed on a display means,
Indication means' instruction|indication of the arbitrary characters of the 1st character list display means will display a 2nd character list display means to represent character information more detailed than a 1st character list display means on a display means,
Indication means' instruction|indication of the arbitrary characters of the 2nd character list display means will display the character classification display means for displaying the character applicable to at least 1 other character classification corresponding to the instruct|indicated character on a display means,
If the character of the arbitrary character classification of the character classification display means is instruct|indicated by indication means and released|separated from the position, the character information applicable to the character classification currently displayed on the position released|separated in the character classification display means will be displayed on a 1st character list display means.
The character input device characterized by the above-mentioned.

6. It is a character input device for instruct|indicating and inputting a desired character by the indication means for instruct|indicating the arbitrary characters of character information in the state which each displayed several character information comprised in the character applicable to a specific character classification on the display means,
Comprising:
A character-information storing means to store character information,
The character-information display means for displaying the character list display means for displaying character information as a list, and the character classification display means for displaying the character applicable to at least 1 character classification in the arbitrary characters of character information on a display means,
It has these,
The character list display means for displaying several character information applicable to a specific character classification is displayed on a display means,
A character classification display means for the arbitrary characters of the character list display means displayed on the display means to display the character which corresponds to at least 1 other character classification corresponding to the pre-determined character instruct|indicated when a time instruction|indication continued being carried out by indication means is displayed on a display means,
The arbitrary characters of the character classification display means are instruct|indicated to slide a character classification display means by indication means,

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If it releases|separates from the position, the character information applicable to the character classification of the character which was being displayed on the position released|separated in the character classification display means will be displayed on a character list display means.
The character input device characterized by the above-mentioned.

7. The character list display means for displaying several character information comprised in the character applicable to a specific character classification is displayed on a display means,
Indication means' instruction|indication of the arbitrary characters of the character list display means will display the character classification display means for displaying the character applicable to at least 1 other character classification corresponding to the instruct|indicated character on a display means,
If the character applicable to the arbitrary character classification of the character classification display means is instruct|indicated and released|separated by indication means, the character information applicable to the character classification of the character which was being displayed on the released|separated position will be displayed on a character list display means.
The character input method characterized by the above-mentioned.

8. Character classification is a combination of a unvoiced sound, a voiced sound, a semivoiced consonant sound, palatal sounds or assimilated obstruent sound, and a full-size hiragana, a half-width hiragana, full-size katakana or half-width katakana, when inputting a Japanese language,
When inputting the language of other than that, they are a capital letter and a small letter.
The character input method of Claim 7.

9. The character for every character classification displayed on a character classification display means is each arranged the vertical direction, a horizontal direction, or in the shape of squares.
The character input method of Claim 7.

10. The 1st character list display means for displaying several character information comprised in the character applicable to a specific character classification is displayed on a display means,
Indication means' instruction|indication of the arbitrary characters of the 1st character list display means will display a 2nd character list display means to represent character information more detailed than a 1st character list display means on a display means,
Indication means' instruction|indication of the arbitrary characters of the 2nd character list display means will display the character classification display means for displaying the character applicable to at least 1 other character classification corresponding to the instruct|indicated character on a display means,
If the character of the arbitrary character classification of the character classification display means is instruct|indicated by indication means and released|separated from the position, the character information applicable to the character classification currently displayed on the position released|separated in the character classification display means will be displayed on a 1st character list display means.
The character input method characterized by the above-mentioned.

11. The character list display means for displaying several character information applicable to a specific character classification is displayed on a display means,
A character classification display means for the arbitrary characters of the character list display means displayed on the display means to display the character which corresponds to at least 1 other character classification corresponding to the pre-determined character instruct|indicated when a time instruction|indication continued being carried out by indication means is displayed on a display means,
The arbitrary characters of the character classification display means are instruct|indicated to slide a character classification display means by indication means,
If it releases|separates from the position, the character information applicable to the character classification of the character which was being displayed on the position released|separated in the character classification display means will be displayed on a character list display means.
The character input method characterized by the above-mentioned.

12. The character list display means for displaying several character information comprised in the character applicable to a specific character classification is displayed on a display means,
Indication means' instruction|indication of the arbitrary characters of the character list display means will

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display the character classification display means for displaying the character applicable to at least 1 other character classification corresponding to the instruct|indicated character on a display means,
If the character applicable to the arbitrary character classification of the character classification display means is instruct|indicated and released|separated by indication means, the character information applicable to the character classification of the character which was being displayed on the released|separated position will be displayed on a character list display means.
The program which has a character inputting function was recorded.
The information recording medium characterized by these.

13. Character classification is a combination of a unvoiced sound, a voiced sound, a semivoiced consonant sound, palatal sounds or assimilated obstruent sound, and a full-size hiragana, a half-width hiragana, full-size katakana or half-width katakana, when inputting a Japanese language,
When inputting the language of other than that, they are a capital letter and a small letter.
The program which has a character inputting function was recorded.
The information recording medium of Claim 12.

14. The character for every character classification displayed on a character classification display means is each arranged the vertical direction, a horizontal direction, or in the shape of squares.
The program which has a character inputting function was recorded.
The information recording medium of Claim 12.

15. The 1st character list display means for displaying several character information comprised in the character applicable to a specific character classification is displayed on a display means,
Indication means' instruction|indication of the arbitrary characters of the 1st character list display means will display a 2nd character list display means to represent character information more detailed than a 1st character list display means on a display means,
Indication means' instruction|indication of the arbitrary characters of the 2nd character list display means will display the character classification display means for displaying the character applicable to at least 1 other character classification corresponding to the instruct|indicated character on a display means,
If the character of the arbitrary character classification of the character classification display means is instruct|indicated by indication means and released|separated from the position, the character information applicable to the character classification currently displayed on the position released|separated in the character classification display means will be displayed on a 1st character list display means.
The program which has a character inputting function was recorded.
The information recording medium characterized by the above-mentioned.

16. The character list display means for displaying several character information applicable to a specific character classification is displayed on a display means,
A character classification display means for the arbitrary characters of the character list display means displayed on the display means to display the character which corresponds to at least 1 other character classification corresponding to the pre-determined character instruct|indicated when a time instruction|indication continued being carried out by indication means is displayed on a display means,
The arbitrary characters of the character classification display means are instruct|indicated to slide a character classification display means by indication means,
If it releases|separates from the position, the character information applicable to the character classification of the character which was being displayed on the position released|separated in the character classification display means will be displayed on a character list display means.
The program which has a character inputting function was recorded.
The information recording medium characterized by these.

(Translation from Thomson Reuters)

Description

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DWPI Drawing Description

The figure shows the typical perspective view of character input unit.

18 - Menu.

6A, B - Tabular arrays of characters.

Drawing Description

Collapse Drawing Description

-

Description

Collapse Description

TECHNICAL FIELD of the Invention

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

PRIOR ART

In recent years, the use of various information is made by growth of the information industry.
For example, work and individual information are managed,
Furthermore, in order to utilize this information, the personal computer, the information personal digital assistant device (It omits below and calls an information-technology equipment), etc. are utilized, for example.
If the above-mentioned information-technology equipment is demonstrated as an example,
As for this information-technology equipment, a user uses a predetermined pointing device, for example,
It operates by the screen displayed by the predetermined software incorporated in the display part provided in the information-technology equipment being operated.
The user interface normally called GUI(Graphical User Interface) is employ|adopted and such a screen is tending to operate [come] a user.
While such an information-technology equipment improves performance, competition which achieves downsizing|reduced-size so that it may be easy to carry an individual is performed.

Thus, if an information-technology equipment is downsize|size-reduced, naturally the display surface product of a display part will become small.
Therefore, the display material displayed on a display part by a predetermined software becomes small, and there exists a fault that the operativity of GUI falls.
A soft keyboard is concretely demonstrated about the fault as an example as what is displayed on the following, for example, a display part.
In addition, a "soft keyboard" shall mean the software which has a keyboard function in which a character can be inputted into an information-technology equipment.

PROBLEM to be solved by the Invention

FIGS. 25-27 is a figure which shows the displaying condition of the conventional soft keyboard each displayed on a display part.
In FIG. 25, a soft keyboard 106 has the full-size hiragana display area|region 107, the full-size katakana

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display area|region 108, and the half-width katakana display area|region 109, for example.
Therefore, if a soft keyboard 106 is displayed on the small display part of a display surface product, requiring a big display surface product by character classification like that each character is hard to try to become small, a hiragana, katakana, full width, and half width will produce it.

In FIG. 26 (A)-(C), a soft keyboard 106 is made to display the character information of several character classification as one screen, in order to remove the fault of FIG. 25.
Therefore, a soft keyboard 106 has the full-size hiragana button 106a, the full-size katakana button 106b, and the half-width katakana button 106c, for example in addition to the display area|region for displaying character information.
In the soft keyboard 106 of FIG. 26 (A)-(C), although the full-size hiragana, the full-size katakana, and the half-width katakana as a character classification are distinguished and character information is displayed, a user needs to operate each button.

In FIG. 27, in order that a soft keyboard 106 may make small.the area of the display area|region of the character information of FIG. 26 (A)-(C), a voiced consonant mark and a semivoiced consonant mark are added,
Or the input part (It is each the voiced-sound key 106e and the semivoiced-consonant-sound key 106f, or the small letter button 106b of FIG. 27.) for indicating a small letter display or a small letter display to a capital letter display by a capital letter in the soft keyboard which can input a Roman alphabet etc., for example is provided.
In such a soft keyboard 106, an operator has to switch to the character information of desired character classification one by one.

Then, this invention eliminates the said subject,
A character input can be performed easily and correctly and it aims at providing the information recording medium which recorded the program which has the small character input device, the character input method, and character inputting function of a display surface product of a character list display means.

MEANS to solve the Problem

The said objective is the state which each displayed several character information comprised in the character applicable to a specific character classification in this invention on the display means, and it is a character input device for instruct|indicating and inputting a desired character by the indication means for instruct|indicating the arbitrary characters of character information,
Comprising:
A character-information storing means to store character information,
The character-information display means for displaying the character list display means for displaying character information as a list, and the character classification display means for displaying the character applicable to at least 1 character classification in the arbitrary characters of character information on a display means,
It has these,
The character list display means for displaying several character information comprised in the character applicable to a specific character classification is displayed on a display means,
Indication means' instruction|indication of the arbitrary characters of the character list display means will display the character classification display means for displaying the character applicable to at least 1 other character classification corresponding to the instruct|indicated character on a display means,
If the character applicable to the arbitrary character classification of the character classification display means is instruct|indicated and released|separated by indication means, the character information applicable to the character classification of the character which was being displayed on the released|separated position will be displayed on a character list display means,
It is achieved by the character input device characterized by the above-mentioned.

In this invention, the character list display means for displaying several character information comprised in the character applicable to a specific character classification is displayed on a display means.
A user instruct|indicates the arbitrary characters of a character list display means by indication means.

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Then, the character classification display means for displaying the character applicable to at least 1 other character classification corresponding to the character instruct|indicated by indication means is displayed on a display means.
A user instruct|indicates the desired character of a character classification display means by indication means, and releases|separates indication means.
Thereby, the character information applicable to the character classification of the character currently displayed on the position released|separated in the character classification display means is displayed on a display means.

EMBODIMENT of the Invention

Hereafter, the preferred embodiment of this invention is demonstrated in detail based on an accompanying drawing.
In addition, Embodiment described below is a suitable example of this invention,
Therefore
Preferable various limitation is attached technically,
However,
The range in particular of this invention is not restricted to these forms, as long as there is no description to the effect of limiting this invention in the following description.

During the following description, "character classification" shows the combination of a direct sound, a voiced sound, a semivoiced consonant sound, palatal sounds, assimilated obstruent sound, a usual special character, a hiragana, katakana, these and full width, and half width, when inputting a Japanese language,
In inputting the language (For example, English etc.) of other than that, it shows a capital letter and a small letter.
"Character information" shows several characters for every character classification.
In order to carry out a character input in an information-technology equipment by the following description, a keyboard is displayed by a software,
However,
"Ki" shall show a displaying-with software applicable to key of normal keyboard key (softkey).

1st Embodiment
FIG. 1 is a perspective view which shows a mode that a character is inputted with respect to the character input device as 1st Embodiment of this invention.
The character input device 1 is an information-technology equipment for managing portable information, for example.
The character input device 1 has the display part 5 (display means) provided between the tablet 7 and the main body 1a so that it might contact|adhere to the tablet 7 (indication means) provided in the 1 surface of the main body 1a as a housing, and the main body 1a, and a tablet 7.
The said display part 5 is a liquid crystal display, for example,
Soft keyboard 6 (The character list display means as a part of program which has a character inputting function) as a character input software mentioned later is displayed.
The said main body 1a has a control circuit 8 like FIG. 2 later mentioned to the inside.

FIG. 2 is a block diagram which shows the example of a structure which the control circuit in the character input device of FIG. 1 simplified.
The control circuit 8 has the control part 9, the storage part 11, the external storage part 13, a tablet 7 (indication means), and the display part 5 (display means).
In addition, a structure which is equipped what is called with a mouse|mouth as a pointing device of the display part 5 etc. may be sufficient as the control circuit 8 instead of a tablet 7.

The said control part 9 is CPU (central processing unit), for example.
The control part 9 is connected with the storage part 11, the external storage part 13, the tablet 7, and the display part 5.
The control part 9 is controlling the character input-device 1 whole based on the information recorded on the recording part 11.

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The said storage parts 11 are RAM(Randam Access Memory) and ROM(Read Only Memory), for example.
The storage part 11 is workspace for soft keyboard 6 (And operating system etc.) to operate|move.

The said external storage part 13 is a hard disk, for example.
The external storage part 13 stores the soft keyboard 6 mentioned above.
If a soft keyboard 6 is started, it will be operate|moved on the storage part 11, for example by the control part 9.
The description about a soft keyboard 6 is mentioned later.

The said tablet 7 is a touch panel of a pen touch type|mold, for example.
A user touches the predetermined position of a tablet 7 with this tablet 7 with the pointing device 3 (indication means) which carried out the shape where it was pen type and the destination sharpened,
When the resistance layer of about two layers of upper and lower sides contacts, the voltage produced in a predetermined electrode changes,
The control part 9 of FIG. 2 mentioned later is an input device which recognizes the position.
A tablet 7 is a transparent member,
The display part 5 is arrange|positioned at the lower layer.
Thereby, the user can visually recognize the display of the display part 5 now via the transparent tablet 7.

FIG. 3 is a functional block diagram illustrating the functional example of the soft keyboard of FIG. 1.
A soft keyboard 6 has the drag|drug menu information table 17 (character-information storing means) and the character-information display means 19.
It shall say a "drag|drug" being the state in which the user made the front-end|tip 3a of the pointing device 3 contact soft keyboard 6 grade|etc., displayed on the display part 5, for example, and sliding the surface top of a tablet 7 by the following description.

The said drag|drug menu information table 17 stores the character for every character classification, for example.
The information (henceforth drag|drug menu information) for the drag|drug menu information table 17 to display the drag|drug menu 18 when a drag|drug menu 18 (character classification display means) like FIG. 8 is displayed by character-information display means 19 to mention later is read.
As an example of drag|drug menu information, it is a format like FIG. 4.
That is, the character for every character classification corresponding to the key pressed in the soft keyboard 6 at the time of touch (Hereafter, it says having pointed to the soft keyboard 6 with the pointing device 3.) of the tablet 7 being carried out is stored.

The said character-information display means 19 is a software which uses the storage part 11 as workspace, for example by control of the control part 9 of FIG. 2.
When the character-information display means 19 displays a soft keyboard 6 on the display part 5 of FIG. 1, it searches the drag|drug menu information table 17,
For example, character information is displayed for every character classification like FIG. 6 (A)-(C).
As for the character-information display means 19, a user touches a tablet 7 in the state (FIG. 7) as which the soft keyboard 6 was displayed on the display part 5 (this position is called the 1st position A).
For example, when displaying a drag|drug menu 18 like FIG. 8, the drag|drug menu information table 17 is searched and drag|drug menu information is displayed.

The character-information display means 19 displays a screen like FIG. 8 as a drag|drug menu 18 on the display part 5.
This drag|drug menu 18 displays the character applicable to all the character classification which searches the drag|drug menu information table 17 of FIG. 4, and corresponds based on the character touched with the pointing device 3.
Drag|drug menu 18,
Preferably the drag|drug menu information table 17 of FIG. 4 is searched,
It is good to divide into each character classification (selection branch of the drag|drug menu which FIG. 4 displays) of every per some characters like FIG. 8.
This is for being easy to recognize the character for every character classification, when a user uses a soft keyboard 6.

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Although the example of a structure of the character input device was demonstrated above, the operation|movement is demonstrated below.
FIG. 5 is a flowchart which shows the detailed operation example of the character-information display means in the character input device of FIG. 1.
By the following description, a soft keyboard 6 demonstrates from the state (The state as which the soft keyboard 6 of FIG. 7 was displayed on the display part 5 of FIG. 1) already started in the character input device 1.
In FIG. 5, "=" is meaning substituting the variable of a right side to the variable of a left side rather than means equal sign.
"==" means comparing a left side and a right side.
Moreover, there exist the following as a variable used on the storage part 11 of FIG. 2 which comes into play during description.

Input_key variable : Definite input sentence character
Pressed_key variable: The pressed key
Menu_done variable : Flag showing in process of a drag|drug menu display

It is made (step ST1) and an input_key variable at a blank space in the state as which the soft keyboard 6 was displayed,
Let a pressed_key variable be an unfixed state,
False(It shows that the drag|drug menu 18 is non-display, and represents that the drag|drug menu 18 displays true.) is substituted to a menu_done variable (step ST2).

The control part 9 of FIG. 2 detects the state of whether to have been touched [user] in the key by the pointing device 3.
It is confirmed whether it was touched by the user in the key and the drag|drug menu 18 was displayed (step ST4).

If the drag|drug menu 18 is not displayed, it is judged whether the key (softkey) was pressed (step ST14).
If it does not push and returns and pushes on step ST3, the key (corresponding code|cord) pushed on the press_key variable will be substituted (step ST15), and the drag|drug menu information table 17 of FIG. 4 will be searched based on this press_key variable,
The drag|drug menu 18 showing an applicable character is displayed (step ST16).
And true is substituted to a menu_done variable (step ST17), and the character instruct|indicated by the pointing device 3 is reversed.

If the drag|drug menu 18 is displayed, it will be detected whether the user released|separated the pointing device 3 from the key (step ST5).
If it is not detecting and (step ST11) dragging whether the pointing device 3 dragged if it did not release|separate and is returning and dragging to step ST3, reversing display of the key from which it passed-through|fell-off by a drag|drug will be stopped,
The key which shows the area|region which approached by a drag|drug with a pointing device 3 is reverse-displayed (step ST12).
And the key (for example, character code) which approached is substituted to a pressed_key variable (step ST13).
And it progresses to step ST3.

If it releases|separates, a pressed_key variable will be substituted to an input_key variable (that is, information of the pressed key substitution).
According to the character classification (character seed|species) of (For example, it corresponds to a character code) character stored in the pressed_key variable, a soft keyboard 6 is re-displayed like either of the FIG. 6 (A)-(C) (step ST7).
And simultaneously, drag|drug menu 18 display is erase|eliminated (step ST8), and false is substituted to a menu_done variable (step ST9).
A pressed_key variable is made into an unfixed state (step ST10), and returns to step ST3.

The above demonstrates the internal processing of character-information display means 19 grade|etc.,

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in detail,
Next, operation|movement of the character input device 1 at the time of seeing from the user side is demonstrated.
A user is using the software which inputs a character.
The user is going to input desired character ("U" or "ヴ") with the pointing device 3 like FIG. 8.
However,
The character information of the character classification of a full-size hiragana is displayed on the character input device 1,
Therefore
A user touches "U" with a pointing device 3, in order to change a character classification on display.

As for a soft keyboard 6, the drag|drug menu 18 is displayed like FIG. 8 from the state of FIG. 7.
When a user touches the arbitrary characters of the drag|drug menu 18 with a pointing device 3 like FIG. 9 (A), (For example, drag the drag|drug menu 18 for a pointing device 3 from the 1st position A.),
The character information currently displayed on the soft keyboard 6 is changed into the character information which corresponds to the character classification of the character like FIG.9(B).
In addition, what is necessary is just to touch parts other than drag|drug menu 18 to eliminate|eradicate the drag|drug menu 18 like FIG. 7.

On the other hand, when a user tries to input an English character with the character input device 1
In the state (The state as which "character information" was displayed is shown in this description.) as which the soft keyboard 6 was displayed like FIG. 10, if "n" as a character which it is going to input is touched with a pointing device 3, the drag|drug menu 18 will be displayed like FIG. 11.
In addition, it displays as the drag|drug menu 18 of FIG. 11 from the left in order of full width "N", "n", half width "N", and "n."
This order of a display is order stored, for example in the drag|drug menu information table 17 of FIG. 4. (In FIG. 4, since it is an example, only the Japanese character is stored.).

A user is going to input "N" of full width like FIG. 12 (A), and touches "N" of the drag|drug menu 18.
Character classification becomes a display of full width like FIG.12(B) in a soft keyboard 6.

According to 1st Embodiment of this invention, the switching means (For example, button etc.) for switching the character classification required the part which can input a character with respect to the character input device 1 easily and correctly, and does not display character information for every character classification, and conventionally is unnecessary,
Being able to make small conventionally the display surface product of a soft keyboard 6, the operativity of GUI(Graphical User Interface) is good, and especially when especially the display area|region of the display part 5 is decided, it is effective.

2nd Embodiment
FIGS. 13-16 is a figure which shows the example of a display of the soft keyboard of the character input device as 2nd Embodiment of this invention.
The character input device 1 of FIGS. 13-16 is carrying out the same structure as 1st Embodiment,
The following points differ in the Japanese-language display method of the soft keyboard 6.
As for the display (1st character list display means) of the soft keyboard 6, only the head character of the Japanese kana syllabary is displayed like "A" and "KA" *** and "WA", for example like FIG. 13.
A user touches the head character of a desired character with a pointing device 3, and displays line drag|drug menu 16 (The 2nd character list display means abbreviated to the line menu 16 below) like FIG. 14.

A user touches the character of the same character classification as a desired character, and displays the drag|drug menu 18 like FIG. 15.
A user slides the drag|drug menu 18 for a pointing device 3 like FIG. 16 (A),
If the character ("ヴ") of desired character classification (katakana of full width) is touched with a pointing device 3, character classification will be changed into the katakana of full width like FIG.16(B).

According to 2nd Embodiment of this invention, in addition to the effect of 1st Embodiment, the display area|region of a soft keyboard 6 can be further made smaller than 1st Embodiment.

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3rd Embodiment
FIGS. 17-20 is a figure which shows the example of a display of the soft keyboard of the character input device as 3rd Embodiment of this invention.
The character input device 1 of FIGS. 17-20 is carrying out the same structure as 1st Embodiment,
The following points differ in the display method of the drag|drug menu 18 of the soft keyboard 6.

A soft keyboard 6 like FIG. 17 is displayed on the display part 5 of the character input device 1.
A user touches a desired character like FIG. 18 (releasing|separating immediately), and decides and inputs a character.

On the other hand, when changing the character classification displayed on a soft keyboard 6, as for a user, the drag|drug menu 18 is displayed in the place which touched arbitrary characters and passed for a fixed time with the pointing device 3 like FIG. 19.
The method to select character classification hereafter is the same as that of 1st Embodiment,
Character classification can be changed like FIG. 20 and character information can be displayed.

Clear in that a user inputs a character with a pointing device 3 in addition to the effect of 1st Embodiment, and displaying the drag|drug menu 18 according to 3rd Embodiment of this invention -- and it can carry out easily and quick.

4th Embodiment
FIGS. 21-23 is a figure which shows the example of a display of the soft keyboard of the character input device as 4th Embodiment of this invention.
The character input device 1 of FIGS. 21-23 is carrying out the same structure as 1st Embodiment,
In the display method of the drag|drug menu 18 of the soft keyboard 6, 1st Embodiment differs from the following points.

In the soft keyboard 6 displayed like FIG. 21 (A), if a user touches a desired character like FIG.21(B) and releases|separates immediately, a character will be selected and inputted.

In order to change the character classification currently displayed in the soft keyboard 6 and to display the drag|drug menu 18, a user instruct|indicates arbitrary characters ("U") for a pointing device 3 like FIG. 22 (A),
The area|region of "U" is then slid like FIG.22(B) -- making (it being made to drag) -- the drag|drug menu 18 is displayed like FIG. 23.
And the drag|drug menu 18 is displayed in this way, and the character classification of a character on display is changed like 1st Embodiment.
In addition, the direction dragged by a pointing device 3 is not restricted to what was mentioned above, but the contrary may be sufficient as it and it should just slide the inside of the area|region.

According to 4th Embodiment of this invention, the effect of 3rd Embodiment and the same effect can be raised.

By the way, this invention is not limited to Embodiment mentioned above.
In Embodiment mentioned above, the drag|drug menu 18 is arranged on the straight line about the substantially identical character like FIG. 24 (A),
For example, you may make it arrange in the vertical direction like FIG.24(B).
Moreover, the display method that the character for every character classification is horizontally arrange|positioned further perpendicularly [character] per character classification like FIG.24(C) may be sufficient as the drag|drug menu 18.
By arranging in this way, a character can be arranged in the narrow range.
Moreover, a character is perpendicularly arranged per character classification like FIG. 24 (D),
You may make it arrange|position each character classification unit transversely.
By arranging in this way, a character can be arranged in the narrow range.
In addition, it cannot be overemphasized that a form which is stored, for example in the compact disk or the floppy disk (flexible disc) may be sufficient as the program (soft keyboard 6) which has the above-mentioned character inputting function.

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ADVANTAGE of the Invention

As explained above, according to this invention, a character input can be performed easily and correctly and the information recording medium which recorded the program which has the small character input device, the character input method, and character inputting function of a display surface product of a character list display means can be provided.

BRIEF DESCRIPTION OF THE DRAWINGS

[FIG. 1]
The perspective view which shows a mode that a character is inputted with respect to the character input device as 1st Embodiment of this invention.
[FIG. 2]
The block diagram which shows the example of a structure which the control circuit in the character input device of FIG. 1 simplified.
[FIG. 3]
The functional block diagram illustrating the functional example of the soft keyboard of FIG. 1.
[FIG. 4]
The figure which shows the content of the drag|drug menu information table of FIG. 3.
[FIG. 5]
The flowchart which shows the detailed operation example of the character-information display means in the character input device of FIG. 1.
[FIG. 6]
The figure which shows the example of a display of the soft keyboard displayed on the display part of FIG. 1.
[FIG. 7]
The figure which shows the example of a display of the soft keyboard displayed on the display part of FIG. 1.
[FIG. 8]
The figure which shows the example of a display of the soft keyboard displayed on the display part of FIG. 1.
[FIG. 9]
The figure which shows the example of a display of the soft keyboard displayed on the display part of FIG. 1.
[FIG. 10]
The figure which shows the example of a display of the soft keyboard displayed on the display part of FIG. 1.
[FIG. 11]
The figure which shows the example of a display of the soft keyboard displayed on the display part of FIG. 1.
[FIG. 12]
The figure which shows the example of a display of the soft keyboard displayed on the display part of FIG. 1.
[FIG. 13]
The figure which shows the example of a display of the soft keyboard of the character input device as 2nd Embodiment of this invention.
[FIG. 14]
The figure which shows the example of a display of the soft keyboard of the character input device as 2nd Embodiment of this invention.
[FIG. 15]
The figure which shows the example of a display of the soft keyboard of the character input device as 2nd Embodiment of this invention.
[FIG. 16]
The figure which shows the example of a display of the soft keyboard of the character input device as 2nd Embodiment of this invention.
[FIG. 17]
The figure which shows the example of a display of the soft keyboard of the character input device as

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3rd Embodiment of this invention.
[FIG. 18]
The figure which shows the example of a display of the soft keyboard of the character input device as 3rd Embodiment of this invention.
[FIG. 19]
The figure which shows the example of a display of the soft keyboard of the character input device as 3rd Embodiment of this invention.
[FIG. 20]
The figure which shows the example of a display of the soft keyboard of the character input device as 3rd Embodiment of this invention.
[FIG. 21]
The figure which shows the example of a display of the soft keyboard of the character input device as 3rd Embodiment of this invention.
[FIG. 22]
The elements on larger scale of the soft keyboard of FIG. 21.
[FIG. 23]
The figure which shows a mode that the drag|drug menu was displayed.
[FIG. 24]
The figure which shows the modification of a display of a drag|drug menu.
[FIG. 25]
The figure which shows the displaying condition of the conventional soft keyboard displayed on a display part.
[FIG. 26]
The figure which shows the displaying condition of the conventional soft keyboard displayed on a display part.
[FIG. 27]
The figure which shows the displaying condition of the conventional soft keyboard displayed on a display part.

Description of Symbols

1*** character input device,
3*** pointing device,
5*** display part,
6*** soft keyboard (character list display means)
A 1st character list display means, a 7*** tablet, a 15*** character-information table (character-information storing means),
A 16*** line drag|drug menu (2nd character list display means), a 17*** drag|drug menu information table (character-information storing means), an 18*** drag|drug menu (character classification display means), a 19*** character-information display means
[FIG. 1]
[MAT_IMAGE 000002]
[FIG. 2]
[MAT_IMAGE 000003]
[FIG. 3]
[MAT_IMAGE 000004]
[FIG. 4]
[MAT_IMAGE 000005]
[FIG. 5]
[MAT_IMAGE 000006]
[FIG. 6]
[MAT_IMAGE 000007]
[FIG. 7]
[MAT_IMAGE 000008]
[FIG. 8]
[MAT_IMAGE 000009]
[FIG. 9]
[MAT_IMAGE 000010]

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[FIG. 10]
[MAT_IMAGE 000011]
[FIG. 11]
[MAT_IMAGE 000012]
[FIG. 12]
[MAT_IMAGE 000013]
[FIG. 13]
[MAT_IMAGE 000014]
[FIG. 14]
[MAT_IMAGE 000015]
[FIG. 15]
[MAT_IMAGE 000016]
[FIG. 16]
[MAT_IMAGE 000017]
[FIG. 17]
[MAT_IMAGE 000018]
[FIG. 18]
[MAT_IMAGE 000019]
[FIG. 19]
[MAT_IMAGE 000020]
[FIG. 20]
[MAT_IMAGE 000021]
[FIG. 21]
[MAT_IMAGE 000022]
[FIG. 22]
[MAT_IMAGE 000023]
[FIG. 23]
[MAT_IMAGE 000024]
[FIG. 24]
[MAT_IMAGE 000025]
[FIG. 25]
[MAT_IMAGE 000026]
[FIG. 26]
[MAT_IMAGE 000027]
[FIG. 27]
[MAT_IMAGE 000028]

(Translation from Thomson Reuters)

Citations

Citation *Record level*

Citing Patents (0)

Expand Cited Patents (3)

Cited Non-patents (0)

Other

DWPI Title Terms

INPUT CHARACTER TEXT COMPOSITION SOFT KEYBOARD TOUCH TYPE DISPLAY SET THROUGH SEPARATE MENU

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Custom Fields

Philips fam no

-

Business Classification

-

Technology Classification

-

Benchmark company name

-

Benchmark living status

-

Benchmark PSS

-

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(71)出願人　000005049
シャープ株式会社
大阪府大阪市阿倍野区長池町22番22号

(72)発明者　牧野　房雄
大阪府大阪市阿倍野区長池町22番22号　シャープ株式会社内

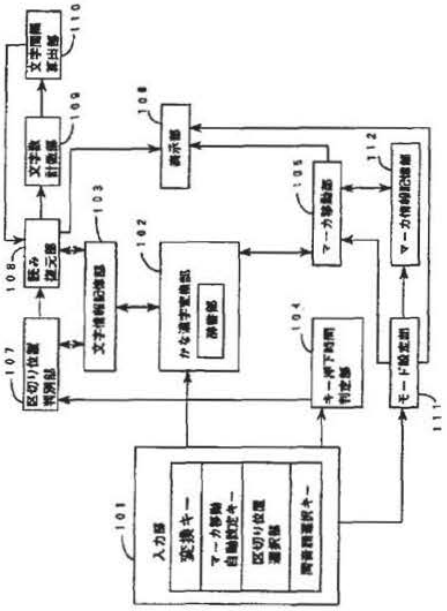
(74)代理人　弁理士　野河　信太郎

(54)【発明の名称】　かな漢字変換装置

(57)【要約】

【課題】　修補変換後の区切り位置の確認と変換修正する操作を簡単にする。

【解決手段】　辞書部を有し、入力かな文字例の文節となるすべての区切り位置を生成し、その区切り位置のかな文字例を漢字かな交じり文の候補に変換するかな漢字変換部と、入力かな文字例と生成された区切り位置とその変換候補等を記憶する文字情報記憶部と、入力部の変換キーの押下時間が所定時間内か否かを測定し判定するキー押下時間判定部と、変換候補の区切り位置を示すマーカを生成し、入力部の変換キーが所定時間以上押下されている際、マーカを一定周期で区切り位置毎に移動させるマーカ移動部と、かな文字例、区切り位置、マーカ、変換候補等表示する表示部とを備え、かな漢字変換部は変換キーの押下時間が所定時間内ならば同音語修補を変換し、同音語変換後、変換キーが所定時間以上押下され放たれた際、移動したマーカが示す区切り位置の修補を変換修正するよう構成される。



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【特許請求の範囲】

【請求項１】　単文節あるいは複数文節からなるかな文字列を入力する文字キー、変換、設定、選択等の指令を入力する機能キーを有する入力部と、

辞書部を有し、入力かな文字列の文節を辞書部で解析し文節となるすべての区切り位置を生成するとともに生成した区切り位置の文節に対応するかな文字列を漢字かな交じり文の候補に変換するかな漢字変換部と、

入力かな文字列と生成されたすべての区切り位置とその変換候補等を記憶する文字情報記憶部と、

入力部の変換キーの押下時間が所定時間内か否かを測定し判定するキー押下時間判定部と、

変換候補の区切り位置を示すマーカを生成し、入力部の変換キーが所定時間以上押下されている際、マーカを一定周期で区切り位置毎に移動させるマーカ移動部と、

かな文字列、区切り位置、マーカ、変換候補等を画面に表示する表示部とを備え、

前記かな漢字変換部は、変換キーの押下時間が所定時間内ならば同音語候補を変換し、同音語変換後、変換キーが所定時間以上押下され放たれた際、移動したマーカが示す区切り位置の候補を変換修正することを特徴とするかな漢字変換装置。

【請求項２】　前記変換キーが所定時間以上押下された際に一つの変換された候補上に二つ以上の区切り位置があるか否かを判別する区切り位置判別部と、一つの変換候補上に二つ以上の区切り位置が存在した際にこの変換候補を元の読み情報に復元する読み復元部とをさらに備え、

前記かな漢字変換部は、読み復元部により復元された読み情報の区切り位置を示すマーカが変換キー操作により選択された際、その区切り位置の候補を変換修正することを特徴とする請求項１記載のかな漢字変換装置。

【請求項３】　前記変換キーが所定時間以上押下された際に一つの変換された候補上に二つ以上の区切り位置があるか否かを判別する区切り位置判別部と、一つの変換候補上に二つ以上の区切り位置が存在した際にこの変換候補を元の読み情報に復元する読み復元部と、元の読み情報の文字数を計数する文字数計数部と、変換された候補の文字間隔を算出する文字間隔算出部とをさらに備え、

前記読み復元部は、候補の文字間隔内に収まるように元の読み情報の文字を拡大・縮小する機能を備えたことを特徴とする請求項１記載のかな漢字変換装置。

【請求項４】　前記入力部はマーカを候補変換後自動的に一定周期で区切り位置毎に移動させるためのマーカ移動自動設定キーと、区切り位置を選択しその区切り位置の候補を変換修正するための区切り位置選択キーとをさらに備え、

前記マーカ移動部はマーカ移動自動設定キーからの移動指令によりマーカを一定周期で区切り位置毎に移動させるとともに区切り位置選択キーからの選択指令により所望の区切り位置で選択停止させる機能を、前記かな漢字変換部は区切り位置選択キーにより選択された区切り位置に対応する候補を変換修正する機能をそれぞれ備えたことを特徴とする請求項１記載のかな漢字変換装置。

【請求項５】　前記入力部はマーカを候補変換後自動的に一定周期で区切り位置毎に移動させるためのマーカ移動自動設定キーと、区切り位置を選択しその区切り位置の文節を同音語に変換するための同音語選択キーとをさらに備え、

前記マーカ移動部はマーカ移動自動設定キーからの移動指令によりマーカを一定周期で区切り位置毎に移動させるとともに同音語選択キーからの選択指令により所望の区切り位置で選択停止させる機能を、前記かな漢字変換部は同音語選択キーにより選択された区切り位置に対応する文節を同音語候補に変換する機能を、それぞれ備えたことを特徴とする請求項１記載のかな漢字変換装置。

【請求項６】　前記マーカ移動自動設定キーにより候補変換後マーカを自動的に移動させるか変換キーの押下操作によって移動させるかを設定するモード設定部と、マーカの速度設定等のマーカ設定情報を記憶したマーカ情報記憶部とをさらに備え、前記表示部はマーカの速度設定及びマーカの自動移動／手動移動を設定するための設定画面を表示する機能を備えたことを特徴とする請求項１記載のかな漢字変換装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明はかな漢字変換装置に関し、詳しくは、ワードプロセッサ、パソコン、電子手帳、携帯情報端末、ＰＯＳ端末、ワークステーション等の文書情報処理装置に適用されるかな漢字変換装置に関する。

【０００２】

【従来の技術】従来、文書情報処理装置に適用されるかな漢字変換装置において、単文節や複数文節からなるかな文字列を漢字交じりの候補に変換する際、その文節の区切り方によっては、文章に関係しない候補に誤変換されるので、この誤変換を、意図する候補に修正するために使用者に余分な判断と複雑な操作を強いるという問題があった。従って、入力された文字列を意図する漢字交じりの候補に変換するための改善技術として、以下の従来例が提案されている。

【０００３】従来例１：特開平３－２９０５１号公報に記載のように、かな漢字変換する変換キーが一定時間、キーを押し続けると単語の区切りを変更する区切り変更手段を設け、同じキーで、変換と、区切り変更の２つを機能させる手段を設けた「かな漢字変換装置」が提案されている。図１５は従来例１のかな漢字変換例を示す説明図である。図１５に示すように、例えば、「このため」と入力し変換キーを押す。→『このため』→（変換

キーを押し続ける）→『このた目』→（変換キーを押し続ける）→『この為』というように、変換キーを一定時間押し続けると１文字づつ短くして強制区切り変更を行う。　従来例１では、つまり対象変換結果に対し読み文字を１文字づつ短くして強制分かち変換を行う。１文字づつ短くするのは該当単語の前からでも後ろからでもよい。この区切り変更は一般的には［シフト］キー＋［←］キーあるいは［機能］キー＋［←］キーなどにより文節短縮という名称で製品化されている。

【０００４】従来例２：特公平６－３５９５号公報に記載のように、区切り長さの異なる複数の部分読み入力文字または文字列の各々に対応して、部分変更候補文字または文字列を表示することを特徴とする「読み入力文字列の変換候補表示方法および装置」が提案されている。図１６は従来例２のかな漢字変換例を示す説明図である。図１６に示すように、例えば、「ていおんかんきょうに」と入力し変更キーを押す。→『低温感興に』→（修正操作）→　『低温＊』、　『低＊』→　を選択→『感興に』、　『環境に』、『間＊』→　を選択→『音感＊』→　を選択→『郷に』、『今日に』、『京に』

修正操作に入ると上記　『低温＊』、　『低＊』の表示を行いこのどちらかを選択すると、次に続く候補を表示し選択できるようにしたものである。従来例２では、部分入力文字または文字列の各々に対応させるとは、つまり連文節変換の変換結果の前のほうの最初の区切りの異なる候補を表示し、それぞれに対応づけして変換候補文字または文字列を表示し選択できるようにしたものである。

【０００５】従来例３：特開平３－２２６８５８号公報に記載のように、変換された異なる切り方の他のかな漢字まじり文字列の候補のうち、同一の切り方の複数候補を一つの候補に代表して表示し、その中から仮の候補を選択する手段を有する、「かな漢字変換修正方式」が提案されている。図１７は従来例３のかな漢字変換例を示す説明図である。図１７に示すように、例えば、「くるまではこをはこぶ」と入力し変更キーを押す。

『車⁀では｜子⁀を｜運ぶ』

『車⁀で｜箱⁀を｜運ぶ』

『来る⁀までは｜子⁀を｜運ぶ』

『来る｜間では｜子⁀を｜運ぶ』

変換された文字列と異なる切り方のたの文字列の候補のうち、同一の切り方の複数候補を１つの候補に代表して表示し、その中から仮の候補を選択する。従来例３では、区切り位置の異なる候補を表示し選択できるようにしたもの、つまり、変換結果の文節数が多い場合でも候補選択の範囲を限定するようなことはせず、どんなに候補の組み合わせが多くてもそれら候補を表示し選択するものである。

【０００６】

【発明が解決しようとする課題】しかしながら、従来例１の特開平３－２９０５１号公報に記載の「かな漢字変換装置」では、変換と区切り変更の２つの機能をもつ変換キーを押し続けたときに、区切り変更を行うことができるが、この区切り変更は該当文節の読み文字位置を無条件に１文字づつ短くし、再度かな漢字変換を行うもので、当初の変換文字列に対してかな漢字変換が有する文法的なつながりは無視されたものになり、正解に早く到達できるとは限らない。また、読み文字数が多い場合、例えば１０文字あった場合の５文字目が正解の区切り位置である場合には５回目でやっと正解に到達することになり、操作回数が多くなることがある。このように機械的に区切り位置を縮めて変換結果を出力していくため、所望の区切り位置の候補に到達するまでに何度も不要な候補が出力されるため、使い勝手が損なわれることが考えられる。

【０００７】また、従来例２の特公平６－３５９５号公報に記載の「読み入力文字列の変換候補表示方法および装置」では、入力された連文節変換において、前から順にカーソルを移動して所望の候補を選択していくため、カーソルを移動するという煩わしいものになっている。

【０００８】また、従来例３の特開平３－２２６８５８号公報に記載の「かな漢字変換修正方式」では、変換結果の文節数が多くなった場合には、組み合わせが多くなるため、所望の候補を選び出すのに手間がかかり使い勝手が悪くなる。

【０００９】従って、以下に詳述するような項目の改良が望まれていた。

（１）区切り位置がどこにあるか表示し、所望の候補を選択しやすくする。

（２）例えば、区切り位置毎にマーカを移動させ、区切り位置を分かりやすくし、所望の区切り位置の選択と変換をしやすくする。

（３）最初の変換は、区切り位置と、第一位の変換候補だけの必要最小限の表示にとどめ、所望の区切り位置の選択あるいは同音語の選択が必要になったときにマーカにより位置を明示し、候補数が多くても所望の候補を容易に選択できるようにする。

（４）一つの変換候補（漢字）上に二つの区切り位置が生じることがあるとき、変換修正するときは変換候補を読み情報に変え区切り位置を明確にする。

（５）例えば、区切り位置を示すマーカの移動を一定周期で自動的に行うようにし、マーカが所望の区切り位置にきたときに区切り位置を選択するキーを押すことにより、区切り位置の異なる変換候補を選択できるようにする。

（６）例えば、区切り位置を示すマーカの移動を一定周期で自動的に行うようにし、所望の区切り位置にきたときに同音語を選択するキーを押すことによりマーカの動きを止め同音語の選択を行えるようにする。

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（7）例えば、区切り位置を示すマーカの移動速度をユーザの最適な操作速度に合うよう設定できるようにする。また、マーカの移動を自動的に行うか、あるいはキーが押し続けられているときだけ移動するよう設定できるように選択肢を広げる。

【0010】本発明は以上の事情を考慮してなされたもので、変換する区切り位置をマーカで示すことにより、無駄な候補の表示を抑え、簡単な操作で意図する候補に変換修正することが可能なかな漢字変換装置を提供するものである。

【0011】

【課題を解決するための手段】図1は本発明の基本構成を示すブロック図である。図1において、本発明は、単文節あるいは複数文節からなるかな文字列を入力する文字キー、変換、設定、選択等の指令を入力する機能キーを有する入力部101と、辞書部102aを有し、入力かな文字列の文節を辞書部102aで解析し文節となるすべての区切り位置を生成するとともに、生成した区切り位置の文節に対応するかな文字列を漢字かな交じり文の候補に変換するかな漢字変換部102と、　入力かな文字列と生成されたすべての区切り位置とその変換候補等を記憶する文字情報記憶部103と、入力部101の変換キー101aの押下時間が所定時間内か否かを測定し判定するキー押下時間判定部104と、変換候補の区切り位置を示すマーカを生成し、入力部101の変換キー101aが所定時間以上押下されている際、マーカを一定周期で区切り位置毎に移動させるマーカ移動部105と、かな文字列、区切り位置、マーカ、変換候補等を画面に表示する表示部106とを備え、前記かな漢字変換部102は、変換キー101aの押下時間が所定時間内ならば同音語候補を変換し、同音語変換後、変換キー101aが所定時間以上押下され放たれた際、移動したマーカが示す区切り位置の候補を変換修正することを特徴とするかな漢字変換装置である。

【0012】前記変換キー101aが所定時間以上押下された際に一つの変換された候補上に二つ以上の区切り位置があるか否かを判別する区切り位置判別部107と、一つの変換候補上に二つ以上の区切り位置が存在した際にこの変換候補を元の読み情報に復元する読み復元部108とをさらに備え、前記かな漢字変換部102は、読み復元部108により復元された読み情報の区切り位置を示すマーカが変換キー101a操作により選択された際、その区切り位置の候補を変換修正するよう構成されることが好ましい。

【0013】前記変換キー101aが所定時間以上押下された際に一つの変換された候補上に二つ以上の区切り位置があるか否かを判別する区切り位置判別部107と、一つの変換候補上に二つ以上の区切り位置が存在した際にこの変換候補を元の読み情報に復元する読み復元部108と、元の読み情報の文字数を計数する文字数計数部109と、変換された候補の文字間隔を算出する文字間隔算出部110とをさらに備え、前記読み復元部108は、候補の文字間隔内に収まるように元の読み情報の文字を拡大・縮小する機能を備えた構成にすることが好ましい。

【0014】前記入力部101はマーカを候補変換後自動的に一定周期で区切り位置毎に移動させるためのマーカ移動自動設定キー101bと、区切り位置を選択しその区切り位置の候補を変換修正するための区切り位置選択キー101cとをさらに備え、前記マーカ移動部105はマーカ移動自動設定キー101bからの移動指令によりマーカを一定周期で区切り位置毎に移動させるとともに区切り位置選択キー101cからの選択指令により所望の区切り位置で選択停止させる機能を、前記かな漢字変換部102は区切り位置選択キー101cにより選択された区切り位置に対応する候補を変換修正する機能を、それぞれ備えた構成にすることが好ましい。

【0015】前記入力部101はマーカを候補変換後自動的に一定周期で区切り位置毎に移動させるためのマーカ移動自動設定キー101bと、区切り位置を選択しその区切り位置の文節を同音語に変換するための同音語選択キー101dとをさらに備え、前記マーカ移動部105はマーカ移動自動設定キー101bからの移動指令によりマーカを一定周期で区切り位置毎に移動させるとともに同音語選択キー101dからの選択指令により所望の区切り位置で選択停止させる機能を、前記かな漢字変換部102は同音語選択キー101dにより選択された区切り位置に対応する文節を同音語候補に変換する機能を、それぞれ備えた構成にすることが好ましい。　前記マーカ移動部105は一定時間の間に再度、同音語選択キー101dあるいは変換対象文字列の入力などがない場合、マーカを再始動するよう構成してもよい。

【0016】前記マーカ移動自動設定キー101bにより候補変換後マーカを自動的に移動させるか変換キーの押下操作によって移動させるかを設定するモード設定部111と、マーカの速度設定等のマーカ設定情報を記憶したマーカ情報記憶部112とをさらに備え、前記表示部106はマーカの速度設定及びマーカの自動移動／手動移動を設定するための設定画面を表示する機能を備えた構成にすることが好ましい。

【0017】なお、本発明において、かな漢字変換部102は入力かな文字列の文節を辞書部で解析し文節となるすべての区切り位置を生成する区切り系列生成部を備えた構成にすることが好ましい。入力部101（変換キー101a、マーカ移動自動設定キー101b、区切り位置選択キー101c、同音語選択キー101dを含む）は、キーボード、マウス、ポインティングデバイス、ペン・タブレットからなる入力装置で構成される。かな漢字変換部102（辞書部102aを含む）、文字情報記憶部103、キー押下時間判定部104、マーカ

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移動部１０５、区切り位置判別部１０７、読み復元部１０８、文字数計数部１０９、文字間隔算出部１１０、モード設定部１１１、マーカ情報記憶部１１２は、ＣＰＵ、ＲＯＭ、ＲＡＭ、Ｉ／Ｏポート、カウンター、タイマーからなるマイクロコンピュータで構成される。上記ＲＯＭには、上記ＣＰＵが各部を制御するためのプログラムデータ、辞書部１０２ａのデータ、マーカの関連データ等が記憶されている。また、上記ＲＡＭには、制御処理に必要な途中経過や状態情報などが記憶される（文字情報記憶部１０３として機能する）。表示部１０６は、ＣＲＴディスプレイ、ＬＣＤ（液晶）ディスプレイからなる表示装置で構成される。

【００１８】本発明の構成の機能について更に説明すると、図１において、入力部１０１は単文節あるいは複数文節からなるかな文字列を入力する文字キー、変換、設定、選択等の指令を入力する機能キーを備えている。かな漢字変換部１０２は辞書部１０２ａを参照し入力かな文字列の文節を解析し文節となるすべての区切り位置を生成し、生成した区切り位置の文節に対応するかな文字列を漢字かな交じり文の候補に変換するものである。文字情報記憶部１０３は入力かな文字列、生成されたすべての区切り位置とその変換候補等を記憶するので、かな漢字変換部１０２で区切り位置の異なる文節を何度も変換する必要がない。キー押下時間判定部１０４は変換キー１０１ａの押下時間が所定時間内か否かを測定し判定する。判定結果、変換キー１０１ａが所定時間以上押下されていると判定した際、マーカ移動部１０５は変換候補の区切り位置を示すマーカを生成し、マーカを一定周期で区切り位置毎に移動させる。かな漢字変換部１０２は、変換キー１０１ａの押下時間が所定時間内ならば同音語候補を変換し、同音語変換後、変換キー１０１ａが所定時間以上押下され放たれ際、移動したマーカが示す区切り位置の候補を変換修正する。これにより、最初に変換された同音語変換が所望の変換候補でない場合、さらに、変換キー１０１ａを押下すれば、マーカを一定周期で区切り位置毎に移動させ、所望の区切り位置にマーカがあるときに変換キー１０１ａを放すことによりその区切り位置を選択し候補を変換修正することができる。従って、一つの変換キーで同音語および区切り位置の異なる変換候補を選択できる。また、最初の変換は、区切り位置と、第一位の変換候補だけの必要最小限の表示にとどめているため、不必要な変換次候補を表示させなくて済み、候補数が多くても所望の候補を容易に選択できる。

【００１９】前記変換キー１０１ａが所定時間以上押下された際に一つの変換された候補上に二つ以上の区切り位置があるか否かを判別する区切り位置判別部１０７と、一つの変換候補上に二つ以上の区切り位置が存在した際にこの変換候補を元の読み情報に復元する読み復元部１０８とをさらに備えた構成にすれば、前記かな漢字変換部１０２は、読み復元部１０８により復元された読み情報の区切り位置を示すマーカが変換キー１０１ａ操作により選択された際、その区切り位置の候補を変換修正するので、一つの変換候補（漢字）上に区切り位置が二つ以上存在するとき、同音語選択を行う変換キー１０１ａを押し続けて、マーカを移動させることにより、一度変換した候補が読み情報に復元され、その読み情報に含まれる区切り位置を選択してその候補を修正することができる。従って、一つの変換候補（漢字）上に二つの区切り位置が生じることがあるとき、変換修正するときは変換候補を読み情報に変え区切り位置を明確にすることできる。

【００２０】前記変換キー１０１ａが所定時間以上押下された際に一つの変換された候補上に二つ以上の区切り位置があるか否かを判別する区切り位置判別部１０７と、一つの変換候補上に二つ以上の区切り位置が存在した際にこの変換候補を元の読み情報に復元する読み復元部１０８と、元の読み情報の文字数を計数する文字数計数部１０９と、変換された候補の文字間隔を算出する文字間隔算出部１１０とをさらに備えた構成にすれば、前記読み復元部１０８は、候補の文字間隔内に収まるように元の読み情報の文字を拡大・縮小することができる。通常、文字表示は等間隔で行われているため、候補（漢字）を元の読み情報に復元した場合、マーカが左右に動き見づらくなるが、これにより、復元された入力かな文字列は元の候補の文字間隔内に収まるよう文字幅を変えて表示されるので、復元された読み情報に含まれる区切り位置が見やすくなり選択が容易になる。

【００２１】前記入力部１０１はマーカを候補変換後自動的に一定周期で区切り位置毎に移動させるためのマーカ移動自動設定キー１０１ｂと、区切り位置を選択しその区切り位置の候補を変換修正するための区切り位置選択キー１０１ｃとをさらに備えた構成にすれば、前記マーカ移動部１０５はマーカ移動自動設定キー１０１ｂからの移動指令によりマーカを一定周期で区切り位置毎に移動させるとともに区切り位置選択キー１０１ｃからの選択指令により所望の区切り位置で選択停止させるので、マーカ移動自動設定キー１０１ｂにより予めマーカが自動的に一定周期で区切り位置毎に移動するよう設定され、変換キーにより入力文字列が変換されると、マーカは区切り位置選択キー１０１ｃにより所望の区切り位置が選択されるまで移動し、区切り位置が選択されると同時にその区切り位置に対応する候補を変換修正することができる。

【００２２】前記入力部１０１はマーカを候補変換後自動的に一定周期で区切り位置毎に移動させるためのマーカ移動自動設定キー１０１ｂと、区切り位置を選択しその区切り位置の文節を同音語に変換するための同音語選択キー１０１ｄとをさらに備えた構成にすれば、前記マーカ移動部１０５はマーカ移動自動設定キー１０１ｂか

らの移動指令によりマーカを一定周期で区切り位置毎に移動させるとともに同音語選択キー１０１ｄからの選択指令により所望の区切り位置で選択停止させるので、マーカ移動自動設定キー１０１ｂにより予めマーカが自動的に一定周期で区切り位置毎に移動するよう設定され、変換キーにより入力文字列が変換されると、マーカは同音語選択キー１０１ｄにより所望の区切り位置が選択されるまで移動し、区切り位置が選択されると同時にその区切り位置に対応する文節を同音語候補に変換することができる。また、一定時間の間に再度、同音語選択キー１０１ｄあるいは変換対象文字列の入力などがない場合、マーカを再始動することもできる。

【００２３】前記マーカ移動自動設定キー１０１ｂにより候補変換後マーカを自動的に移動させるか変換キーの押下操作によって移動させるかを設定するモード設定部１１１と、マーカの速度設定等のマーカ設定情報を記憶したマーカ情報記憶部１１２とをさらに備え、前記表示部１０７はマーカの速度設定及びマーカの自動移動／手動移動を設定するための設定画面を表示する機能を備えているので、区切り位置を示すマーカを一定の時間間隔で自動的に移動させるか、例えば、変換キーが押し続けられているときに移動させるか設定画面で自動／手動のモード設定できる。また、マーカの移動速度（周期）をユーザ個人の最適な操作速度に合わせて設定することができる。

【００２４】

【発明の実施の形態】以下、図に示す実施例に基づいて本発明を詳述する。なお、本発明はこれによって限定されない。本発明は、主として、ワードプロセッサ、パソコン、電子手帳、携帯情報端末、ＰＯＳ端末、ワークステーション等の文書情報処理装置に適用される。

【００２５】図２は本発明のかな漢字変換装置の一実施例を示すブロック図である。図２において、１は文字の入力や機能の指定入力を行ったりするためのもの入力処理部であり、一般的にはキーボード、マウス、ポインティングデバイス、ペン・タブレット等からなる入力装置で構成される（図１の入力部として機能する）。２はキー押下時間判定部であり、入力処理部１で入力されたキーがかな漢字変換結果の区切り位置の異なる変換結果を選択するために同音語を選択するためのキー（変換次候補、前候補選択キーなどであるが以下同音語選択キーと呼ぶ）である場合に、キーの押され続けている時間を測定し、このキーが所定定時間以上押され続けた場合に区切り位置を示すマーカの移動を開始させるためのものである（図１のキー押下時間判定部として機能する）。変換あるいは同音語選択を行うキーを区切り位置を示すマーカの表示を行う手段とに使い分ける働きをする。

【００２６】３はモード設定部であり、入力処理部１より入力されたキーがモード設定キーと判断された場合に、設定画面を表示し、マーカの移動速度の変更や設定およびマーカの移動を一定周期で自動移動するか、キーが押され続けているときだけ移動するかの自動／手動設定を行う働きをする（図１のモード設定部として機能する）。４はプログラムデータ、辞書部のデータ、を記憶するいわゆるＲＯＭと、制御処理に必要な途中経過や状態情報などを記憶しておく書き込み可能なＲＡＭなどにより構成される記憶部である（図１の文字情報記憶部、マーカ情報記憶部としても機能する）。５は制御部であり、１チップＣＰＵで構成され、入力、表示、機能処理を制御する。制御部５の制御処理は記憶手段４に記憶しているプログラムデータより行われ、図１の区切り位置判別部、文字数計数部、文字間隔算出部としても機能する。

【００２７】６はかな漢字変換部であり、かな文字列の集まり、いわゆる変換対象文字列を漢字かな交じり文に変換する。本実施例においては、かな漢字変換部６は、幾つかの文節候補を一度に変換することのできる連文節変換の機能を有している。特に明記していないが、かな漢字変換部６の中には変換に必要な自立語辞書、固有名詞辞書、用例辞書などの辞書部も含まれている（図１のかな漢字変換部として機能する）。７は区切り系列生成部であり、かな漢字変換部６が文法的に作り出す文節のつながりをもとに、入力された変換対象文字列の区切り位置の異なる一連の候補を、最も確からしさの高い順に並べ、区切りの異なる候補選択がなされたときの指定出力順に表示選択できるようにするものである（かな漢字変換部の機能に含めてもよい）。

【００２８】８は表示部であり、ＬＣＤ（液晶）ディスプレイユニットあるいはＣＲＴディスプレイユニット等からなる表示装置で構成され、入力された文字の表示、機能キーに応じた処理の表示を行う（図１の表示部として機能する）。９は区切り位置を示すマーカの移動を行うマーカ移動部であり、マーカ移動部９は、同音語選択キーが押し続けられている場合に、一定周期でマーカを移動させ、同音語選択キーが押し続けられた後でキーが放されたとき（以下キーオフと呼ぶ）にマーカを止める働きと、マーカの移動が自動設定されていることを検知し、一定周期でマーカを移動させる機能を有する（図１のマーカ移動部として機能する）。１０は読み復元部であり、かな漢字変換部６に内蔵された辞書の単語の表記と読みを対応づけたテーブルをもとに同一候補（漢字）上に区切り位置が二つ以上あった場合に該当漢字の表示を読みに復元し、区切り位置を明示できるようにするものである（図１の読み復元部として機能する）。

【００２９】図３は本発明のかな漢字変換装置の変換処理手順を示すフローチャートである。また、図４から図７は本発明のかな漢字変換処理の表示例１～４を示す説明図である。また、図８は本発明の設定画面の表示例を示す説明図である。図３のフローチャートと図４～図７の表示例を用いて、本発明の具体的なかな漢字変換処理

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例1～5について説明する。図3において、以下のステップ301～319は各モジュール（機能部）として動作する。

ステップ301：変換対象判別モジュール
ステップ302：変換、同音語選択キー判別モジュール
ステップ305：キー状態検出処理モジュール
ステップ306：キーオフ検出モジュール
ステップ308：マーカ移動モード判別モジュール
ステップ309：かな漢字変換処理モジュール
ステップ310：区切り位置生成処理モジュール
ステップ311：漢字の読み復元モジュール
ステップ312：範囲設定処理モジュール
ステップ313：区切り位置選択キー判別モジュール
ステップ314：モード設定キー判別モジュール
ステップ316：自動マーカ移動設定モジュール
ステップ318：自動マーカ移動時間間隔設定モジュール
ステップ319：該当区切り変換候補出力処理モジュール

【0030】［かな漢字変換処理例1］ここでは、図4の表示例1に基づいて説明する。図3において、入力処理部1から図4に示すように、かな文字列「こ」が入力されると、制御部5は、これが、かな文字列かを判断し（ステップ301）、かな文字列であるので変換対象文字として記憶部4に記憶し結果を表示部8に出力表示する。以下同様に、図4の表示例1に示すかな文字列を処理する。「ここではいしゃが」の文字列が入力され、ここで変換のためのキー（同音語選択キーと同じ）が押されると、入力処理手部1は変換のためのキーかを判断し（ステップ302）、キー押下時間判定部2はキーの押されている時間を計測する（ステップ303）。

【0031】キーの押されている時間が一定時間以上か判定し（ステップ304）、一定時間以上でない場合は、かな漢字変換部6が起動され、また区切り系列生成部7により区切りの異なる候補を記憶するとともにかな漢字変換部6が生成した優先度の最も高い区切り位置の候補を表示部8に表示する。この結果を図4に示す。ここでキー押下時間判定部2が、一定時間以上と判断すると（ステップ304）、キー状態検出処理（ステップ305）により、変換キーが押し続けられた場合の処理として区切り位置を示すマーカの移動を行い、キーが押し続けられている間にこのマーカの移動をゆっくりとした一定周期で行い順次区切り位置の違う位置にマーカを移動していく（ステップ307）。

【0032】ここで、所望の区切り位置でキーオフされると（ステップ306）、その位置に該当する変換候補の第一位の候補出力処理（ステップ319）を行う。その結果を図4　に示す。区切り位置を示すマーカの移動の状態は、所望の区切り位置を選ぶまでにどのように動くかは、図4からに示す。区切り位置のある位置は最初の変換キーが押された時点で示されており、これと異なる目立つ表示でマーカの現在位置をはっきり明示している。

【0033】図9はキー押下時間判定部2の詳細ブロック図である。図9において、キーが押されるとキーコードが発生され、このキーコードが比較キーコードの記憶コードと比較され、一致した場合には時間カウントを時間設定されているカウント数だけ行い一定時間キーが押されているかを検出する。図4には表示していないが区切り位置を分かりやすくするために、上線でなく他の三角のマークで示したり上線の幅を変えたりして表示することも考えられる。

【0034】上記説明で変換を行うキーというのは変換および変換次候補（同音語）を選択するキーのことでキー名称にこだわるものではない。また、区切り位置の異なる候補列の出力方法として、1回目の変換は第1位の優先順位の候補表示だけで、いったんキーが放され、次に押し続けられたときに区切りの異なる候補の位置に順次マーカを移動させ選択を行う方法、あるいは変換対象文字列が入力され変換キーがいったん放されることなく押し続けられた場合に第1位の区切り候補を表示しその状態から順次マーカを次の候補へと移動する方法などが考えられる。従って、一つの変換キーで同音語および区切り位置の異なる変換候補を選択できる。また、最初の変換は、区切り位置と、第一位の変換候補だけの必要最小限の表示にとどめているため、不必要な変換次候補を表示させなくて済み、候補数が多くても所望の候補を容易に選択できる。

【0035】［かな漢字変換処理例2及び3］ここでは、図5の表示例2に基づいて説明する。上記かな漢字変換処理例1で変換キーが押し続けられているときに、一定時間間隔で次々と区切り位置を示すマーカを表示する場合に一つの変換候補（漢字）上に区切り位置が二つ以上存在する場合にその漢字を読み情報に復元してマーカ表示を行い、区切り位置の異なる変換候補を選択できるようにするものである。入力処理部1より変換対象文字列が入力されると、制御部5はこれを変換対象文字列として記憶部4に順次記憶していく。変換対象文字列「ここではきものを」と入力されるとこれらは上述の処理により変換対象文字列として記憶部4に記憶され結果を表示部8に表示する。

【0036】この状態で変換を行うキーが押されると（ステップ302）、変換対象文字列があるかどうか判断し、この場合には変換対象があるので、かな漢字変換部6、区切り位置生成部7により第1位の変換対象文字列を表示する。またこれと併せて図5に示すように、区切り位置の表示を変換結果の文字の上に上線で表示する。この状態で、変換を行うキーがある一定時間以上押されているかが判断され（ステップ304）、一定時間以上押されていると区切り位置を示すマーカが一定周期

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で移動する。表示画面上でのマーカの移動の状況を図5～に示す。図5に示すように、マーカが「履物」の「履」の上にきたときに、読み復元部10により、「履」は読み「はき」に置き換えられる（ステップ311）。

【0037】図10は読み復元部10の詳細ブロック図である。読み復元部10はまず、読み・表記対応テーブル検索手段により読み表記対応テーブルを検索し、該当する漢字、ここでは「履物」の「履」の読み「はき」を検索し、また文字数2、を記憶するとともに読み文字数より文字幅算出手段（文字間隔算出部）により表示の文字幅を算出し記憶する。表示部8は、この情報をもとに、漢字表記を読みに直しかつ読み文字の幅をはじめに表示していた「履」の表示幅に収まるように表示し、表示の伸縮が起こらない区切り位置の選択のしやすさを提供している。変換および同音語を選択するキーが押し続けられているとマーカは区切り位置を一定周期で動き続け所望の位置にマーカがきたときに、キーオフされると（ステップ306）、図5の表示例を該当区切り変換候補出力処理（ステップ319）により行う。

【0038】上述の説明で、区切り位置が一つの漢字に二つある場合に読み直して表示するのが、かな漢字変換処理例2であり、また、この読み文字をはじめに表示されていた漢字の表示幅で表示するのが、かな漢字変換処理例3である。従って、一つの変換候補（漢字）上に二つの区切り位置が生じることがあるとき、変換修正するときは変換候補を読み情報に変え区切り位置を明確にすることできる。また、復元された入力かな文字列は元の候補の文字間隔内に収まるよう文字幅を変えて表示されるので、復元された読み情報に含まれる区切り位置が見やすくなり選択が容易になる。

【0039】［かな漢字変換処理例4］ここでは、図6の表示例3に基づいて説明する。モード設定部3あるいはデフォルトで設定されているモードの状態を制御部5により判断し、自動のモードが設定されている場合に（ステップ312）、マーカの存在する位置で区切り位置選択キーが押されたとき、所望の区切り位置の変換結果を表示するものである。自動のマーカ移動が設定されていると、変換対象文字列が入力された後に変換を行うキーが押され、かな漢字変換処理（ステップ309）、区切り候補生成処理（ステップ310）、漢字の読み復元処理（ステップ311）が実行されると、図6の表示を行う。

【0040】この状態で、マーカ移動部9が制御部5により起動される。このときの表示画面を図6～に示す。マーカは一定周期で移動していく。マーカが所望の区切り位置にきたときに、区切り位置選択キーが押されると（ステップ313）、マーカ移動は自動か手動かが判断され、自動であることから該当の区切り変換候補出力処理が行われ（ステップ319）、結果を表示処理する。所望の区切り位置「歯医者」の「医」の所にマーカがきたときに区切り位置選択キーが押された場合の変換結果を図6に示す。従って、予めマーカが自動的に一定周期で区切り位置毎に移動するよう設定され、変換キーにより入力文字列が変換されると、マーカは区切り位置選択キーにより所望の区切り位置が選択されるまで移動し、区切り位置が選択されると同時にその区切り位置に対応する候補を変換修正することができる。

【0041】［かな漢字変換処理例5］ここでは、図7の表示例4に基づいて説明する。モード設定部3あるいはデフォルトで設定されているモードの状態を制御部5により判断し、自動のモードが設定されている場合に（ステップ312）、マーカの存在する位置で同音語選択キーが押されたとき、所望の区切り位置の変換結果の次候補あるいは前候補を表示するものである。自動のマーカ移動が設定されていると、変換対象文字列が入力された後に変換を行うキーが押され、かな漢字変換処理（ステップ309）、区切り候補生成処理（ステップ310）、漢字の読み復元処理（ステップ311）が実行されると、図7の表示を行う。

【0042】この状態で、マーカ移動部9が制御部5により起動される。このときの表示画面を図7～に示す。マーカは一定の時間間隔で移動していく。マーカが所望の区切り位置にきたときに、同音語選択キーが押されると（ステップ302）、マーカ移動は自動が手動かが判断され（ステップ308）、自動であることから該当位置の同音語の次候補あるいは前候補の選択処理が行われ（ステップ312）、結果を表示処理する。所望の区切り位置「ここで」の最初の「こ」の所にマーカがきたときに同音語選択キーが押された場合の変換結果を図7に示す。従って、予めマーカが自動的に一定周期で区切り位置毎に移動するよう設定され、変換キーにより入力文字列が変換されると、マーカは同音語選択キーにより所望の区切り位置が選択されるまで移動し、区切り位置が選択されると同時にその区切り位置に対応する文節を同音語候補に変換することができる。

【0043】［マーカ設定処理例］ここでは、図8に示す本発明の設定画面の表示例に基づいて説明する。変換および同音語の選択を行うキーが押し続けられたときに、区切り位置を示すマーカの移動速度をマーカ設定画面により設定できるようにするものである。また、変換キーが押された後、マーカを自動で移動させるか、変換または同音語選択のキーが押し続けられているときにマーカを移動させるかの自動／手動のモード設定ができるようにしたものである。

【0044】例えば、前者のモード設定は、1秒周期で区切り位置毎にマーカを順次移動したい場合、図8に示すように区切り位置を示すマーカの移動速さを設定する設定画面を表示し、N秒の欄を指定数字1を入力することにより可能である。また、現在の設定値より遅くある

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いは速く設定することも可能である。この場合には、マーカの点滅周期などで画面に出力して選択し設定できるようにすることが考えられる。また、後者のマーカ移動の自動／手動設定も図8に示す設定画面表示（ガイダンス表示）より選択し設定することができる。

【００４５】入力処理部1からモード設定キーが押されると（ステップ３１４）、制御部5によりモード設定キーかが判断され、モード設定キーであった場合にはモード設定部3により時間間隔設定かの判断が行われ（ステップ３１７）、時間間隔設定である場合には、時間間隔設定処理を行う（ステップ３１８）。図8に示すように、モード設定キーが押されると表示画面は、区切り位置を示すマーカの移動する速さを選択する「区切り位置マーカの移動速さ設定」の設定画面の表示を行う。　図8に示されるマーカの移動を自動／手動のどちらかに設定するモード設定も同様な設定画面表示（ガイダンス表示）により選択設定を行うものである。従って、区切り位置を示すマーカを一定の時間間隔で自動的に移動させるか、例えば、変換キーが押し続けられているときに移動させるか設定画面で自動／手動のモード設定できる。また、マーカの移動速度（周期）をユーザ個人の最適な操作速度に合わせることができる。

【００４６】図9はキー押下時間判定部2の詳細ブロック図で、９－１はキーが押されたとき入力処理部1から発生されるキーコードと、９－６の比較キーコード記憶手段とを比較するキーコード比較手段である。９－６は本実施例の場合は比較すべきキーコードとして変換キーおよび前候補キーのキーコードを記憶している。９－２の一致信号発生手段は押されたキーが比較キーコード記憶手段に記憶されている変換キーあるいは前候補キーと一致した場合に一致したことを知らせる一致信号発生手段である。

【００４７】キーコードが一致すると９－３の時間カウント手段が起動されキー押下時間のカウントを行う。９－７はキーが押し続けられていることを判定するための基準の時間値を記憶している時間設定記憶手段である。９－４の時間比較手段は時間設定値記憶手段に記憶されている値と時間をカウントした値を比較し設定値と一致した場合には９－５の区切り位置マーカコード発生手段を起動するものである。

【００４８】図１０は読み復元部１０の詳細ブロック図である。読み復元部１０については、かな漢字変換処理例2及び3の中で既に説明しているので省略する。図１１は区切り位置マーカコード発生手段９－５の詳細ブロック図である。１１－１は、キーが押されている場合に、例えば1秒間隔にキーコードを発生する場合には1秒という値を設定するためのタイマーセット手段である。１１－２はキー信号が発生されてからの時間をカウントするためのタイマーカウント手段である。１１－５は例えば1秒間隔で区切り位置マーカコードを発生する場合、1秒に相当する値を記憶しておくカウント設定値記憶手段である。１１－３のカウント比較手段は１１－２のタイマーカウントの値と１１－５の設定値を比較するものである。１１－４のキーコード発生手段は比較手段の値が一致した場合に区切り位置マーカコードの発生を行う。

【００４９】図１２はマーカ移動部９の詳細ブロック図である。１２－１のマーカコード検出手段により区切り位置マーカコードを検出すると、１２－２のマーカ自動／手動判定手段により変換あるいは同音語選択キーが押し続けられているときにマーカを移動させるのか（手動）、変換対象文字列の直後に押された変換あるいは同音語選択キーの後自動的に一定の時間間隔でマーカを移動させるのか（自動）の自動／手動のモードの判断を行う。

【００５０】手動の場合には、記憶部4に記憶されている何番目の文字であるかを示すマーカ位置から表示画面上どの位置にマーカを出せばよいかマーカ位置を算出し、マーカ位置の更新を行う。自動でマーカを移動する場合にはマーカの位置を算出し、マーカの位置を更新するのは手動の場合と同じであるが、この後マーカの移動を一定の時間間隔で繰り返すものである。

【００５１】図１３は区切り系列生成部７の詳細ブロック図である。１３－１は入力されたかな文字列をもとに、かな漢字変換が内蔵する自立語辞書、固有名詞辞書、用例辞書などを参照し文節を作り出すものである。１３－２は１３－１で生成された文節を、入力文字列に対応づけてつなぎ合わせる文節系列生成部である。１３－２で文節系列が生成されると１２－３の文節接続判定手段は、文法的に文節につながりの可否を判断し正しいもののみを残すようにするものである。１３－３で正しいと判断された文節系列に表記を対応させて生成するのが１３－４の表記生成手段である。文節系列を表記で表したものおよびそれに対応づけて区切り位置を記憶しておくのが１３－５の区切り系列記憶手段である。

【００５２】図１４はモード設定部3の詳細ブロック図である。１４－１は押されたキーがモード設定を行うためのキーであるかを検出するモード設定キー検出手段である。１４－１でモード設定キーが検出されると、１４－２のモード制御手段は１４－３のガイダンス情報記憶手段に記憶されているモード設定に必要な設定情報を取り出し画面表示を行う。１４－４はモード設定された値を記憶しておくためのモード情報記憶手段である。モード情報記憶手段には、本発明の装置が立ち上げられたときに初期値として設定される値を記憶してデフォルト値として使用できるようにもなっている。

【００５３】

【発明の効果】本発明によれば、以下の効果が上げられる。

（１）区切り位置がどこにあるか表示し、所望の候補を

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選択しやすくる。

（2）一つの変換キーで同音語及び区切り位置の異なる変換候補を選択することができる。キーを押し続けることにより区切り位置の異なる候補を選択でき、何度もキーを押し直す必要がなくなり使い勝手がよくなる。

（3）最初の変換は、区切り位置と、第一位の変換候補だけの必要最小限の表示にとどめているため、不必要な変換次候補を表示させなくて済み、候補数が多くても所望の候補を容易に選択できる。

（4）一つの変換候補（漢字）上に二つの区切り位置が生じることがあるとき、漢字表記のままであると、区切り位置がか不明確であるが、変換修正するときは変換候補を読み情報に変えので区切り位置を明確にすることでき、正確に区切り位置を選択することができる。

（5）さらに、復元された入力かな文字列は元の候補の文字間隔内に収まるよう文字幅を変えて表示されるので、表示文字の左右への伸縮がなくなり周期的にマーカが移動しても区切り位置は動かないため、復元された読み情報に含まれる区切り位置が見やすくなり選択が容易になる。

（6）変換キーにより入力文字列が変換されると、予めマーカが自動的に一定周期で区切り位置毎に移動するよう設定でき、マーカは区切り位置選択キーにより所望の区切り位置が選択されるまで移動し、区切り位置が選択されると同時にその区切り位置に対応する候補を変換修正することができる。区切り位置を示すマーカを自動的に移動するため、マーカ移動を行うための特別のキーを設ける必要がなくなる。また、マーカ移動のキーを何度も押す必要がなく、使い勝手がよい。

（7）変換キーにより入力文字列が変換されると、予めマーカが自動的に一定周期で区切り位置毎に移動するよう設定でき、マーカは同音語選択キーにより所望の区切り位置が選択されるまで移動し、区切り位置が選択されると同時にその区切り位置に対応する文節を同音語候補に変換することができる。区切り位置を示すマーカを自動的に移動するため、変換あるいは同音語選択を行うキーが押されたときにマーカのある位置の同音語の候補を選択することができカーソル移動キーにより該当文節まで移動する必要がないため、使い勝手がよくなる。

（8）区切り位置を示すマーカを一定の時間間隔で自動的に移動させるか、例えば、変換キーが押し続けられているときに移動させるか設定画面で自動／手動のモード設定できる。また、マーカの移動速度（周期）をユーザ個人の最適な操作速度に合わせて設定することができる。通常の変換キーで同音語選択する場合でも、キーを押す速さは使い手によりまちまちである。つまりユーザの好みに合わせてマーカの移動速度を設定できるようにすることで使い勝手をよくすることができる。一定時間押し続けられたキーを放すタイミングは、ユーザの好みで決められる利点がある。マーカの移動を自動／手動のモード設定ができるようにすることにより、ユーザの使用方法の選択肢を広げることができる。

【図面の簡単な説明】

【図1】本発明の基本構成を示すブロック図である。

【図2】本発明のかな漢字変換装置の一実施例を示すブロック図である。

【図3】本発明のかな漢字変換装置の変換処理手順を示すフローチャートである。

【図4】本発明のかな漢字変換処理の表示例1を示す説明図である。

【図5】本発明のかな漢字変換処理の表示例2を示す説明図である。

【図6】本発明のかな漢字変換処理の表示例3を示す説明図である。

【図7】本発明のかな漢字変換処理の表示例4を示す説明図である。

【図8】本発明の設定画面の表示例を示す説明図である。

【図9】キー押下時間判定部2の詳細ブロック図である。

【図10】読み復元部10の詳細ブロック図である。

【図11】区切り位置マーカコード発生手段9－5の詳細ブロック図である。

【図12】マーカ移動部9の詳細ブロック図である。

【図13】区切り系例生成部7の詳細ブロック図である。

【図14】モード設定部3の詳細ブロック図である。

【図15】従来例1のかな漢字変換例を示す説明図である。

【図16】従来例2のかな漢字変換例を示す説明図である。

【図17】従来例3のかな漢字変換例を示す説明図である。

【符号の説明】

1　入力処理部
2　キー押下時間判定部
3　モード設定部
4　記憶部
5　制御部
6　かな漢字変換部
7　区切り系例生成部
8　表示部
9　マーカ移動部
10　読み復元部

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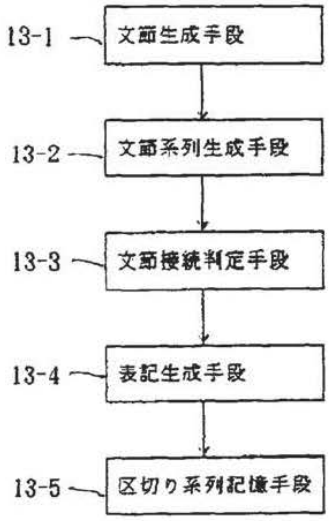
【図1】

【図2】

【図13】



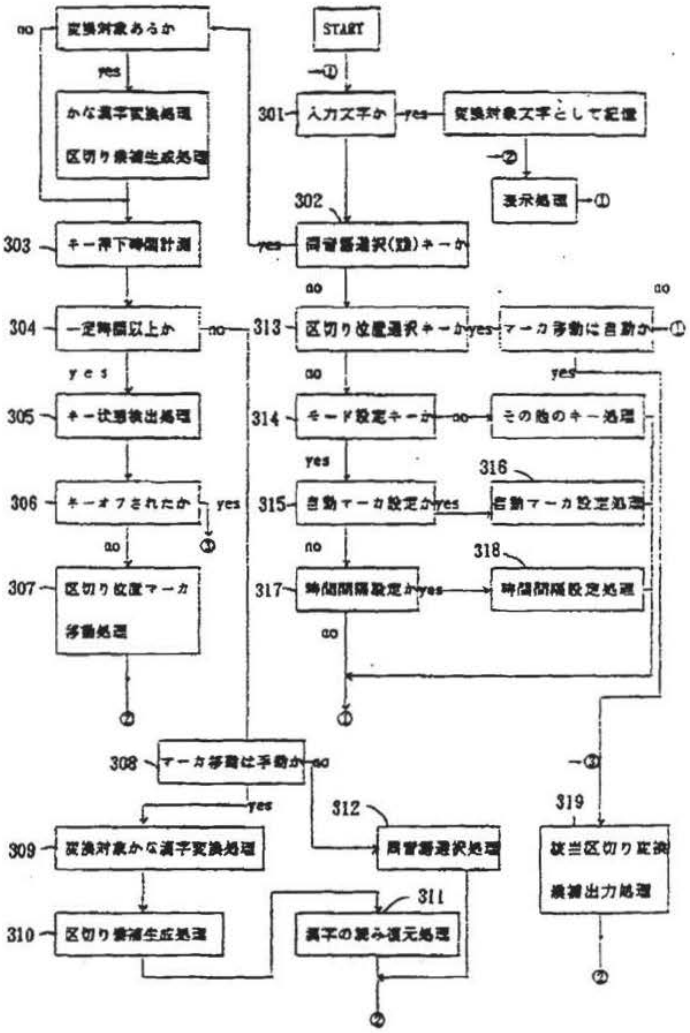
【図4】

【図15】

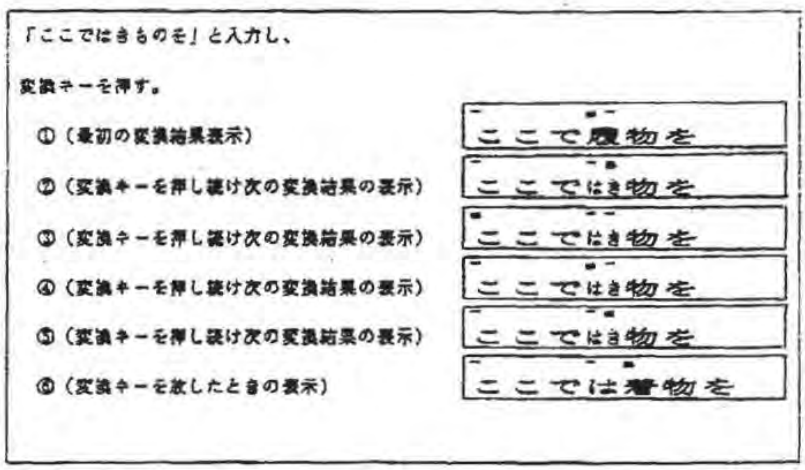
「このため」と入力し変換キーを押す	このため
変換キーを押し続ける	このため
同上	このため

変換キーを一定時間以上押し続けると1文字づつ強制区切り変更を行う。

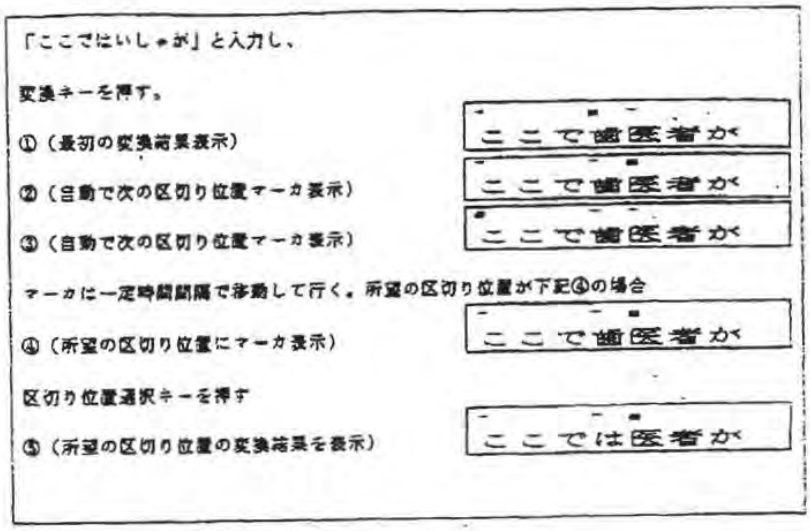
【図3】


START
変換対象あるか
yes
no
かな漢字変換処理
区切り候補生成処理
301
入力文字か
yes
変換対象文字として記憶
表示処理
302
同音語選択(登)キーか
yes
303
キー押下時間計測
304
一定時間以上か
no
yes
305
キー状態検出処理
306
キーオフされたか
yes
no
307
区切り位置マーカ
移動処理
313
区切り位置選択キーか
yes
マーカ移動に自動か
yes
no
314
モード設定キーか
no
その他のキー処理
yes
315
自動マーカ設定か
yes
316
自動マーカ設定処理
no
317
時間間隔設定か
yes
318
時間間隔設定処理
308
マーカ移動は手動か
no
yes
309
変換対象かな漢字変換処理
310
区切り候補生成処理
312
同音語選択処理
311
漢字の読み復元処理
319
該当区切り変換
候補出力処理

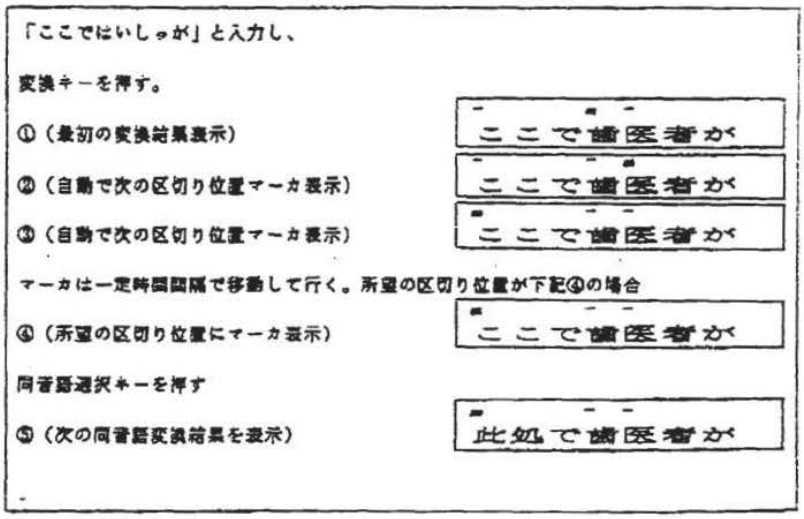
【図5】


「ここではきものを」と入力し、
変換キーを押す。
①（最初の変換結果表示）
ここで履物を
②（変換キーを押し続け次の変換結果の表示）
ここではき物を
③（変換キーを押し続け次の変換結果の表示）
ここではき物を
④（変換キーを押し続け次の変換結果の表示）
ここではき物を
⑤（変換キーを押し続け次の変換結果の表示）
ここではき物を
⑥（変換キーを放したときの表示）
ここでは着物を

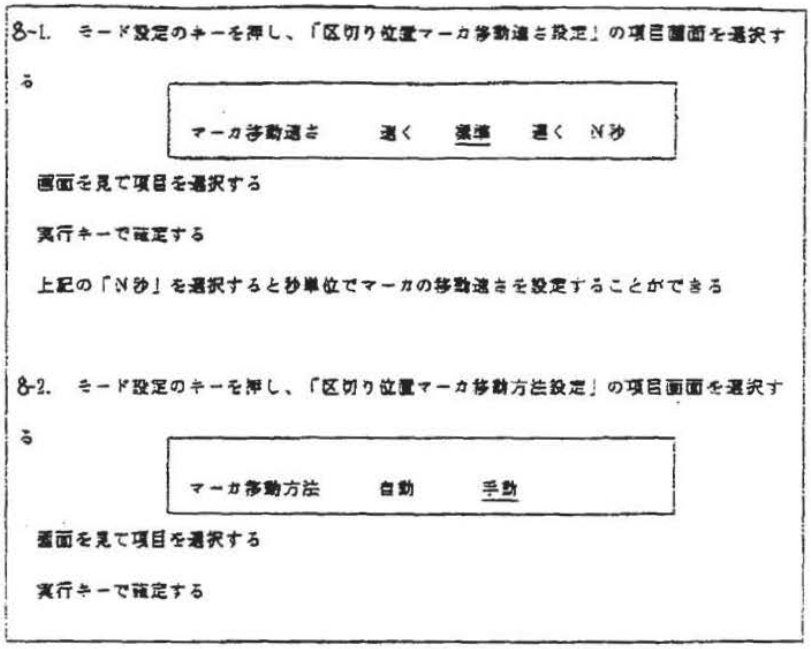
【図6】


「ここではいしゃが」と入力し、
変換キーを押す。
①（最初の変換結果表示）
ここで歯医者が
②（自動で次の区切り位置マーカ表示）
ここで歯医者が
③（自動で次の区切り位置マーカ表示）
ここで歯医者が
マーカは一定時間間隔で移動して行く。所望の区切り位置が下記④の場合
④（所望の区切り位置にマーカ表示）
ここで歯医者が
区切り位置選択キーを押す
⑤（所望の区切り位置の変換結果を表示）
ここでは医者が

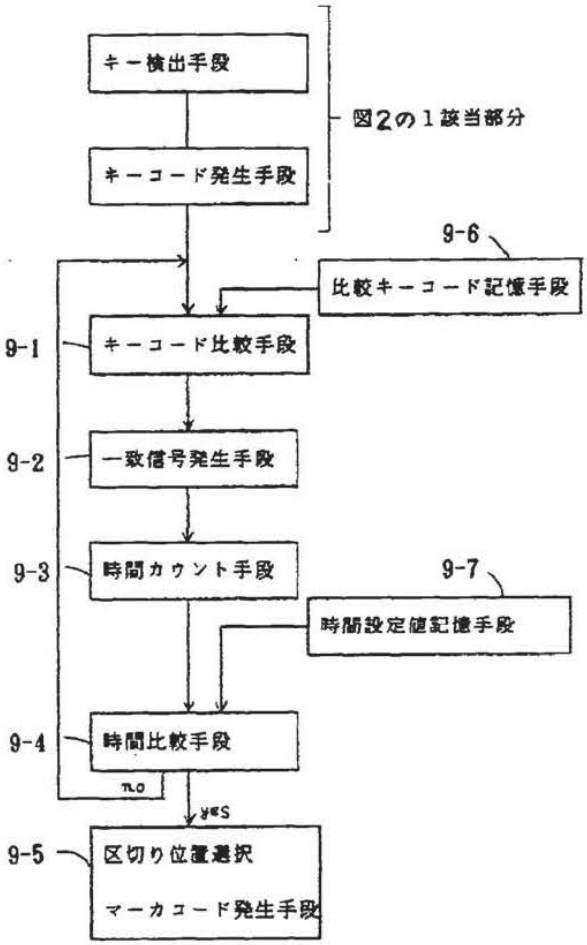
【図7】


「ここでにいしゃが」と入力し、
変換キーを押す。
①（最初の変換結果表示）
ここで歯医者が
②（自動で次の区切り位置マーカ表示）
ここで歯医者が
③（自動で次の区切り位置マーカ表示）
ここで歯医者が
マーカは一定時間間隔で移動して行く。所望の区切り位置が下記④の場合
④（所望の区切り位置にマーカ表示）
ここで歯医者が
同音語選択キーを押す
⑤（次の同音語変換結果を表示）
此処で歯医者が

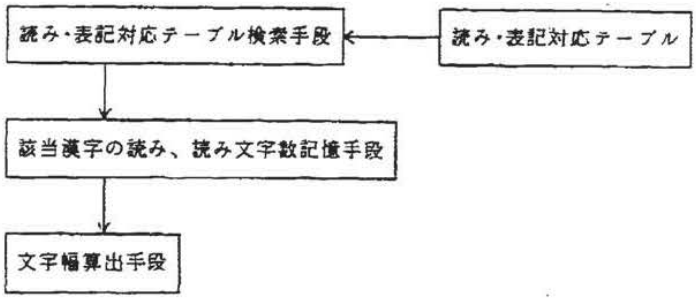
【図8】


8-1.　モード設定のキーを押し、「区切り位置マーカ移動速さ設定」の項目画面を選択する
マーカ移動速さ　速く　標準　遅く　N秒
画面を見て項目を選択する
実行キーで確定する
上記の「N秒」を選択すると秒単位でマーカの移動速さを設定することができる
8-2.　モード設定のキーを押し、「区切り位置マーカ移動方法設定」の項目画面を選択する
マーカ移動方法　自動　手動
画面を見て項目を選択する
実行キーで確定する

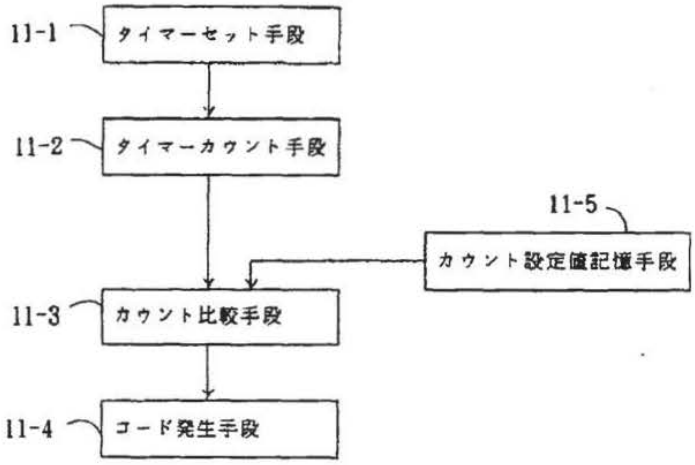
【図9】


キー検出手段
図2の1該当部分
キーコード発生手段
9-6
比較キーコード記憶手段
9-1
キーコード比較手段
9-2
一致信号発生手段
9-3
時間カウント手段
9-7
時間設定値記憶手段
9-4
時間比較手段
no
yes
9-5
区切り位置選択
マーカコード発生手段

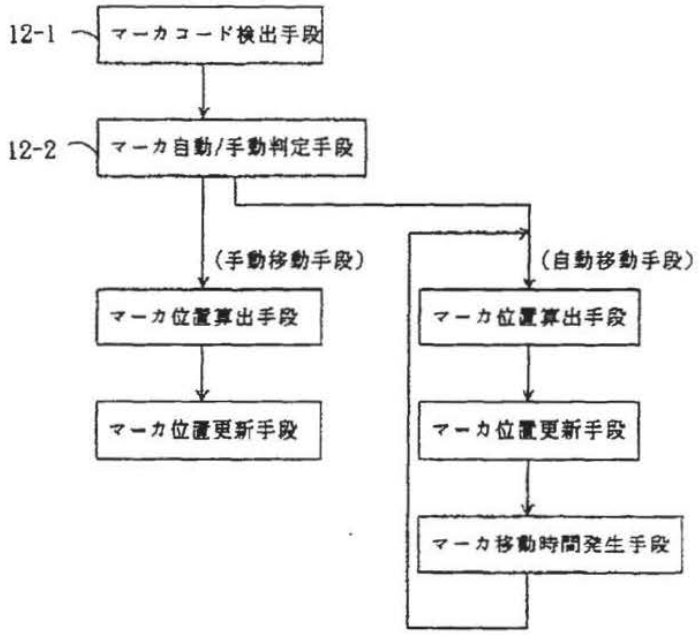
【図10】


読み・表記対応テーブル検索手段
読み・表記対応テーブル
該当漢字の読み、読み文字数記憶手段
文字幅算出手段

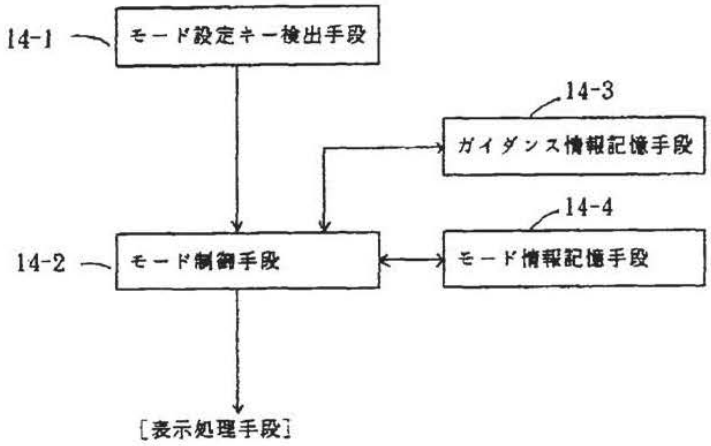
【図11】


11-1
タイマーセット手段
11-2
タイマーカウント手段
11-5
カウント設定値記憶手段
11-3
カウント比較手段
11-4
コード発生手段

【図12】


12-1
マーカコード検出手段
12-2
マーカ自動/手動判定手段
(手動移動手段)
(自動移動手段)
マーカ位置算出手段
マーカ位置更新手段
マーカ位置算出手段
マーカ位置更新手段
マーカ移動時間発生手段

【図14】



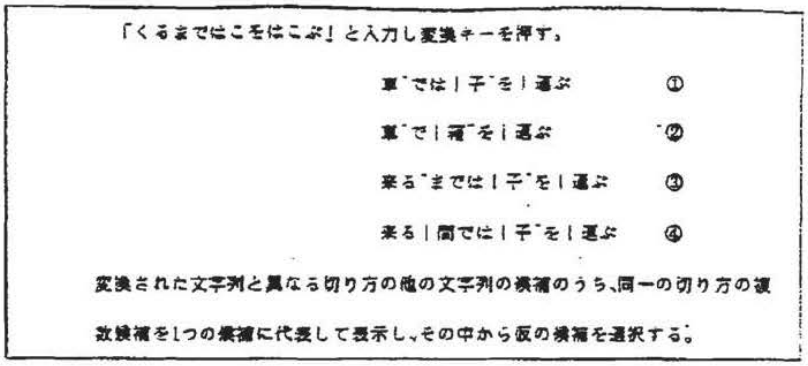
【図16】

「ていおんかんきょうに」と入力し変換キーを押す。

	低温感覚に	
修正操作	低温＊	①
	低＊	②
①を選択	感覚に	
	環境に	③
	関＊	
②を選択	官能＊	④
④を選択	寒に	
	今日に	
	京に	

修正操作に入ると上記①、②の表示を行いこのどちらかを選択すると、次に続く候補を表示し選択できるようにしたものである。

【図17】


「くるまではこをはこぶ」と入力し変換キーを押す。
車"では｜子"を｜運ぶ　①
車"で｜箱"を｜運ぶ　②
来る"までは｜子"を｜運ぶ　③
来る｜間では｜子"を｜運ぶ　④
変換された文字列と異なる切り方の他の文字列の候補のうち、同一の切り方の複数候補を1つの候補に代表して表示し、その中から仮の候補を選択する。

[JP,09-034891,A]

Highligts Underlined

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CLAIMS

[Claim(s)]
[Claim 1]Kana-kanji conversion equipment which it has the following, the aforementioned kana-kanji conversion part will convert a same sound word candidate if depression time of a conversion key becomes in predetermined time, and is characterized by making conversion correction of the candidate of a separation position which a marker who moved shows when the conversion key is pressed beyond as for predetermined time and released after same sound word conversion.
An input part which has a function key which inputs instructions of a letter key which inputs a kana character string which consists of a single clause or two or more sentence paragraph, conversion, setting out, selection, etc.
A kana-kanji conversion part which converts a kana character string corresponding to a clause of a separation position generated while generating all the separation positions which have a dictionary part, analyze a clause of an input kana character string in a dictionary part, and serve as a clause to a candidate of a Chinese character writing-both-in-kanji-and-kana sentence.
An alphabetic-information-storage part which remembers an input kana character string, all the generated separation positions, a conversion candidate of those, etc.
A bottom time judgment part of a key press which measures ****** [depression time of a conversion key of an input part / in predetermined time], and is judged, A marker moving part to which a marker is moved for every separation position with a constant period when a marker who shows a conversion candidate's separation position is generated and the conversion key of an input part is pressed beyond as for predetermined time, and a display part which displays a kana character string, a separation position, a marker, a conversion candidate, etc. on a screen.

[Claim 2]A separation position discrimination section which distinguishes whether there are two or more separation positions on one converted candidate when the aforementioned conversion key is pressed beyond as for predetermined time, When two or more separation positions exist on one conversion candidate, have further a reading restoration section which restores this

conversion candidate to the original reading information, and the aforementioned kana-kanji conversion part, The kana-kanji conversion equipment according to claim 1 characterized by making conversion correction of the candidate of the separation position when a marker who shows a separation position of reading information restored by reading restoration section is chosen by conversion key operation.
[Claim 3]The kana-kanji conversion equipment comprising according to claim 1:
A separation position discrimination section which distinguishes whether there are two or more separation positions on one converted candidate when the aforementioned conversion key is pressed beyond as for predetermined time.
A reading restoration section which restores this conversion candidate to the original reading information when two or more separation positions exist on one conversion candidate.
A total of several copies of Monju numbers which calculate the number of characters of the original reading information.
A function which carries out zooming of the character of the original reading information so that it may have further a character gap calculation part which computes a candidate's converted character gap and the aforementioned reading restoration section may be settled in a candidate's character gap.

[Claim 4]A marker move automatic setting key for the aforementioned input part to move a marker for every separation position with a constant period automatically after candidate conversion, It has further a separation position selection key for choosing a separation position and making conversion correction of the candidate of the separation position, A function which carries out a selection stop by a selection command from a separation position selection key in a desired separation position while the aforementioned marker moving part moves a marker for every separation position with a constant period by a movement command from a marker move automatic setting key, The kana-kanji conversion equipment according to claim 1, wherein the aforementioned kana-kanji conversion part is provided with a function which makes conversion correction of the candidate corresponding to a separation position where a separation position selection key was selected, respectively.
[Claim 5]A marker move automatic setting key for the aforementioned input part to move a marker for every separation position with a constant period automatically after candidate conversion, It has further a same sound word selection key for choosing a separation position and converting a clause of the separation position to a same sound word, A function which carries out a selection stop by a selection command from a same sound word selection key in a desired separation position while the aforementioned marker moving part moves a marker for every separation position with a constant period by a movement command from a marker move automatic setting key, The kana-kanji conversion equipment according to claim 1, wherein the aforementioned kana-kanji conversion part is provided with a function which converts a clause corresponding to a separation position where a same sound word selection key was selected to a same sound word candidate, respectively.
[Claim 6]The kana-kanji conversion equipment comprising according to claim 1:
A mode setting part which sets up whether a marker after candidate conversion is automatically moved by the aforementioned marker move automatic setting key, or it is made to move by depression operation of a conversion key.
A function which displays a setting screen to have further a marker information storage part which memorized marker setup information, such as a marker's speed setting, and for the

aforementioned display part set up a marker's speed setting, and a marker's automatic movement / manual movement.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]The present invention relates to the kana-kanji conversion equipment applied to document information processing units, such as a word processor, a personal computer, an electronic notebook, a Personal Digital Assistant, a POS terminal, and a workstation, in detail about kana-kanji conversion equipment.
[0002]
[Description of the Prior Art]When converting conventionally the kana character string which consists of a single clause or two or more sentence paragraph to the candidate of Chinese character mixture in the kana-kanji conversion equipment applied to a document information processing unit, depending on how to divide the clause. Since wrong conversion was carried out to the candidate who is not related to a text, in order to correct this wrong conversion to the

candidate who means, there was a problem of forcing excessive judgment and complicated operation upon a user. Therefore, the following conventional examples are proposed as improvement technology for converting to the candidate of Chinese character mixture who means the input character string.

[0003]Conventional example 1: Like the description to JP,H3-29051,A, the "kana-kanji conversion equipment" which provided the pause alteration means which changes a pause of a word when the conversion key which carries out a kana-kanji conversion continued pressing a key for a definite period of time, and provided the means as which two of pause change are operated with conversion by the same key is proposed. Fig.15 is an explanatory view showing the example of a kana-kanji conversion of the conventional example 1. As shown in Fig.15, for "this reason", it inputs and the conversion key is pressed. ->[for -> "this reason"] (pressing conversion key is continued) -> "eye this **" Like ->(pressing conversion key is continued) -> "this sake", if it continues pressing the conversion key fixed time, it will shorten one character at a time, and a compulsive pause change will be made. To the conventional example 1, i.e., an object conversion result, it shortens the reading character of one character at a time, and a part exerted coercion or ****** is performed. It is good even from before an applicable word to shorten one character at a time even from back. This pause change is generally produced commercially by a name called clause shortening by [shift] key + [<-] key or a [functional] key + [<-] key.

[0004]Conventional example 2: "The conversion candidate method of presentation and equipment" of the reading input string displaying partial change candidates characters or a character string on JP,H6-3595,B like a description corresponding to each of several partial reading input characters in which pause length differs, or a character string are proposed. Fig.16 is an explanatory view showing the example of a kana-kanji conversion of the conventional example 2. As shown in Fig.16, "********** today" is input and the change key is pressed. -> "low-temperature interest" ->(transfer method) -> "Low temperature *" "Low *" -> selection -> "interest", "Environment" and "between *" -> selection -> "Sense of pitch *" -> to selection -> "**", "today", and a "capital"

If it goes into a transfer method, it will describe above. "low-temperature *", If "low *" is displayed and this either is chosen, it will enable it to display and choose a subsequent candidate next. The candidate from whom a pause of the beginning ahead of the conversion result of jam kanji conversion with automatic clause-parsing differs is displayed that it makes it correspond to each of a partial input character or a character string, and it matches with each and enables it to display and choose a conversion candidate character or a character string in the conventional example 2.

[0005]Conventional example 3 : The inside of the candidate of other kana Chinese character mixture character strings of the method of the different end converted to JP,H3-226858,A like a description, The "kana-kanji conversion correction system" which displays on one candidate on behalf of two or more candidates of the same method of the end, and has a means to choose a temporary candidate out of it is proposed. Fig.17 is an explanatory view showing the example of a kana-kanji conversion of the conventional example 3. As shown in Fig.17, it inputs "** is carried until it comes", and the change key is pressed.

** "| Carry the | child ** by the car **."
** "| Carry the | box ** by the car **."
** "| Carry the | child ** to coming **."
** "| Carry the | child ** between coming |."

On behalf of two or more candidates of the same method of the end, it displays on one candidate among the candidates of the character string of ** of the method of the different end from the converted character string, and a temporary candidate is chosen out of it. In the conventional example 3, even when there are many which enabled it to display and choose the candidate from whom a separation position differs, i.e., the number of clauses of a conversion result, what limits the range of candidate selection is not done, but however there may be much a candidate's combination, it displays and chooses these candidates.

[0006]

[Problem to be solved by the invention]However, in the "kana-kanji conversion equipment" of the description to JP,H3-29051,A of the conventional example 1, when continuing pressing the conversion key which divides with conversion and has two functions of change, can make a pause change, but. This pause change shortens the reading character position of one character of an applicable clause at a time unconditionally, a kana-kanji conversion is performed again, and the grammatical relation which a kana-kanji conversion has to the original conversion character sequence does not become what was disregarded, and cannot necessarily reach a correct answer early. When the 5th character when there are many reading characters, for example there are ten characters is the separation positions of a correct answer, a correct answer will be reached at last by the 5th time, and operation frequency may increase. Thus, since an unnecessary candidate will be outputted repeatedly by the time it reaches the candidate of a desired separation position, since a separation position is contracted mechanically and the conversion result is outputted, it is possible that usability is impaired.

[0007]In "the conversion candidate method of presentation and equipment" of the reading input string of the description to JP,H6-3595,B of the conventional example 2, in the input kanji conversion with automatic clause-parsing, in order to move cursor sequentially from before and to choose the desired candidate, it is the troublesome thing of moving cursor.

[0008]In the "kana-kanji conversion correction system" of the description to JP,H3-226858,A of the conventional example 3, since combination increases when the number of clauses of a conversion result increases, selecting a desired candidate takes time and effort, and usability worsens.

[0009]Therefore, improvement of an item which is explained in full detail below was desired.

(1) It is [where a separation position is and] ** that it displays and is easy to choose a desired candidate.

(2) For example, make selection and conversion of a desired separation position easy to move a marker for every separation position, to make a separation position intelligible, and to carry out.

(3) Limit the first conversion to the display of the necessary minimum of only the conversion candidate of a primacy, when selection of a desired separation position or selection of a same sound word is needed, it shows a position to be a separation position clearly by a marker, and even if there are many candidates, it enables it to choose a desired candidate easily.

(4) When two separation positions may produce on one conversion candidate (Chinese character), and making conversion correction, a conversion candidate is read, it changes into information, and a separation position is clarified.

(5) For example, when it is made to move the marker who shows a separation position with a constant period automatically and a marker comes to a desired separation position, enable it to choose the conversion candidate from whom a separation position differs by pressing the key which chooses a separation position.

(6) For example, when it is made to move the marker who shows a separation position with a

constant period automatically and comes to a desired separation position, stop a marker's motion and enable it to choose a same sound word by pressing the key which chooses a same sound word.
(7) For example, enable it to set up the movement speed of the marker who shows a separation position to suit a user's optimal operating speed. A choice is extended so that it can be set up to move only when a marker is moved automatically or a key is continuing being pressed.
[0010]By having made the present invention in consideration of the above situation, and showing the separation position to convert by a marker, a useless candidate's display is suppressed and the candidate who means by easy operation is provided with the kana-kanji conversion equipment which can make conversion correction.
[0011]
[Means for solving problem]Fig.1 is a block diagram showing the basic constitution of the present invention. The input part 101 which has a function key which inputs instructions of the letter key and conversion whose present invention inputs the kana character string which consists of a single clause or two or more sentence paragraph in Fig.1, setting out, selection, etc., While generating all the separation positions which have the dictionary part 102a, analyze the clause of an input kana character string in the dictionary part 102a, and serve as a clause, The kana-kanji conversion part 102 which converts the kana character string corresponding to the clause of the generated separation position to the candidate of a Chinese character writing-both-in-kanji-and-kana sentence, The alphabetic-information-storage part 103 which remembers an input kana character string, all the generated separation positions, the conversion candidate of those, etc., The bottom time judgment part 104 of a key press which measures ****** [the depression time of the conversion key 101a of the input part 101 / in predetermined time], and is judged, The marker moving part 105 to which a marker is moved for every separation position with a constant period when the marker who shows a conversion candidate's separation position is generated and the conversion key 101a of the input part 101 is pressed beyond as for predetermined time, When it had the display part 106 which displays a kana character string, a separation position, a marker, a conversion candidate, etc. on a screen, the aforementioned kana-kanji conversion part 102 converted the same sound word candidate when the depression time of the conversion key 101a became in predetermined time, and the conversion key 101a is pressed beyond as for predetermined time and released after same sound word conversion, It is kana-kanji conversion equipment making conversion correction of the candidate of the separation position which the marker who moved shows.
[0012]The separation position discrimination section 107 which distinguishes whether there are two or more separation positions on one converted candidate when the aforementioned conversion key 101a is pressed beyond as for predetermined time, When two or more separation positions exist on one conversion candidate, have further the reading restoration section 108 which restores this conversion candidate to the original reading information, and the aforementioned kana-kanji conversion part 102, When the marker who shows the separation position of the reading information restored by the reading restoration section 108 is chosen by conversion key 101a operation, it is preferable to be constituted so that conversion correction of the candidate of the separation position may be made.
[0013]The separation position discrimination section 107 which distinguishes whether there are two or more separation positions on one converted candidate when the aforementioned conversion key 101a is pressed beyond as for predetermined time, The reading restoration section 108 which restores this conversion candidate to the original reading information when

two or more separation positions exist on one conversion candidate, It has further 109 and the character gap calculation part 110 which computes a candidate's converted character gap a total of several copies of sentence number of letters which calculates the number of characters of the original reading information, and, as for the aforementioned reading restoration section 108, it is preferable to have composition provided with the function which carries out zooming of the character of the original reading information so that it may be settled in a candidate's character gap.

[0014]The marker move automatic setting key 101b for the aforementioned input part 101 to move a marker for every separation position with a constant period automatically after candidate conversion, It has further the separation position selection key 101c for choosing a separation position and making conversion correction of the candidate of the separation position, The function which carries out a selection stop by the selection command from the separation position selection key 101c in a desired separation position while the aforementioned marker moving part 105 moves a marker for every separation position with a constant period by the movement command from the marker move automatic setting key 101b, As for the aforementioned kana-kanji conversion part 102, it is preferable to carry out the function which makes conversion correction of the candidate corresponding to the separation position where the separation position selection key 101c was selected to the composition which it had, respectively.

[0015]The marker move automatic setting key 101b for the aforementioned input part 101 to move a marker for every separation position with a constant period automatically after candidate conversion, It has further 101 d of same sound word selection keys for choosing a separation position and converting the clause of the separation position to a same sound word, The function which carries out a selection stop in a desired separation position by the selection command from 101d of same sound word selection keys while the aforementioned marker moving part 105 moves a marker for every separation position with a constant period by the movement command from the marker move automatic setting key 101b, As for the aforementioned kana-kanji conversion part 102, it is preferable to carry out the function which converts the clause corresponding to the separation position where 101 d of same sound word selection keys were selected to a same sound word candidate to the composition which it had, respectively. Between fixed time, again, when there is no input of 101d of same sound word selection keys or a conversion object character sequence, the aforementioned marker moving part 105 may be constituted so that a marker may be restarted.

[0016]The mode setting part 111 which sets up whether the marker after candidate conversion is automatically moved by the aforementioned marker move automatic setting key 101b, or it is made to move by depression operation of a conversion key, It has further the marker information storage part 112 which memorized marker setup information, such as a marker's speed setting, and, as for the aforementioned display part 106, it is preferable to have composition provided with the function which displays the setting screen for setting up a marker's speed setting, and a marker's automatic movement / manual movement.

[0017]As for the kana-kanji conversion part 102, in the present invention, it is preferable to have composition provided with the pause series generation part which generates all the separation positions which analyze the clause of an input kana character string in a dictionary part, and serve as a clause. The input part 101 (the conversion key 101a, the marker move automatic setting key 101b, the separation position selection key 101c, and 101 d of same sound word selection keys are included) comprises a keyboard, a mouse, a pointing device, and an input

device that consists of pen tablets. The kana-kanji conversion part 102 (the dictionary part 102a is included), A total of the alphabetic-information-storage part 103, the bottom time judgment part 104 of a key press, the marker moving part 105, the separation position discrimination section 107, the reading restoration section 108, and several copies of character numbers 109, the character gap calculation part 110, the mode setting part 111, and the marker information storage part 112, It comprises a microcomputer which consists of CPU, ROM, RAM, an I/O Port, a counter, and a timer. Program data for the above-mentioned CPU to control each part, the data of the dictionary part 102a, the marker's associated data, etc. are memorized by the above-mentioned ROM. Progress, state information, etc. required for control management are memorized by the above-mentioned RAM (it functions as the alphabetic-information-storage part 103). The display part 106 comprises a display device consisting of a CRT display and a LCD (liquid crystal) display.

[0018]If it describes further about the function of the composition of the present invention, the input part 101 is provided with the function key which inputs instructions of the letter key which inputs the kana character string which consists of a single clause or two or more sentence paragraph, conversion, setting out, selection, etc. in Fig.1. The kana-kanji conversion part 102 generates all the separation positions which analyze the clause of an input kana character string with reference to the dictionary part 102a, and serve as a clause, and converts the kana character string corresponding to the clause of the generated separation position to the candidate of a Chinese character writing-both-in-kanji-and-kana sentence. Since the alphabetic-information-storage part 103 remembers an input kana character string, all the generated separation positions, the conversion candidate of those, etc., it is not necessary to convert repeatedly the clause from which a separation position differs in the kana-kanji conversion part 102. The bottom time judgment part 104 of a key press measures ****** [the depression time of the conversion key 101a / in predetermined time], and judges. When it judges with the decided result and the conversion key 101a being pressed beyond as for predetermined time, the marker moving part 105 generates the marker who shows a conversion candidate's separation position, and moves a marker for every separation position with a constant period. The kana-kanji conversion part 102 will convert a same sound word candidate, if the depression time of the conversion key 101a becomes in predetermined time, and after same sound word conversion, beyond as for predetermined time, the conversion key 101a is pressed, and is released, and it makes conversion correction of the candidate of the separation position which the marker who moved shows in the case. By this, when the same sound word conversion converted first is not a desired conversion candidate, if the depression of the conversion key 101a is carried out, further, When a marker is moved for every separation position with a constant period and a desired separation position has a marker, by releasing the conversion key 101a, the separation position can be chosen and conversion correction of the candidate can be made. Therefore, the conversion candidate from whom a same sound word and a separation position differ by one conversion key can be chosen. Since it has limited to the display of the necessary minimum of only a separation position and the conversion candidate of a primacy, the first conversion does not need to display the unnecessary conversion next candidate, and even if there are many candidates, it can choose a desired candidate easily.

[0019]The separation position discrimination section 107 which distinguishes whether there are two or more separation positions on one converted candidate when the aforementioned conversion key 101a is pressed beyond as for predetermined time, If the reading restoration section 108 which restores this conversion candidate to the original reading information is made

the composition which it had further when two or more separation positions exist on one conversion candidate, the aforementioned kana-kanji conversion part 102, Since conversion correction of the candidate of the separation position is made when the marker who shows the separation position of the reading information restored by the reading restoration section 108 is chosen by conversion key 101a operation, By continuing pressing the conversion key 101a which performs same sound word selection, and moving a marker, when two or more separation positions exist on one conversion candidate (Chinese character), the candidate who converted once reads, it can be restored to information, the separation position included in the reading information can be chosen, and the candidate can be corrected. therefore, when two separation positions may produce on one conversion candidate (Chinese character), and making conversion correction, a conversion candidate is read, it changes into information, and a separation position is clarified -- things can be carried out.

[0020]The separation position discrimination section 107 which distinguishes whether there are two or more separation positions on one converted candidate when the aforementioned conversion key 101a is pressed beyond as for predetermined time, The reading restoration section 108 which restores this conversion candidate to the original reading information when two or more separation positions exist on one conversion candidate, If 109 and the character gap calculation part 110 which computes a candidate's converted character gap are made the composition which it had further a total of several copies of sentence number of letters which calculates the number of characters of the original reading information, the aforementioned reading restoration section 108 can carry out zooming of the character of the original reading information so that it may be settled in a candidate's character gap. Usually, since the character representation is performed at equal intervals, when a candidate (Chinese character) is restored to the original reading information, a marker moves to right and left and are hard coming to see him, but. Thereby, since a character width is changed and the restored input kana character string is displayed so that it may be settled in the original candidate's character gap, the separation position included in the restored reading information becomes legible, and selection becomes easy.

[0021]The marker move automatic setting key 101b for the aforementioned input part 101 to move a marker for every separation position with a constant period automatically after candidate conversion, If the separation position selection key 101c for choosing a separation position and making conversion correction of the candidate of the separation position is made the composition which it had further, Since the aforementioned marker moving part 105 carries out a selection stop by the selection command from the separation position selection key 101c in a desired separation position while moving a marker for every separation position with a constant period by the movement command from the marker move automatic setting key 101b, If it is set up so that a marker may move for every separation position with a constant period automatically previously by the marker move automatic setting key 101b, and an input string is converted by the conversion key, A marker moves until a desired separation position is chosen by the separation position selection key 101c, and while a separation position is chosen, he can make conversion correction of the candidate corresponding to the separation position.

[0022]The marker move automatic setting key 101b for the aforementioned input part 101 to move a marker for every separation position with a constant period automatically after candidate conversion, If 101 d of same sound word selection keys for choosing a separation position and converting the clause of the separation position to a same sound word are made the composition which it had further, Since the aforementioned marker moving part 105 carries out a selection

stop in a desired separation position by the selection command from 101d of same sound word selection keys while moving a marker for every separation position with a constant period by the movement command from the marker move automatic setting key 101b, If it is set up so that a marker may move for every separation position with a constant period automatically previously by the marker move automatic setting key 101b, and an input string is converted by the conversion key, A marker moves until a desired separation position is chosen by 101 d of same sound word selection keys, and while a separation position is chosen, he can convert the clause corresponding to the separation position to a same sound word candidate. Between fixed time, again, when there is no input of 101d of same sound word selection keys or a conversion object character sequence, a marker can also be restarted.

[0023]The mode setting part 111 which sets up whether the marker after candidate conversion is automatically moved by the aforementioned marker move automatic setting key 101b, or it is made to move by depression operation of a conversion key, Since it had further the marker information storage part 112 which memorized marker setup information, such as a marker's speed setting, and the aforementioned display part 107 is provided with the function which displays the setting screen for setting up a marker's speed setting, and a marker's automatic movement / manual movement, when the marker who shows a separation position is automatically moved with a fixed time interval, or the conversion key is continuing being pressed, or it makes it move for example -- automatic in a setting screen / manual mode setting -- it can do. A marker's movement speed (cycle) can be set up in accordance with a user individual's optimal operating speed.

[0024]

[Mode for carrying out the invention]Hereafter, based on the working example shown in a figure, the present invention is explained in full detail. The present invention is not limited by this. The present invention is applied mainly to document information processing units, such as a word processor, a personal computer, an electronic notebook, a Personal Digital Assistant, a POS terminal, and a workstation.

[0025]Fig.2 is a block diagram showing one working example of the kana-kanji conversion equipment of the present invention. In Fig.2, 1 is a thing input processing part for performing the input of a character, and the designation input of a function, and comprises an input device which generally consists of a keyboard, a mouse, a pointing device, a pen tablet, etc. (it functions as an input part of Fig.1).the key (the conversion next candidate --) for choosing a same sound word, in order that the key which 2 is a bottom time judgment part of a key press, and was input by the input processing part 1 may choose the conversion result from which the separation position of a kana-kanji conversion result differs although it is a previous candidate selection key etc., it is called below a same sound word selection key -- it is -- when the time when a key is continuing being pressed is measured to a case and this key continues being pushed on it during more than predetermined scheduled time, it is for making movement of the marker who shows a separation position start (it functions as a bottom time judgment part of a key press of Fig.1). It serves to use properly for the means which displays the marker who shows a separation position for the key which performs conversion or same sound word selection.

[0026]When the key which 3 is a mode setting part and was input from the input processing part 1 is judged to be the Mohd set key, A setting screen is displayed and it serves to perform automatic/manual setting of whether change of a marker's movement speed, and setting out and a marker's movement are automatically moved with a constant period, or to move, only when a key is continuing being pressed (it functions as a mode setting part of Fig.1). 4 is what is called a

ROM that memorizes program data and the data of a dictionary part, and a storage part constituted by RAM etc. which memorize progress, state information, etc. required for control management, and which can be written in (it functions also as the alphabetic-information-storage part of Fig.1, and a marker information storage part). 5 is a control part, comprises a 1 chip CPU and controls an input, a display, and function processing. Control management of the control part 5 is performed from the program data memorized to the memory measure 4, and functions also as a total of the separation position discrimination section of Fig.1, and several copies of character numbers, and a character gap calculation part.

[0027]6 is a kana-kanji conversion part and converts the meeting of a kana character string, and what is called a conversion object character sequence to a Chinese character writing-both-in-kanji-and-kana sentence. In this example, the kana-kanji conversion part 6 has a function of the kanji conversion with automatic clause-parsing which can convert some clause candidates at once. Although not written in particular clearly, in the kana-kanji conversion part 6, dictionary parts, such as an independent word dictionary required for conversion, a proper noun dictionary, and an example dictionary, are also included (it functions as a kana-kanji conversion part of Fig.1). Based on relation of the clause which 7 is a pause series generation part and the kana-kanji conversion part 6 makes grammatically, A series of candidates from whom the separation position of the input conversion object character sequence differs are arranged in order with the highest probability, and it can be made to carry out at specification output orders when the candidate selection from which a pause differs is made display selection of them (it may include in the function of a kana-kanji conversion part).

[0028]8 is a display part, comprises a display device which consists of a LCD (liquid crystal) display unit or a CRT display unit, and displays the display of the input character, and the processing according to a function key (it functions as a display part of Fig.1). 9 is a marker moving part which moves the marker who shows a separation position, and the marker moving part 9, The work which stops a marker when the same sound word selection key is continuing being pressed, and a key is released after moving a marker with a constant period and having continued pressing the same sound word selection key (it is called key off below), It detects that a marker's movement is set up automatically and has a function to which a marker is moved with a constant period (it functions as a marker moving part of Fig.1). 10 is a reading restoration section, and when there are two or more separation positions on the same candidate (Chinese character) based on the table which matched the notation and reading of the word of the dictionary built in the kana-kanji conversion part 6, the display of an applicable Chinese character is restored to reading, It enables it to specify a separation position (it functions as a reading restoration section of Fig.1).

[0029]Fig.3 is a flow chart which shows the conversion process procedure of the kana-kanji conversion equipment of the present invention. Fig.4 to Fig.7 is an explanatory view showing the display examples 1-4 of kana-kanji conversion processing of the present invention.Fig.8 is an explanatory view showing the display example of the setting screen of the present invention. It describes using the flow chart of Fig.3, and the display example of Fig.4 - Fig.7 about the specific examples 1-5 of kana-kanji conversion processing of the present invention.In Fig.3, the following steps 301-319 operate as each module (function part).

Step 301: the distinction module step 302 for conversion : Conversion, Same sound word selection key distinction module step 305:. Key state detection treatment module step 306:. Key off detecting module step 308:. Marker move mode distinction module step 309:. Kana-kanji conversion treatment module step 310:. Separation position generation processing module step

311:. Reading restoration module step of Chinese character 312:. Delimitation treatment module step 313:. a separation position selection key distinction module step -- the 314:mode setting key distinction module step 316:automatic marker move setting-out module step 318 -- a :automatic marker transit time interval setting-out module step 319:relevance pause conversion candidate output process module [0030][Example 1 of kana-kanji conversion processing] Here, it describes based on the display example 1 of Fig.4. In Fig.3, if the kana character string "**" is input as shown in Fig.4 from the input processing part 1, this judges whether it is a kana character string (Step 301), and since it is a kana character string, the control part 5 will be memorized to the storage part 4 as a conversion object character, and will carry out output displaying of the result to the display part 8.The kana character string shown in the display example 1 of Fig.4 is processed like the following. "-- here -- yes -- **** -- " -- if a character string is input and the key (the same as a same sound word selection key) for conversion is pressed here, the input process hand part 1 will judge whether it is a key for conversion (Step 302), and the key press Shimo time judgment part 2 will measure the time when the key is pressed (Step 303).

[0031]The time when the key is pressed judges beyond in fixed time (Step 304), and when it is not beyond fixed time, While remembering the candidate from whom the kana-kanji conversion part 6 is started, and a pause differs by the pause series generation part 7, the candidate of the highest separation position of the priority which the kana-kanji conversion part 6 generated is displayed on the display part 8. This result is shown in Fig.4 **. When it judges beyond as fixed time (Step 304), the bottom time judgment part 2 of a key press here by key state detection processing (Step 305), The marker who shows a separation position as processing when the conversion key continues being pressed is moved, and while a key is continuing being pressed, the marker is moved to the position which moves this marker with a slow constant period and from which a separation position is different sequentially (Step 307).

[0032]Here, if key off is carried out in a desired separation position (Step 306), the candidate output process (Step 319) of the primacy of the conversion candidate applicable to the position will be performed. The result is shown in Fig.4. It is shown in ** from Fig.4 ** how the state of movement of the marker who shows a separation position will move, by the time it chooses a desired separation position. The position with a separation position is shown when the first conversion key is pressed, and it specifies a marker's current position clearly by different conspicuous display from this.

[0033]Fig.9 is a detailed block diagram of the bottom time judgment part 2 of a key press. In Fig.9, if a key is pressed, a key code will be generated, when this key code is compared with the storage code of a comparison key code and corresponds, only the count number by which time setting is carried out performs time counting, and it is detected whether the key is pressed for a definite period of time. Although not displayed on Fig.4, in order to make a separation position intelligible, the mark of other triangles instead of an upper line showing, or changing width of an upper line, and displaying is also considered.

[0034]The key which converts by the above-mentioned description does not adhere to a key name by the thing of the key which chooses conversion and the conversion next candidate (same sound word). The 1st conversion is only a candidate display of the priority of primacy as an output method of a candidate sequence with which separation positions differ, How to choose it as the position of the candidate from whom a pause differs when a key is once released and it continues being pushed on the next by moving a marker sequentially, Or when pushed [continue], without inputting a conversion object character sequence and once releasing a conversion key, how to display the pause candidate of primacy and move a marker to the next candidate

sequentially from the state etc. can be considered. Therefore, the conversion candidate from whom a same sound word and a separation position differ by one conversion key can be chosen. Since it has limited to the display of the necessary minimum of only a separation position and the conversion candidate of a primacy, the first conversion does not need to display the unnecessary conversion next candidate, and even if there are many candidates, it can choose a desired candidate easily.

[0035][Examples 2 and 3 of kana-kanji conversion processing] Here, it describes based on the display example 2 of Fig.5. When the conversion key is continuing being pressed in the above-mentioned example 1 of kana-kanji conversion processing, When displaying the marker who shows one separation position after another with a certain time interval and two or more separation positions exist on one conversion candidate (Chinese character), the Chinese character is read, it restores to information, and a marker display is performed, and it enables it to choose the conversion candidate from whom a separation position differs. If a conversion object character sequence is input from the input processing part 1, the control part 5 is sequentially memorized to the storage part 4 by making this into a conversion object character sequence. If the conversion object character sequence "it is a kimono here" is input, these will be memorized by the storage part 4 as a conversion object character sequence by above-mentioned processing, and will display a result on the display part 8.

[0036]Since it judges whether there is any conversion object character sequence and there is a candidate for conversion in this case when the key which converts in this state is pressed (Step 302), the conversion object character sequence of primacy is displayed by the kana-kanji conversion part 6 and the separation position generation part 7. As it combines with this and is shown in Fig.5 **, the display of a separation position is expressed as an upper line on the character of a conversion result. It is judged whether it is pushed beyond the fixed time that has a key which converts in this state (Step 304), and the marker who indicates that it is pushed by the separation position beyond fixed time moves with a constant period. The situation of movement of the marker on a display screen is shown in Fig.5 ** - **. As shown in Fig.5 **, when a marker comes on "**" of "footwear", "**" reads and is replaced by the reading restoration section 10 for "vomiting" (Step 311).

[0037]Fig.10 is a detailed block diagram of the reading restoration section 10. The reading restoration section 10 searches a reading notation correspondence table by reading and a notation correspondence table search means first, Reading "vomit" of "**" of "footwear" is searched, and while memorizing two characters, it reads, and from the number of characters, the character width of a display is computed by a character width calculating means (character gap calculation part), and it memorizes [an applicable Chinese character and here]. The display part 8 is displayed so that it may fit in the display width of "**" which changed the Chinese character notation to reading, and showed the reading width of character first based on this information, and it provides the ease of carrying out of selection of the separation position where elasticity of a display does not take place. If key off is carried out when a marker continues moving a separation position by a constant period when the key which chooses conversion and a same sound word was continuing being pressed, and a marker comes to a desired position (Step 306), an applicable pause conversion candidate output process (Step 319) will perform the display example of Fig.5 **.

[0038]It is the example 2 of kana-kanji conversion processing which it rereads and is displayed by above-mentioned description when it is in two Chinese characters whose separation positions are one, and the example 3 of kana-kanji conversion processing expresses this reading character

as the display width of the Chinese character currently displayed first. therefore, when two separation positions may produce on one conversion candidate (Chinese character), and making conversion correction, a conversion candidate is read, it changes into information, and a separation position is clarified -- things can be carried out. Since a character width is changed and the restored input kana character string is displayed so that it may be settled in the original candidate's character gap, the separation position included in the restored reading information becomes legible, and selection becomes easy.

[0039][Example 4 of kana-kanji conversion processing] Here, it describes based on the display example 3 of Fig.6. The state in the mode set up by the mode setting part 3 or the default is judged by the control part 5, and when the automatic mode is set up and the separation position selection key is pressed in the position in which (Step 312) and a marker exist, the conversion result of a desired separation position is displayed. Fig.6 ** will be displayed, if the key which will convert after a conversion object character sequence is input if automatic marker movement is set up is pressed and kana-kanji conversion processing (Step 309), pause candidate generation processing (Step 310), and reading restoration processing (Step 311) of a Chinese character are performed.

[0040]The marker moving part 9 is started by the control part 5 in this state. The display screen at this time is shown in Fig.6 ** - **. The marker moves with the constant period. If the separation position selection key is pressed when a marker comes to a desired separation position (Step 313), an automatic or hand control will be judged, the pause conversion candidate output process of relevance will be performed from an automatic thing (Step 319), and marker movement will carry out display processing of the result. When a marker comes to the place of "**" of a desired separation position "dentist", a conversion result when the separation position selection key is pressed is shown in Fig.6 **. Therefore, if it is set up so that a marker may move for every separation position with a constant period automatically previously, and an input string is converted by the conversion key, A marker moves until a desired separation position is chosen by the separation position selection key, and while a separation position is chosen, he can make conversion correction of the candidate corresponding to the separation position.

[0041][Example 5 of kana-kanji conversion processing] Here, it describes based on the display example 4 of Fig.7. When the same sound word selection key is pressed in the position in which (Step 312) and a marker exist when the state in the mode set up by the mode setting part 3 or the default is judged by the control part 5 and the automatic mode is set up, The desired next candidate or previous candidate of a conversion result of a separation position is displayed. Fig.7 ** will be displayed, if the key which will convert after a conversion object character sequence is input if automatic marker movement is set up is pressed and kana-kanji conversion processing (Step 309), pause candidate generation processing (Step 310), and reading restoration processing (Step 311) of a Chinese character are performed.

[0042]The marker moving part 9 is started by the control part 5 in this state. The display screen at this time is shown in Fig.7 ** - **. The marker moves with the fixed time interval. If the same sound word selection key is pressed when a marker comes to a desired separation position (Step 302), It is judged for an automatic whether it is manual (Step 308), since it is automatic, the selection process of the next candidate of the same sound word of an applicable position or the previous candidate is performed (Step 312), and marker movement carries out display processing of the result. When a marker comes to the place of "**" of the beginning of a desired separation position "here", a conversion result when the same sound word selection key is pressed is shown in Fig.7 **. Therefore, if it is set up so that a marker may move for every separation position

with a constant period automatically previously, and an input string is converted by the conversion key, A marker moves until a desired separation position is chosen by the same sound word selection key, and while a separation position is chosen, he can convert the clause corresponding to the separation position to a same sound word candidate.

[0043][Example of marker setting processing] Here, it describes based on the display example of the setting screen of the present invention shown in Fig.8. When the key which performs selection of conversion and a same sound word continues being pressed, it enables it to set up the movement speed of the marker who shows a separation position with a marker setting screen. After the conversion key is pressed, when the key of whether a marker is moved automatically, conversion, or same sound word selection is continuing being pressed, it can be made to perform automatic / manual mode setting of whether to move a marker.

[0044]For example, the former mode setting is possible by displaying the setting screen which sets up the move speed of the marker who shows a separation position, as shown in Fig.8, and inputting the specification number 1 for the column for N seconds to move a marker sequentially for every separation position in a cycle of 1 second. It is also more possible than the current value to set up late or quickly. In this case, it is possible to output to a screen and to enable it to choose and set to it with a marker's blinking period etc. Automatic/manual setting of the latter marker movement can also be chosen from the setting screen display (guidance display) shown in Fig.8, and can be set up.

[0045]If the mode setting key is pressed from the input processing part 1 (Step 314), It is judged by the control part 5 whether it is a mode setting key, when it is a mode setting key, a judgment of time interval setting out is made by the mode setting part 3 (Step 317), and in being time interval setting out, it performs time interval setting processing (Step 318). If the mode setting key is pressed as shown in Fig.8, a display screen will display the setting screen of "a separation position marker's move speed setting out" which chooses the speed which the marker who shows a separation position moves. The mode setting set as manual either is also automatic / thing which performs selection setting by the same setting screen display (guidance display) about a marker's movement shown in Fig.8. therefore -- when the marker who shows a separation position is automatically moved with a fixed time interval, or the conversion key is continuing being pressed, or it makes it move for example -- automatic in a setting screen / manual mode setting -- it can do. A marker's movement speed (cycle) can be doubled with a user individual's optimal operating speed.

[0046]Fig.9 is a detailed block diagram of the bottom time judgment part 2 of a key press, and 9-1 is a key code comparison means to compare with the compare key code memory means of 9-6 the key code generated from the input processing part 1 when a key is pressed. In the case of this example, 9-6 has memorized the key code of a conversion key and a previous candidate key as a key code which should be compared. The coincidence signal generating means of 9-2 is a coincidence signal generating means which tells having corresponded when the pressed key corresponded with the conversion key or previous candidate key memorized by the compare key code memory means.

[0047]If a key code corresponds, the time counting means of 9-3 will be started, and the bottom time of a key press will be counted. 9-7 is a time setting memory measure which has memorized the time value of the standard for judging that a key is continuing being pressed. The time comparing means of 9-4 starts the separation position marker code generating means of 9-5, when the value memorized by the time setting value memory measure is compared with the value which counted time and it corresponds with a preset value.

[0048]Fig.10 is a detailed block diagram of the reading restoration section 10. About the reading restoration section 10, since it has already described in the examples 2 and 3 of kana-kanji conversion processing, it omits. Fig.11 is a detailed block diagram of the separation position marker code generating means 9-5. 11-1 is a timer set means for setting up the value of 1 second, when the key is pressed, and generating a key code, for example at a 1-second interval. 11-2 is a timer counting means for counting the time after a key signal is generated. 11-5 is a count set value memory measure which memorizes the value equivalent to 1 second, when generating a separation position marker code for example, at intervals of 1 second. The count comparison means of 11-3 compares the value of the timer count of 11-2 with the preset value of 11-5. The key code generating means of 11-4 generates a separation position marker code, when the value of a comparison means corresponds.

[0049]Fig.12 is a detailed block diagram of the marker moving part 9. If the marker chord detecting means of 12-1 detects a separation position marker code, Whether a marker is moved when conversion or the same sound word selection key is continuing being pressed by marker automatic / manual judging means of 12-2 (Hand control), (Automatic) automatic / manual mode are judged for whether the back automatic target of conversion or a same sound word selection key pushed immediately after the conversion object character sequence is made to move a marker with a fixed time interval.

[0050]In a manual case, a marker should be taken out from the marker position which shows the character of what position memorized by the storage part 4 it is to which position on a display screen, or a marker position is computed, and a marker position is updated to it. When moving a marker automatically, it is the same as a manual case to compute a marker's position and to update a marker's position, but a marker's movement is repeated with a fixed time interval after this.

[0051]Fig.13 is a detailed block diagram of the pause series generation part 7. Based on the input kana character string, 13-1 makes a clause with reference to an independent word dictionary, a proper noun dictionary, an example dictionary, etc. which a kana-kanji conversion incorporates. 13-2 is a clause series generation part which matches with an input string the clause generated by 13-1, and connects it. If a clause series is generated by 13-2, the clause connection decision means of 12-3 will judge the propriety of relation with a clause grammatically, and will leave only a right thing. It is a notation creating means of 13-4 which the notation is made to correspond to the clause series judged to be the right, and is generated by 13-3. The pause series memory measure of 13-5 matches with the thing which expressed the clause series with the notation, and it, and memorizes a separation position.

[0052]Fig.14 is a detailed block diagram of the mode setting part 3. It is a mode setting key detection means to detect whether 14-1 is a key for the pressed key to perform mode setting. If a mode setting key is detected by 14-1, the mode control means of 14-2 will take out setup information required for the mode setting memorized by the guidance information memory measure of 14-3, and will perform a screen display. 14-4 is a mode information storage means for memorizing the value by which mode setting was carried out. When the equipment of the present invention is started by the mode information storage means, the value set up as an initial value is memorized to it, and it can be used for it as a default value.

[0053]

[Effect of the Invention]According to the present invention, the following effect is achieved.

(1) It is [where a separation position is and] ** that it displays and is easy to choose a desired candidate.

(2) The conversion candidate from whom a same sound word and a separation position differ by one conversion key can be chosen. By continuing pressing a key, it becomes unnecessary to be able to choose the candidate from whom a separation position differs and to repress a key repeatedly, and usability becomes good.
(3) Since it has limited to the display of the necessary minimum of only a separation position and the conversion candidate of a primacy, the first conversion does not need to display the unnecessary conversion next candidate, and even if there are many candidates, it can choose a desired candidate easily.
(4) -- when two separation positions may produce on one conversion candidate (Chinese character), a separation position is indefinite in it continuing being a Chinese character notation, but when making conversion correction, a separation position is clarified by that which reads a conversion candidate and is changed into information -- things can be carried out and a separation position can be chosen correctly.
(5) Since a character width is changed and the restored input kana character string is further displayed so that it may be settled in the original candidate's character gap, Even if the elasticity to the right and left of a printable character is lost and a marker moves periodically, in order not to move a separation position, the separation position included in the restored reading information becomes legible, and selection becomes easy.
(6) If an input string is converted by the conversion key, it can set up so that a marker may move for every separation position with a constant period automatically previously, A marker moves until a desired separation position is chosen by the separation position selection key, and while a separation position is chosen, he can make conversion correction of the candidate corresponding to the separation position. In order to move automatically the marker who shows a separation position, it becomes unnecessary to provide the special key for performing marker movement. It is not necessary to press the key of marker movement repeatedly, and is user-friendly.
(7) If an input string is converted by the conversion key, it can set up so that a marker may move for every separation position with a constant period automatically previously, A marker moves until a desired separation position is chosen by the same sound word selection key, and while a separation position is chosen, he can convert the clause corresponding to the separation position to a same sound word candidate. Since the candidate of the same sound word of a position with a marker can be chosen and it is not necessary to move to an applicable clause by a cursor control key when the key which performs conversion or same sound word selection is pressed, in order to move automatically the marker who shows a separation position, usability becomes good.
(8) when the marker who shows a separation position is automatically moved with a fixed time interval, or the conversion key is continuing being pressed, or it makes it move for example -- automatic in a setting screen / manual mode setting -- it can do. A marker's movement speed (cycle) can be set up in accordance with a user individual's optimal operating speed. Even when making same sound word selection by the usual conversion key, the speed which presses a key is various by a user. That is, usability can be received by enabling it to set up a marker's movement speed in accordance with a user's liking. The timing which releases the key which continued being pressed fixed time has an advantage decided by a user's liking. Automatic / when it can be made to perform manual mode setting, the choice of the directions for a user can be extended for a marker's movement.

[Translation done.]

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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

TECHNICAL FIELD

[Field of the Invention]The present invention relates to the kana-kanji conversion equipment applied to document information processing units, such as a word processor, a personal computer, an electronic notebook, a Personal Digital Assistant, a POS terminal, and a workstation, in detail about kana-kanji conversion equipment.

[Translation done.]

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MEANS

[Means for solving problem]Fig.1 is a block diagram showing the basic constitution of the present invention. The input part 101 which has a function key which inputs instructions of the letter key and conversion whose present invention inputs the kana character string which consists of a single clause or two or more sentence paragraph in Fig.1, setting out, selection, etc., While generating all the separation positions which have the dictionary part 102a, analyze the clause of

an input kana character string in the dictionary part 102a, and serve as a clause, The kana-kanji conversion part 102 which converts the kana character string corresponding to the clause of the generated separation position to the candidate of a Chinese character writing-both-in-kanji-and-kana sentence, The alphabetic-information-storage part 103 which remembers an input kana character string, all the generated separation positions, the conversion candidate of those, etc., The bottom time judgment part 104 of a key press which measures ****** [the depression time of the conversion key 101a of the input part 101 / in predetermined time], and is judged, The marker moving part 105 to which a marker is moved for every separation position with a constant period when the marker who shows a conversion candidate's separation position is generated and the conversion key 101a of the input part 101 is pressed beyond as for predetermined time, When it had the display part 106 which displays a kana character string, a separation position, a marker, a conversion candidate, etc. on a screen, the aforementioned kana-kanji conversion part 102 converted the same sound word candidate when the depression time of the conversion key 101a became in predetermined time, and the conversion key 101a is pressed beyond as for predetermined time and released after same sound word conversion, It is kana-kanji conversion equipment making conversion correction of the candidate of the separation position which the marker who moved shows.

[0012]The separation position discrimination section 107 which distinguishes whether there are two or more separation positions on one converted candidate when the aforementioned conversion key 101a is pressed beyond as for predetermined time, When two or more separation positions exist on one conversion candidate, have further the reading restoration section 108 which restores this conversion candidate to the original reading information, and the aforementioned kana-kanji conversion part 102, When the marker who shows the separation position of the reading information restored by the reading restoration section 108 is chosen by conversion key 101a operation, it is preferable to be constituted so that conversion correction of the candidate of the separation position may be made.

[0013]The separation position discrimination section 107 which distinguishes whether there are two or more separation positions on one converted candidate when the aforementioned conversion key 101a is pressed beyond as for predetermined time, The reading restoration section 108 which restores this conversion candidate to the original reading information when two or more separation positions exist on one conversion candidate, It has further 109 and the character gap calculation part 110 which computes a candidate's converted character gap a total of several copies of sentence number of letters which calculates the number of characters of the original reading information, and, as for the aforementioned reading restoration section 108, it is preferable to have composition provided with the function which carries out zooming of the character of the original reading information so that it may be settled in a candidate's character gap.

[0014]The marker move automatic setting key 101b for the aforementioned input part 101 to make a candidate conversion Ushiro automatic target move a marker for every separation position with a constant period, It has further the separation position selection key 101c for choosing a separation position and making conversion correction of the candidate of the separation position, The function which carries out a selection stop by the selection command from the separation position selection key 101c in a desired separation position while the aforementioned marker moving part 105 moves a marker for every separation position with a constant period by the movement command from the marker move automatic setting key 101b, As for the aforementioned kana-kanji conversion part 102, it is preferable to carry out the

function which makes conversion correction of the candidate corresponding to the separation position where the separation position selection key 101c was selected to the composition which it had, respectively.

[0015]The marker move automatic setting key 101b for the aforementioned input part 101 to move a marker for every separation position with a constant period automatically after candidate conversion, It has further 101 d of same sound word selection keys for choosing a separation position and converting the clause of the separation position to a same sound word, The function which carries out a selection stop in a desired separation position by the selection command from 101d of same sound word selection keys while the aforementioned marker moving part 105 moves a marker for every separation position with a constant period by the movement command from the marker move automatic setting key 101b, As for the aforementioned kana-kanji conversion part 102, it is preferable to carry out the function which converts the clause corresponding to the separation position where 101 d of same sound word selection keys were selected to a same sound word candidate to the composition which it had, respectively. Between fixed time, again, when there is no input of 101d of same sound word selection keys or a conversion object character sequence, the aforementioned marker moving part 105 may be constituted so that a marker may be restarted.

[0016]The mode setting part 111 which sets up whether the marker after candidate conversion is automatically moved by the aforementioned marker move automatic setting key 101b, or it is made to move by depression operation of a conversion key, It has further the marker information storage part 112 which memorized marker setup information, such as a marker's speed setting, and, as for the aforementioned display part 106, it is preferable to have composition provided with the function which displays the setting screen for setting up a marker's speed setting, and a marker's automatic movement / manual movement.

[0017]As for the kana-kanji conversion part 102, in the present invention, it is preferable to have composition provided with the pause series generation part which generates all the separation positions which analyze the clause of an input kana character string in a dictionary part, and serve as a clause. The input part 101 (the conversion key 101a, the marker move automatic setting key 101b, the separation position selection key 101c, and 101 d of same sound word selection keys are included) comprises a keyboard, a mouse, a pointing device, and an input device that consists of pen tablets. The kana-kanji conversion part 102 (the dictionary part 102a is included), A total of the alphabetic-information-storage part 103, the bottom time judgment part 104 of a key press, the marker moving part 105, the separation position discrimination section 107, the reading restoration section 108, and several copies of character numbers 109, the character gap calculation part 110, the mode setting part 111, and the marker information storage part 112, It comprises a microcomputer which consists of CPU, ROM, RAM, an I/O Port, a counter, and a timer. Program data for the above-mentioned CPU to control each part, the data of the dictionary part 102a, the marker's associated data, etc. are memorized by the above-mentioned ROM. Progress, state information, etc. required for control management are memorized by the above-mentioned RAM (it functions as the alphabetic-information-storage part 103). The display part 106 comprises a display device consisting of a CRT display and a LCD (liquid crystal) display.

[0018]If it describes further about the function of the composition of the present invention, the input part 101 is provided with the function key which inputs instructions of the letter key which inputs the kana character string which consists of a single clause or two or more sentence paragraph, conversion, setting out, selection, etc. in Fig.1. The kana-kanji conversion part 102

generates all the separation positions which analyze the clause of an input kana character string with reference to the dictionary part 102a, and serve as a clause, and converts the kana character string corresponding to the clause of the generated separation position to the candidate of a Chinese character writing-both-in-kanji-and-kana sentence. Since the alphabetic-information-storage part 103 remembers an input kana character string, all the generated separation positions, the conversion candidate of those, etc., it is not necessary to convert repeatedly the clause from which a separation position differs in the kana-kanji conversion part 102. The bottom time judgment part 104 of a key press measures ****** [the depression time of the conversion key 101a / in predetermined time], and judges. When it judges with the decided result and the conversion key 101a being pressed beyond as for predetermined time, the marker moving part 105 generates the marker who shows a conversion candidate's separation position, and moves a marker for every separation position with a constant period. The kana-kanji conversion part 102 will convert a same sound word candidate, if the depression time of the conversion key 101a becomes in predetermined time, and after same sound word conversion, beyond as for predetermined time, the conversion key 101a is pressed, and is released, and it makes conversion correction of the candidate of the separation position which the marker who moved shows in the case. By this, when the same sound word conversion converted first is not a desired conversion candidate, if the depression of the conversion key 101a is carried out, further, When a marker is moved for every separation position with a constant period and a desired separation position has a marker, by releasing the conversion key 101a, the separation position can be chosen and conversion correction of the candidate can be made. Therefore, the conversion candidate from whom a same sound word and a separation position differ by one conversion key can be chosen. Since it has limited to the display of the necessary minimum of only a separation position and the conversion candidate of a primacy, the first conversion does not need to display the unnecessary conversion next candidate, and even if there are many candidates, it can choose a desired candidate easily.

[0019]The separation position discrimination section 107 which distinguishes whether there are two or more separation positions on one converted candidate when the aforementioned conversion key 101a is pressed beyond as for predetermined time, If the reading restoration section 108 which restores this conversion candidate to the original reading information is made the composition which it had further when two or more separation positions exist on one conversion candidate, the aforementioned kana-kanji conversion part 102, Since conversion correction of the candidate of the separation position is made when the marker who shows the separation position of the reading information restored by the reading restoration section 108 is chosen by conversion key 101a operation, By continuing pressing the conversion key 101a which performs same sound word selection, and moving a marker, when two or more separation positions exist on one conversion candidate (Chinese character), the candidate who converted once reads, it can be restored to information, the separation position included in the reading information can be chosen, and the candidate can be corrected. therefore, when two separation positions may produce on one conversion candidate (Chinese character), and making conversion correction, a conversion candidate is read, it changes into information, and a separation position is clarified -- things can be carried out.

[0020]The separation position discrimination section 107 which distinguishes whether there are two or more separation positions on one converted candidate when the aforementioned conversion key 101a is pressed beyond as for predetermined time, The reading restoration section 108 which restores this conversion candidate to the original reading information when

two or more separation positions exist on one conversion candidate, If 109 and the character gap calculation part 110 which computes a candidate's converted character gap are made the composition which it had further a total of several copies of sentence number of letters which calculates the number of characters of the original reading information, the aforementioned reading restoration section 108 can carry out zooming of the character of the original reading information so that it may be settled in a candidate's character gap. Usually, since the character representation is performed at equal intervals, when a candidate (Chinese character) is restored to the original reading information, a marker moves to right and left and are hard coming to see him, but. Thereby, since a character width is changed and the restored input kana character string is displayed so that it may be settled in the original candidate's character gap, the separation position included in the restored reading information becomes legible, and selection becomes easy.

[0021]The marker move automatic setting key 101b for the aforementioned input part 101 to move a marker for every separation position with a constant period automatically after candidate conversion, If the separation position selection key 101c for choosing a separation position and making conversion correction of the candidate of the separation position is made the composition which it had further, Since the aforementioned marker moving part 105 carries out a selection stop by the selection command from the separation position selection key 101c in a desired separation position while moving a marker for every separation position with a constant period by the movement command from the marker move automatic setting key 101b, If it is set up so that a marker may move for every separation position with a constant period automatically previously by the marker move automatic setting key 101b, and an input string is converted by the conversion key, A marker moves until a desired separation position is chosen by the separation position selection key 101c, and while a separation position is chosen, he can make conversion correction of the candidate corresponding to the separation position.

[0022]The marker move automatic setting key 101b for the aforementioned input part 101 to move a marker for every separation position with a constant period automatically after candidate conversion, If 101 d of same sound word selection keys for choosing a separation position and converting the clause of the separation position to a same sound word are made the composition which it had further, Since the aforementioned marker moving part 105 carries out a selection stop in a desired separation position by the selection command from 101d of same sound word selection keys while moving a marker for every separation position with a constant period by the movement command from the marker move automatic setting key 101b, If it is set up so that a marker may move for every separation position with a constant period automatically previously by the marker move automatic setting key 101b, and an input string is converted by the conversion key, A marker moves until a desired separation position is chosen by 101 d of same sound word selection keys, and while a separation position is chosen, he can convert the clause corresponding to the separation position to a same sound word candidate. Between fixed time, again, when there is no input of 101d of same sound word selection keys or a conversion object character sequence, a marker can also be restarted.

[0023]The mode setting part 111 which sets up whether the marker after candidate conversion is automatically moved by the aforementioned marker move automatic setting key 101b, or it is made to move by depression operation of a conversion key, Since it had further the marker information storage part 112 which memorized marker setup information, such as a marker's speed setting, and the aforementioned display part 107 is provided with the function which displays the setting screen for setting up a marker's speed setting, and a marker's automatic

movement / manual movement, when the marker who shows a separation position is automatically moved with a fixed time interval, or the conversion key is continuing being pressed, or it makes it move for example -- automatic in a setting screen / manual mode setting -- it can do. A marker's movement speed (cycle) can be set up in accordance with a user individual's optimal operating speed.

[0024]

[Mode for carrying out the invention]Hereafter, based on the working example shown in a figure, the present invention is explained in full detail. The present invention is not limited by this. The present invention is applied mainly to document information processing units, such as a word processor, a personal computer, an electronic notebook, a Personal Digital Assistant, a POS terminal, and a workstation.

[0025]Fig.2 is a block diagram showing one working example of the kana-kanji conversion equipment of the present invention. In Fig.2, 1 is a thing input processing part for performing the input of a character, and the designation input of a function, and comprises an input device which generally consists of a keyboard, a mouse, a pointing device, a pen tablet, etc. (it functions as an input part of Fig.1).the key (the conversion next candidate --) for choosing a same sound word, in order that the key which 2 is a bottom time judgment part of a key press, and was input by the input processing part 1 may choose the conversion result from which the separation position of a kana-kanji conversion result differs although it is a previous candidate selection key etc., it is called below a same sound word selection key -- it is -- when the time when a key is continuing being pressed is measured to a case and this key continues being pushed on it during more than predetermined scheduled time, it is for making movement of the marker who shows a separation position start (it functions as a bottom time judgment part of a key press of Fig.1). It serves to use properly for the means which displays the marker who shows a separation position for the key which performs conversion or same sound word selection.

[0026]When the key which 3 is a mode setting part and was input from the input processing part 1 is judged to be a mode setting key, A setting screen is displayed and it serves to perform automatic/manual setting of whether change of a marker's movement speed, and setting out and a marker's movement are automatically moved with a constant period, or to move, only when a key is continuing being pressed (it functions as a mode setting part of Fig.1). 4 is what is called a ROM that memorizes program data and the data of a dictionary part, and a storage part constituted by RAM etc. which memorize progress, state information, etc. required for control management, and which can be written in (it functions also as the alphabetic-information-storage part of Fig.1, and a marker information storage part). 5 is a control part, comprises a 1 chip CPU and controls an input, a display, and function processing. Control management of the control part 5 is performed from the program data memorized to the memory measure 4, and functions also as a total of the separation position discrimination section of Fig.1, and several copies of character numbers, and a character gap calculation part.

[0027]6 is a kana-kanji conversion part and converts the meeting of a kana character string, and what is called a conversion object character sequence to a Chinese character writing-both-in-kanji-and-kana sentence. In this example, the kana-kanji conversion part 6 has a function of the kanji conversion with automatic clause-parsing which can convert some clause candidates at once. Although not written in particular clearly, in the kana-kanji conversion part 6, dictionary parts, such as an independent word dictionary required for conversion, a proper noun dictionary, and an example dictionary, are also included (it functions as a kana-kanji conversion part of Fig.1). Based on relation of the clause which 7 is a pause series generation part and the kana-

kanji conversion part 6 makes grammatically, A series of candidates from whom the separation position of the input conversion object character sequence differs are arranged in order with the highest probability, and it can be made to carry out at specification output orders when the candidate selection from which a pause differs is made display selection of them (it may include in the function of a kana-kanji conversion part).

[0028]8 is a display part, comprises a display device which consists of a LCD (liquid crystal) display unit or a CRT display unit, and displays the display of the input character, and the processing according to a function key (it functions as a display part of Fig.1). 9 is a marker moving part which moves the marker who shows a separation position, and the marker moving part 9, The work which stops a marker when the same sound word selection key is continuing being pressed, and a key is released after moving a marker with a constant period and having continued pressing the same sound word selection key (it is called key off below), It detects that a marker's movement is set up automatically and has a function to which a marker is moved with a constant period (it functions as a marker moving part of Fig.1). 10 is a reading restoration section, and when there are two or more separation positions on the same candidate (Chinese character) based on the table which matched the notation and reading of the word of the dictionary built in the kana-kanji conversion part 6, the display of an applicable Chinese character is restored to reading, It enables it to specify a separation position (it functions as a reading restoration section of Fig.1).

[0029]Fig.3 is a flow chart which shows the conversion process procedure of the kana-kanji conversion equipment of the present invention. Fig.4 to Fig.7 is an explanatory view showing the display examples 1-4 of kana-kanji conversion processing of the present invention.Fig.8 is an explanatory view showing the display example of the setting screen of the present invention. It describes using the flow chart of Fig.3, and the display example of Fig.4 - Fig.7 about the specific examples 1-5 of kana-kanji conversion processing of the present invention.In Fig.3, the following steps 301-319 operate as each module (function part).

Step 301: the distinction module step 302 for conversion : Conversion, Same sound word selection key distinction module step 305:. Key state detection treatment module step 306:. Key off detecting module step 308:. Marker move mode distinction module step 309:. Kana-kanji conversion treatment module step 310:. Separation position generation processing module step 311:. Reading restoration module step of Chinese character 312:. Delimitation treatment module step 313:. a separation position selection key distinction module step -- the 314:mode setting key distinction module step 316:automatic marker move setting-out module step 318 -- a :automatic marker transit time interval setting-out module step 319:relevance pause conversion candidate output process module [0030][Example 1 of kana-kanji conversion processing] Here, it describes based on the display example 1 of Fig.4. In Fig.3, if the kana character string "**" is input as shown in Fig.4 from the input processing part 1, this judges whether it is a kana character string (Step 301), and since it is a kana character string, the control part 5 will be memorized to the storage part 4 as a conversion object character, and will carry out output displaying of the result to the display part 8.The kana character string shown in the display example 1 of Fig.4 is processed like the following. "-- here -- yes -- **** -- " -- if a character string is input and the key (the same as a same sound word selection key) for conversion is pressed here, the input process hand part 1 will judge whether it is a key for conversion (Step 302), and the bottom time judgment part 2 of a key press will measure the time when the key is pressed (Step 303).

[0031]The time when the key is pressed judges beyond in fixed time (Step 304), and when it is not beyond fixed time, While remembering the candidate from whom the kana-kanji conversion

part 6 is started, and a pause differs by the pause series generation part 7, the candidate of the highest separation position of the priority which the kana-kanji conversion part 6 generated is displayed on the display part 8. This result is shown in Fig.4 **. When it judges beyond as fixed time (Step 304), the bottom time judgment part 2 of a key press here by key state detection processing (Step 305), The marker who shows a separation position as processing when the conversion key continues being pressed is moved, and while a key is continuing being pressed, the marker is moved to the position which moves this marker with a slow constant period and from which a separation position is different sequentially (Step 307).

[0032]Here, if key off is carried out in a desired separation position (Step 306), the candidate output process (Step 319) of the primacy of the conversion candidate applicable to the position will be performed. The result is shown in Fig.4. It is shown in ** from Fig.4 ** how the state of movement of the marker who shows a separation position will move, by the time it chooses a desired separation position. The position with a separation position is shown when the first conversion key is pressed, and it specifies a marker's current position clearly by different conspicuous display from this.

[0033]Fig.9 is a detailed block diagram of the key press Shimo time judgment part 2. In Fig.9, if a key is pressed, a key code will be generated, when this key code is compared with the storage code of a comparison key code and corresponds, only the count number by which time setting is carried out performs time counting, and it is detected whether the key is pressed for a definite period of time. Although not displayed on Fig.4, in order to make a separation position intelligible, the mark of other triangles instead of an upper line showing, or changing width of an upper line, and displaying is also considered.

[0034]The key which converts by the above-mentioned description does not adhere to a key name by the thing of the key which chooses conversion and the conversion next candidate (same sound word). The 1st conversion is only a candidate display of the priority of primacy as an output method of a candidate sequence with which separation positions differ, How to choose it as the position of the candidate from whom a pause differs when a key is once released and it continues being pushed on the next by moving a marker sequentially, Or when pushed [continue], without inputting a conversion object character sequence and once releasing a conversion key, how to display the pause candidate of primacy and move a marker to the next candidate sequentially from the state etc. can be considered. Therefore, the conversion candidate from whom a same sound word and a separation position differ by one conversion key can be chosen. Since it has limited to the display of the necessary minimum of only a separation position and the conversion candidate of a primacy, the first conversion does not need to display the unnecessary conversion next candidate, and even if there are many candidates, it can choose a desired candidate easily.

[0035][Examples 2 and 3 of kana-kanji conversion processing] Here, it describes based on the display example 2 of Fig.5. When the conversion key is continuing being pressed in the above-mentioned example 1 of kana-kanji conversion processing, When displaying the marker who shows one separation position after another with a certain time interval and two or more separation positions exist on one conversion candidate (Chinese character), the Chinese character is read, it restores to information, and a marker display is performed, and it enables it to choose the conversion candidate from whom a separation position differs. If a conversion object character sequence is input from the input processing part 1, the control part 5 is sequentially memorized to the storage part 4 by making this into a conversion object character sequence. If the conversion object character sequence "it is a kimono here" is input, these will be memorized

by the storage part 4 as a conversion object character sequence by above-mentioned processing, and will display a result on the display part 8.

[0036]Since it judges whether there is any conversion object character sequence and there is a candidate for conversion in this case when the key which converts in this state is pressed (Step 302), the conversion object character sequence of primacy is displayed by the kana-kanji conversion part 6 and the separation position generation part 7. As it combines with this and is shown in Fig.5 **, the display of a separation position is expressed as an upper line on the character of a conversion result. It is judged whether it is pushed beyond the fixed time that has a key which converts in this state (Step 304), and the marker who indicates that it is pushed by the separation position beyond fixed time moves with a constant period. The situation of movement of the marker on a display screen is shown in Fig.5 ** - **. As shown in Fig.5 **, when a marker comes on "**" of "footwear", "**" reads and is replaced by the reading restoration section 10 for "vomiting" (Step 311).

[0037]Fig.10 is a detailed block diagram of the reading restoration section 10. The reading restoration section 10 searches a reading notation correspondence table by reading and a notation correspondence table search means first, Reading "vomit" of "**" of "footwear" is searched, and while memorizing two characters, it reads, and from the number of characters, the character width of a display is computed by a character width calculating means (character gap calculation part), and it memorizes [an applicable Chinese character and here]. The display part 8 is displayed so that it may fit in the display width of "**" which changed the Chinese character notation to reading, and showed the reading width of character first based on this information, and it provides the ease of carrying out of selection of the separation position where elasticity of a display does not take place. If key off is carried out when a marker continues moving a separation position by a constant period when the key which chooses conversion and a same sound word was continuing being pressed, and a marker comes to a desired position (Step 306), an applicable pause conversion candidate output process (Step 319) will perform the display example of Fig.5 **.

[0038]It is the example 2 of kana-kanji conversion processing which it rereads and is displayed by above-mentioned description when it is in two Chinese characters whose separation positions are one, and the example 3 of kana-kanji conversion processing expresses this reading character as the display width of the Chinese character currently displayed first. therefore, when two separation positions may produce on one conversion candidate (Chinese character), and making conversion correction, a conversion candidate is read, it changes into information, and a separation position is clarified -- things can be carried out. Since a character width is changed and the restored input kana character string is displayed so that it may be settled in the original candidate's character gap, the separation position included in the restored reading information becomes legible, and selection becomes easy.

[0039][Example 4 of kana-kanji conversion processing] Here, it describes based on the display example 3 of Fig.6. The state in the mode set up by the mode setting part 3 or the default is judged by the control part 5, and when the automatic mode is set up and the separation position selection key is pressed in the position in which (Step 312) and a marker exist, the conversion result of a desired separation position is displayed. Fig.6 ** will be displayed, if the key which will convert after a conversion object character sequence is input if automatic marker movement is set up is pressed and kana-kanji conversion processing (Step 309), pause candidate generation processing (Step 310), and reading restoration processing (Step 311) of a Chinese character are performed.

[0040]The marker moving part 9 is started by the control part 5 in this state. The display screen at this time is shown in Fig.6 ** - **. The marker moves with the constant period. If the separation position selection key is pressed when a marker comes to a desired separation position (Step 313), an automatic or hand control will be judged, the pause conversion candidate output process of relevance will be performed from an automatic thing (Step 319), and marker movement will carry out display processing of the result. When a marker comes to the place of "**" of a desired separation position "dentist", a conversion result when the separation position selection key is pressed is shown in Fig.6 **. Therefore, if it is set up so that a marker may move for every separation position with a constant period automatically previously, and an input string is converted by the conversion key, A marker moves until a desired separation position is chosen by the separation position selection key, and while a separation position is chosen, he can make conversion correction of the candidate corresponding to the separation position.
[0041][Example 5 of kana-kanji conversion processing] Here, it describes based on the display example 4 of Fig.7. When the same sound word selection key is pressed in the position in which (Step 312) and a marker exist when the state in the mode set up by the mode setting part 3 or the default is judged by the control part 5 and the automatic mode is set up, The desired next candidate or previous candidate of a conversion result of a separation position is displayed. Fig.7 ** will be displayed, if the key which will convert after a conversion object character sequence is input if automatic marker movement is set up is pressed and kana-kanji conversion processing (Step 309), pause candidate generation processing (Step 310), and reading restoration processing (Step 311) of a Chinese character are performed.
[0042]The marker moving part 9 is started by the control part 5 in this state. The display screen at this time is shown in Fig.7 ** - **. The marker moves with the fixed time interval. If the same sound word selection key is pressed when a marker comes to a desired separation position (Step 302), It is judged for an automatic whether it is manual (Step 308), since it is automatic, the selection process of the next candidate of the same sound word of an applicable position or the previous candidate is performed (Step 312), and marker movement carries out display processing of the result. When a marker comes to the place of "**" of the beginning of a desired separation position "here", a conversion result when the same sound word selection key is pressed is shown in Fig.7 **. Therefore, if it is set up so that a marker may move for every separation position with a constant period automatically previously, and an input string is converted by the conversion key, A marker moves until a desired separation position is chosen by the same sound word selection key, and while a separation position is chosen, he can convert the clause corresponding to the separation position to a same sound word candidate.
[0043][Example of marker setting processing] Here, it describes based on the display example of the setting screen of the present invention shown in Fig.8. When the key which performs selection of conversion and a same sound word continues being pressed, it enables it to set up the movement speed of the marker who shows a separation position with a marker setting screen. After the conversion key is pressed, when the key of whether a marker is moved automatically, conversion, or same sound word selection is continuing being pressed, it can be made to perform automatic / manual mode setting of whether to move a marker.
[0044]For example, the former mode setting is possible by displaying the setting screen which sets up the move speed of the marker who shows a separation position, as shown in Fig.8, and inputting the specification number 1 for the column for N seconds to move a marker sequentially for every separation position in a cycle of 1 second. It is also more possible than the current value to set up late or quickly. In this case, it is possible to output to a screen and to enable it to

choose and set to it with a marker's blinking period etc. Automatic/manual setting of the latter marker movement can also be chosen from the setting screen display (guidance display) shown in Fig.8, and can be set up.

[0045]If the mode setting key is pressed from the input processing part 1 (Step 314), It is judged by the control part 5 whether it is a mode setting key, when it is a mode setting key, a judgment of time interval setting out is made by the mode setting part 3 (Step 317), and in being time interval setting out, it performs time interval setting processing (Step 318). If the mode setting key is pressed as shown in Fig.8, a display screen will display the setting screen of "a separation position marker's move speed setting out" which chooses the speed which the marker who shows a separation position moves. The mode setting set as manual either is also automatic / thing which performs selection setting by the same setting screen display (guidance display) about a marker's movement shown in Fig.8. therefore -- when the marker who shows a separation position is automatically moved with a fixed time interval, or the conversion key is continuing being pressed, or it makes it move for example -- automatic in a setting screen / manual mode setting -- it can do. A marker's movement speed (cycle) can be doubled with a user individual's optimal operating speed.

[0046]Fig.9 is a detailed block diagram of the bottom time judgment part 2 of a key press, and 9-1 is a key code comparison means to compare with the compare key code memory means of 9-6 the key code generated from the input processing part 1 when a key is pressed. In the case of this example, 9-6 has memorized the key code of a conversion key and a previous candidate key as a key code which should be compared. The coincidence signal generating means of 9-2 is a coincidence signal generating means which tells having corresponded when the pressed key corresponded with the conversion key or previous candidate key memorized by the compare key code memory means.

[0047]If a key code corresponds, the time counting means of 9-3 will be started, and the bottom time of a key press will be counted. 9-7 is a time setting memory measure which has memorized the time value of the standard for judging that a key is continuing being pressed. The time comparing means of 9-4 starts the separation position marker code generating means of 9-5, when the value memorized by the time setting value memory measure is compared with the value which counted time and it corresponds with a preset value.

[0048]Fig.10 is a detailed block diagram of the reading restoration section 10. About the reading restoration section 10, since it has already described in the examples 2 and 3 of kana-kanji conversion processing, it omits. Fig.11 is a detailed block diagram of the separation position marker code generating means 9-5. 11-1 is a timer set means for setting up the value of 1 second, when the key is pressed, and generating a key code, for example at a 1-second interval. 11-2 is a timer counting means for counting the time after a key signal is generated. 11-5 is a count set value memory measure which memorizes the value equivalent to 1 second, when generating a separation position marker code for example, at intervals of 1 second. The count comparison means of 11-3 compares the value of the timer count of 11-2 with the preset value of 11-5. The key code generating means of 11-4 generates a separation position marker code, when the value of a comparison means corresponds.

[0049]Fig.12 is a detailed block diagram of the marker moving part 9. If the marker chord detecting means of 12-1 detects a separation position marker code, Whether a marker is moved when conversion or the same sound word selection key is continuing being pressed by marker automatic / manual judging means of 12-2 (Hand control), (Automatic) automatic / manual mode are judged for whether the back automatic target of conversion or a same sound word selection

key pushed immediately after the conversion object character sequence is made to move a marker with a fixed time interval.

[0050]In a manual case, a marker should be taken out from the marker position which shows the character of what position memorized by the storage part 4 it is to which position on a display screen, or a marker position is computed, and a marker position is updated to it. When moving a marker automatically, it is the same as a manual case to compute a marker's position and to update a marker's position, but a marker's movement is repeated with a fixed time interval after this.

[0051]Fig.13 is a detailed block diagram of the pause series generation part 7. Based on the input kana character string, 13-1 makes a clause with reference to an independent word dictionary, a proper noun dictionary, an example dictionary, etc. which a kana-kanji conversion incorporates. 13-2 is a clause series generation part which matches with an input string the clause generated by 13-1, and connects it. If a clause series is generated by 13-2, the clause connection decision means of 12-3 will judge the propriety of relation with a clause grammatically, and will leave only a right thing. It is a notation creating means of 13-4 which the notation is made to correspond to the clause series judged to be the right, and is generated by 13-3. The pause series memory measure of 13-5 matches with the thing which expressed the clause series with the notation, and it, and memorizes a separation position.

[0052]Fig.14 is a detailed block diagram of the mode setting part 3. It is a mode setting key detection means to detect whether 14-1 is a key for the pressed key to perform mode setting. If a mode setting key is detected by 14-1, the mode control means of 14-2 will take out setup information required for the mode setting memorized by the guidance information memory measure of 14-3, and will perform a screen display. 14-4 is a mode information storage means for memorizing the value by which mode setting was carried out. When the equipment of the present invention is started by the mode information storage means, the value set up as an initial value is memorized to it, and it can be used for it as a default value.

[Translation done.]

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PORTABLE TELEPHONE DEVICE AND ITS CHARACTER INPUT METHOD

No documents available for this priority number.

Inventor(s): URITA HIDEYUKI ± (URITA HIDEYUKI)

Applicant(s): NIPPON DENKI TELECOM SYST ± (NEC TELECOM SYST LTD)

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Abstract of JP2000172417 (A)

PROBLEM TO BE SOLVED: To provide a portable telephone device which enables character input by lower-frequency key depression and eliminates the need to prepare a key matrix table specially. SOLUTION: The ten-key or a symbol key of an input part 13 where predetermined characters are grouped and displayed is pressed for the 1st time to specify the row of a matrix table, a character list corresponding to the character group displayed on the pressed ten-key or symbol key is displayed at a display part 14 under the control of a control part 15, and the ten-key corresponding to the column of the displayed character list where a character to be inputted is present is pressed for the 2nd time to specify the column of the matrix table; ; and the control part 15 determines the character indicated at the intersection of the rows and columns of the matrix table, and displays it at the display part 14 and also stores it in a storage part 16.

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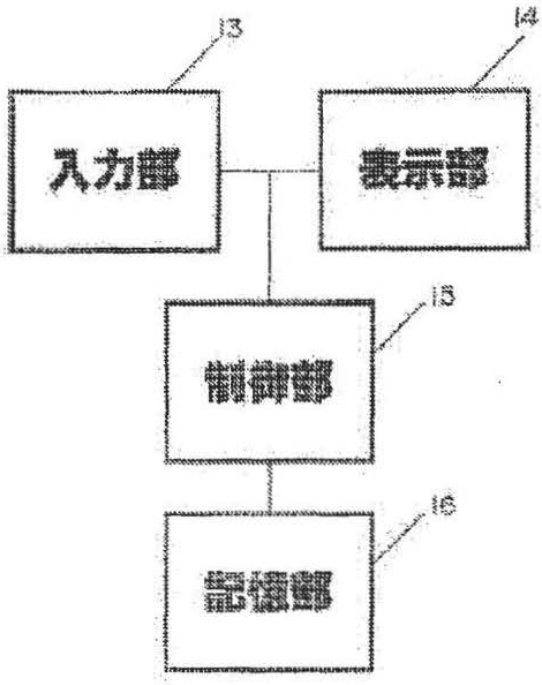

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Patent/Publication: JP2000172417A

Bibliography

DWPI Title

Character input method for portable telephone, determines character to be input by pressing the input key based on displayed character input mode, and displaying the character to the display unit

Original Title

PORTABLE TELEPHONE DEVICE AND ITS CHARACTER INPUT METHOD

Assignee/Applicant

Standardized: **NIPPON DENKI TELECOM SYST**

Original: NEC TELECOM SYST LTD

DWPI Assignee/Applicant

NIPPON DENKI TELECOM SYSTEM KK (NIDE-C)

DWPI Inventor

URITA H

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Abstract

DWPI Abstract

(JP2000172417A_)

Novelty

A character input mode is displayed on a display unit (14) by a controller (15) by performing switching operation of a character key based on input modes of kana character, English character, numeric character. The character to be input by pressing the input key is determined based on displayed character input mode, and that character is displayed to the display unit.

Use

for character input in portable telephone.

Advantage

Character input is performed by pressing the key at low frequency without requiring a key matrix table separately. Avoids need to memorize the key sequence by the operator hence the character can be input simply and reliable.

Drawing Description

The figure shows the block diagram of character input device.

14 - Display unit.

15 - Controller.

Abstract

PROBLEM TO BE SOLVED: To provide a portable telephone device which enables character input by lower-frequency key depression and eliminates the need to prepare a key matrix table specially.

SOLUTION: The ten-key or a symbol key of an input part 13 where predetermined characters are grouped and displayed is pressed for the 1st time to specify the row of a matrix table, a character list corresponding to the character group displayed on the pressed ten-key or symbol key is displayed at a display part 14 under the control of a control part 15, and the ten-key corresponding to the column of the displayed character list where a character to be inputted is present is pressed for the 2nd time to specify the column of the matrix table; and the control part 15 determines the character indicated at the intersection of the rows and columns of the matrix table, and displays it at the display part 14 and also stores it in a storage part 16.

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SUBJECT of the Invention Perform a character input by the small frequency|count of key pressing-down, and provide the mobile telephone apparatus which does not need to prepare a key matrix table|surface separately.

PROBLEM to be solved The line of a matrix table|surface is designated by pressing down symbol either [which divided into groups and displayed the pre-determined character set] the ten-key pad of the input part 13 or a key to the 1st time,

The character chart corresponding to the character set displayed on pressed-down the ten-key pad or symbol key is displayed on the display part 14 by control of the control part 15,

The ten-key pad corresponding to the row|line|column in which the character which should be inputted in the displayed character chart exists is pressed down to the 2nd time, and the row|line|column of a matrix table|surface is designated,

In the control part 15, the character shown on the line of a matrix table|surface and the intersection of a

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row|line|column is determined,

While displaying on the display part 14, it is made to memorize|store in the memory|storage part 16.

[MAT_IMAGE 000002]

(Translation from Thomson Reuters)

Classes/Indexing

IPC

IPC Code(1-7) **G06F 3/023** H03M 11/14 H04Q 7/38 H04M 1/26 H04M 11/00

(7)

Current IPC	Invention	Version	Additional	Version
Full	H03M 11/14 G06F 3/02 G06F 3/023 H03M 11/08 H04M 1/26 H04M 11/00 H04W 28/00 H04W 88/02	20060101 20060101 20060101 20060101 20060101 20060101 20090101 20090101	-	-
Main Group	-	-	-	-
Subclass	-	-	-	-

Original IPC	Invention	Version	Additional	Version
Advanced/Full	G06F 3/02 G06F 3/023 H03M 11/08 H03M 11/14 H04M 1/26 H04M 11/00 H04Q 7/38	20060101 20060101 20060101 20060101 20060101 20060101 20060101	-	-
Core/Main Group	G06F 3/02 G06F 3/023 H03M 11/06 H03M 11/14 H04M 1/26 H04M 11/00 H04Q 7/38	20060101 20060101 20060101 20060101 20060101 20060101 20060101	-	-
Subclass	-	-	-	-

DWPI Manual Codes

Expand DWPI Manual Codes

Legal Status

INPADOC Legal Status

Gazette Date	Code	Description
2007-11-17	LAPS -	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES
2004-11-02	R250 +	RECEIPT OF ANNUAL FEES JAPANESE INTERMEDIATE CODE: R250

Get Family Legal Status

Family

Family

Expand INPADOC Family (2)

Expand DWPI Family (2); Countries (1)

Claims

Claims

Collapse All Claims (20)

Claims (English)

1st step which displays a character input mode on a display part by a control part by performing switching control of a character key according to a "kana character input mode", a "English character input mode", and a "number input mode",
2nd step which performs the determination of the character which should be inputted by the said control part by carrying out pressing-down operation of the input key by which the display of the character divided into groups according to the character input mode with selected operation of the said character key was made at least once, and the display to the said display part,
It becomes more.
The character input method of the mobile telephone apparatus characterized by the above-mentioned.

2. The said control part is displayed on the said display part at the time of pressing-down of the said input key, is replaced with the display of a character input mode, and displays the determined said character on the said display part.
The character input method of the mobile telephone apparatus of Claim 1 characterized by the above-mentioned.

3. By pressing down the said input key that the number displayed by the said character key at the time of selection of said "number input mode", the said control part is memorize|stored in a memory|storage part while it determines the number which should be replaced with and inputted into the display of the "number input mode" currently displayed on the said display part and displays it on the said display part.
The character input method of the mobile telephone apparatus of Claim 1 characterized by the above-mentioned.

4. By 1st-time pressing-down of the said predetermined input key that divides the said control part into groups by the said character key at the time of selection of said "kana character input mode" and as which the kana character is displayed,
If the said input key as which the kana character which exists in the character chart displayed on the display part, and which should be inputted was displayed is pressed down to the 2nd time while displaying the character chart of the kana character divided into groups corresponding to this pressed-down input key on the said display part,
The kana character which should be replaced with and inputted into the said character chart currently displayed on the said display part is determined, and it displays on the said display part,
And it memorize|stores in a memory|storage part.
The character input method of the mobile telephone apparatus of Claim 1 characterized by the above-mentioned.

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5. By 1st-time pressing-down of the said predetermined input key that divides the said control part into groups by the said character key at the time of selection of said "English character input mode" and as which the English character is displayed,
If the said input key as which the English character which exists in the character chart of the English character displayed on the display part, and which should be inputted was displayed is pressed down to the 2nd time while displaying the character chart of the English character divided into groups corresponding to this pressed-down input key on the said display part,
The English character which should be replaced with and inputted into the character chart of the said English character currently displayed on the said display part is determined, and it displays on the said display part,
And it memorize|stores in a memory|storage part.
The character input method of the mobile telephone apparatus of Claim 1 characterized by the above-mentioned.

6. The said input key consists of a ten-key pad, a character key, and a symbol key.
It is the character input method of any or a 1 item|term mobile telephone apparatus to the Claims 1 to 5 characterized by the above-mentioned.

7. The display of the character of * of two lines 3 or more rows is possible for the said display part.
It is the character input method of any or a 1 item|term mobile telephone apparatus to the Claims 1 to 6 characterized by the above-mentioned.

1st step which designates the line of a table|surface matrix by control of a control part, and displays the character chart corresponding to the character set currently displayed on the pressed-down input key at the time of pressing-down of the 1st time of the input key selected in order to input a predetermined character from the input key which divided into groups and displayed the predetermined character on a display part,
2nd step which determines the character which should be inputted by the said control part at the time of pressing-down of the 2nd time of the said input key corresponded in the row|line|column which cross|intersects the said line of the said table|surface matrix in which the character which should be inputted in the said character chart displayed on the line as which the said table|surface matrix was designated exists, and is displayed on the said display part,
It becomes more.
The character input method of the mobile telephone apparatus characterized by the above-mentioned.

9. The said control part is memorize|stored in a memory|storage part while it displays the character which was replaced with the said character chart currently displayed on the said display part at the time of the determination of the said character that should be inputted, and was determined.
The character input method of the mobile telephone apparatus of Claim 8 characterized by the above-mentioned.

10. The said input key consists of a ten-key pad and a symbol key.
The character input method of the mobile telephone apparatus of Claim 8 or Claim 9 characterized by the above-mentioned.

11. The display of the character of * of three lines 3 or more rows is possible for the said display part.
It is the character input method of any or a 1 item|term mobile telephone apparatus to the Claims 8 to 10 characterized by the above-mentioned.

12. Display part,
The input part which comprises an input key with the ten-key pad which displayed the character which divided into groups beforehand with the character key and symbol key which perform switching control according to a "kana character input mode", a "English character input mode", and a "number input mode", and was decided,
While displaying a character input mode on the said display part according to the selection at the time of selection of the shift|offset|difference of said "kana character input mode", a "English character input mode", and a "number input mode" by operation of the said character key of the said input part,
The control part which determines the character which should be inputted by at least 1 time of pressing-

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down operation of the said input key, and displays the determined character on the said display part,
These are provided.
The mobile telephone apparatus characterized by the above-mentioned.

13. The said control part is replaced with the display of the input mode currently displayed on the said display part at the time of pressing-down of the said input key, and displays the determined said character.
The mobile telephone apparatus of Claim 12 characterized by the above-mentioned.

14. The said control part is memorize|stored in a memory|storage part while it determines the number which should be replaced with and inputted into the display of the "number input mode" currently displayed on the said display part by pressing down the said input key that the number displayed by the said character key at the time of selection of said "number input mode" and displays it on the said display part.
The mobile telephone apparatus of Claim 12 characterized by the above-mentioned.

15. By 1st-time pressing-down of the said predetermined input key that carries out the group part of the said control part by the said character key at the time of selection of said "kana character input mode" and as which the kana character is displayed,
If the said input key as which the kana character which exists in the character chart displayed on the display part, and which should be inputted was displayed is pressed down to the 2nd time while displaying the character chart of the kana character divided into groups corresponding to this pressed-down input key on the said display part,
The kana character which should be replaced with and inputted into the said character chart currently displayed on the said display part is determined, and it displays on the said display part,
And it memorize|stores in a memory|storage part.
The mobile telephone apparatus of Claim 12 characterized by the above-mentioned.

16. By 1st-time pressing-down of the said predetermined input key that divides the said control part into groups by the said character key at the time of selection of said "English character input mode" and as which the English character is displayed,
If the said input key as which the English character which exists in the character chart of the English character displayed on the display part, and which should be inputted was displayed is pressed down to the 2nd time while displaying the character chart of the English character divided into groups corresponding to this pressed-down input key on the said display part,
The English character which should be replaced with and inputted into the character chart of the said English character currently displayed on the said display part is determined, and it displays on the said display part,
And it memorize|stores in a memory|storage part.
The mobile telephone apparatus of Claim 12 characterized by the above-mentioned.

17. The display of the character of * of two lines 3 or more rows is possible for the said display part.
They are any or a 1 item|term mobile telephone apparatus to the Claims 12 to 16 characterized by the above-mentioned.

18. Display part,
The input part which comprises an input key with the ten-key pad which displayed the character which divided the predetermined character into groups beforehand with the symbol key, and was decided,
The said display part is controlled to display the character chart corresponding to the character set currently displayed on the pressed-down input key at the time of pressing-down of the 1st time of the said input key on the line which the table|surface matrix designated,
And the control part which will determine the said character that should be inputted at the time of pressing-down of the 2nd time of the said input key corresponded in the row|line|column which cross|intersects the line of the said table|surface matrix, and will carry out display control to the said display part if the character which should be inputted in the said character chart displayed on the display part exists,
These are provided.
The mobile telephone apparatus characterized by the above-mentioned.

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19. The said control part is memorize|stored in a memory|storage part while it displays the character which was replaced with the said character chart currently displayed on the said display part at the time of the determination of the said character that should be inputted, and was determined.
The mobile telephone apparatus of Claim 18 characterized by the above-mentioned.

20. The display of the character of * of three lines 3 or more rows is possible for the said display part.
The mobile telephone apparatus of Claim 18 characterized by the above-mentioned.

(Translation from Thomson Reuters)

Description

DWPI Drawing Description

The figure shows the block diagram of character input device.

14 - Display unit.

15 - Controller.

Drawing Description

Collapse Drawing Description

-

Description

Collapse Description

TECHNICAL FIELD of the Invention

This invention displays on a display part the character chart which divided into groups the character which should be inputted,
Out of the character chart divided into groups, by the input key pressing-down as which the character to intend was displayed, the character to intend is selected and is inputted,
It is the minimum key pressing-down also by the number of the limited keys, and is related with the mobile telephone apparatus which can input a character reliably, and its character input method.

PRIOR ART

With size reduction and a multifunction of a mobile telephone apparatus, not only a mere telephone call but transmission of a character is attained, and various input methods of the character to a mobile telephone apparatus are also developed.
For example, a specific character set is selected as Unexamined-Japanese-Patent No. 09-294170 (mobile telecommunications terminal) by a character selection means by an input means by which several characters divided into groups with respect to one key were allocated,
While displaying the selected character set on a guidance display means with the definite method of a character, a certain character is finalized by an input character decision means by the definite method of each character of a guidance display means from the character set selected by the character selection means,
Displaying the character string which consists of the fixed character on a specified character string

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display means is disclosed.

Moreover, an input character, the candidate character of an input string and the conversion result, or a candidate character string is matched with a dictionary means by Unexamined-Japanese-Patent No. 08-314920 (character input device), and it memorize|stores in it,
Several keys to which several characters were allocated, and the conversion / next candidate key for instruct|indicating character conversion,
Searching a dictionary means by a character conversion means, calculating|requiring a candidate character or a candidate character string, and outputting to an output means about the character or character string inputted from the input means for inputting the character or character string containing the definite device key for deciding the conversion result, is disclosed.
However, in these prior art examples, it cannot declare that input operation of a character is not always simple.

Furthermore, if drawing used for this invention mentioned later is applied and described about the character input method in another conventional mobile telephone, as shown in FIG. 4.
The "1" key 1 - the "0" key 10, the symbol key 11, and the character key 12 of the ten-key pad which the number of "1" - "0" displayed are used as the input key 100 of the input part of a mobile telephone apparatus.
Number "1" - "0" and a character are each displayed on the "0" key 10 as mentioned above from the "1" key 1 of these input keys 100, and the symbol is displayed on the symbol key 11.
Furthermore, the character key 12 switches input character mode.

To the "1" key 1, to number "1", and kana character ""a"" and the "2" key 2,
To number "2", kana character ""ka"", and English character "ABC" and the "3" key 3,
To number "3", kana character ""sa"", and English character "DEF" and the "4" key 4,
To number "4", kana character ""ta"", and an English character "GHI" and the "5" key 5,
To number "5", kana character ""na"", and an English character "JKL" and the "6" key 6,
In number "6", kana character ""ha"", and an English character "MNO" and the "7" key 7, it is [number "8", kana character ""ya"", and] an English character "STU" to number "7", kana character ""ma"", and an English character "PQR" and the "8" key 8,
To the "9" key 9, the character "character" is each displayed on the character "symbol" and the character key 12 as number "0" and kana character ""wa"" by the English character "YZ" and the symbol key 11 at number "9", kana character ""ra"", and an English character "VWX" and the "0" key 10.

Thus, the input key 100 as shown in FIG. 4 becomes a keyboard layout with the character key 12 which switches a character input mode,
Whenever it presses down the character key 12, character input modes, such as "kana character input mode"/"alphabetic character input mode"/"number input mode", are switched,
It carries out based on matrix Table 101 which represents a character with the intersection of a line (the example of FIG. 8 ten lines), and a row|line|column (the example of FIG. 8 10 rows) as shown in FIG. 8,
A line is designated by pressing-down of the input key of the 1st time,
The character input method which inputs a character is common by designating a row|line|column by the frequency|count of pressing-down of an input key.

PROBLEM to be solved by the Invention

However,
In such a character input method, when inputting ""a"" of a kana character, the character key 12 can be inputted by pressing down the "1" key 1 once after 1-time pressing-down, for example,
However,
When ""o"" of a kana character was inputted, the character key 12 was pressed once,
Then, it is necessary to press down the "1" key 1 5 times.
Therefore, the frequency|count of key pressing-down will increase in the character to input.
Moreover, as the character input method used when sending a character to a pocket bell|pager (trademark of NTT company) by telephone, as shown in the said FIG. 8, it carries out based on matrix Table 101 which represents a character with the intersection of a line and a row|line|column,
A line is designated by the pressing-down key of the 1st time,

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By designating a row|line|column by the pressing-down key of the 2nd time, the character input method which inputs a character by two key pressing-down is used,
However,
It is necessary to input, looking at whether the character code of double digits which consists of the line and row|line|column corresponding to a character is memorized, and a corresponding matrix table|surface,
etc.,
Thus, the subject that input operation becomes complicated occurs.

While it was made in order to solve the said conventional subject, and being able to reduce the frequency|count of pressing-down of the key for a character input, this invention,
A matrix can be made unnecessary, there is no necessary in which an operator memorizes a key sequence, and it aims at providing the character input method of the mobile telephone apparatus which can input a character reliably.

Moreover, this invention does not have a necessary in which an operator memorizes a key sequence, can input a character reliably, and is aimed at providing the character input method of a mobile telephone apparatus while being able to reduce the frequency|count of pressing-down of the key for a character input.

Furthermore, this invention can make a matrix unnecessary, does not have a necessary in which an operator memorizes a key sequence, and is aimed at providing the mobile telephone apparatus which can input a character reliably while being able to reduce the frequency|count of pressing-down of the key for a character input.

Moreover, this invention does not have a necessary in which an operator memorizes a key sequence, and is aimed at providing the mobile telephone apparatus which can input a character reliably while being able to reduce the frequency|count of pressing-down of the key for a character input.

MEANS to solve the Problem

1st step which displays a character input mode on a display part by a control part when the character input method of the mobile telephone apparatus by this invention performs switching control of a character key according to a "kana character input mode", a "English character input mode", and a "number input mode", in order to achieve the said objective,
It consists of 2nd step which performs the determination of the character which should be inputted by the said control part, and the display to the said display part by carrying out pressing-down operation of the input key by which the display of the character divided into groups according to the character input mode with selected operation of the said character key was made at least once,
It is characterized by the above-mentioned.

According to the character input method of the mobile telephone apparatus this invention, by performing switching control of a character key,
If the character input mode in any one of a "kana character input mode", a "English character input mode", and a "number input mode" is selected,
If pressing-down operation of the input key as which the character divided into groups according to the selected character input mode is displayed is carried out at least once, the character which should be inputted by a control part will be determined and it will display on a display part.

Therefore, by the character input method of the mobile telephone apparatus this invention, while being able to reduce the frequency|count of pressing-down of the key for a character input, a matrix table|surface can be made unnecessary, there is no necessary in which an operator memorizes a key sequence, and a character can be inputted reliably.

Moreover, the character input method of the mobile telephone apparatus this invention,
1st step which designates the line of a table|surface matrix by control of a control part, and displays the character chart corresponding to the character set currently displayed on the pressed-down input key at

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the time of pressing-down of the 1st time of the input key selected in order to input a predetermined character from the input key which divided into groups and displayed the predetermined character on a display part,
At the time of pressing-down of the 2nd time of the said input key corresponded in the row|line|column which cross|intersects the said line of the said table|surface matrix in which the character which should be inputted in the said character chart displayed on the line as which the said table|surface matrix was designated exists,
It consists of 2nd step which determines the character which should be inputted by the said control part, and is displayed on the said display part,
It is characterized by the above-mentioned.

According to the character input method of the mobile telephone apparatus this invention, if the 1st time of an input key is pressed down, the line of a table|surface matrix will be designated by control of a control part, and the character chart corresponding to the character set which divided into groups and displayed the predetermined character on the pressed-down input key will be displayed on a display part.
If the input key corresponded in the row|line|column which cross|intersects the line of the table|surface matrix in which the character which should be inputted into the character chart currently displayed on the line which this table|surface matrix designated exists is pressed down to the 2nd time, a control part will determine the character which should be inputted and will display it on a display part.

Therefore, by the character input method of the mobile telephone apparatus by this invention, while being able to reduce the frequency|count of pressing-down of the key for a character input, there is no necessary in which an operator memorizes a key sequence, and a character can be inputted reliably.

furthermore, the input part which comprises an input key with the ten-key pad which displayed the character which divided the mobile telephone apparatus of this invention into groups beforehand with the display part, and the character key and symbol key which perform switching control according to a "kana character input mode", a "English character input mode", and a "number input mode", and was decided,
While displaying a character input mode on the said display part according to the selection at the time of selection of the shift|offset|difference of said "kana character input mode", a "English character input mode", and a "number input mode" by operation of the said character key of the said input part,
The control part which determines the character which should be inputted by at least 1 time of pressing-down operation of the said input key, and displays the determined character on the said display part is provided,
It is characterized by the above-mentioned.

If the character input mode in any one of a "kana character input mode", a "English character input mode", and a "number input mode" is selected by performing pressing-down operation of the character key of an input part according to the mobile telephone apparatus of this invention, that selected character input mode will be displayed by a display part by a control part.
If pressing-down operation is performed for an input key at least once so as to correspond to this displayed input mode, a control part will determine the character which should be inputted and will display the determined character on a display part.

Therefore, in the mobile telephone apparatus by this invention, while being able to reduce the frequency|count of pressing-down of the key for a character input, a matrix can be made unnecessary, there is no necessary in which an operator memorizes a key sequence, and a character can be inputted reliably.

Moreover, the mobile telephone apparatus of this invention is an input part which comprises an input key with a display part and the ten-key pad which displayed the character which divided the predetermined character into groups beforehand with the symbol key, and was decided,
The said display part is controlled to display the character chart corresponding to the character set currently displayed on the pressed-down input key at the time of pressing-down of the 1st time of the said input key on the line which the table|surface matrix designated,
And presence of the character which should be inputted in the said character chart displayed on the

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display part will be provided with the control part which determines the said character that should be inputted at the time of pressing-down of the 2nd time of the said input key corresponded in the row|line|column which cross|intersects the line of the said table|surface matrix, and carries out display control to the said display part,
It is characterized by the above-mentioned.

According to the mobile telephone apparatus of this invention, a control part displays the character chart corresponding to the character set which controls a display part and is displayed on that pressed-down input key on the line which the table|surface matrix designated at the time of pressing-down of the 1st time of an input key.
Subsequently, if the character which should be inputted in the character chart displayed on the display part exists, the character into which the control part should input the input key corresponded in the row|line|column which cross|intersects the line of a table|surface matrix at the time of pressing-down operation of the 2nd time will be determined, and display control will be carried out to a display part.

Therefore, in the mobile telephone apparatus of this invention, while being able to reduce the frequency|count of pressing-down of the key for a character input, there is no necessary in which an operator memorizes a key sequence, and a character can be inputted reliably.

EMBODIMENT of the Invention

Hereafter, embodiment of the mobile telephone apparatus by this invention and its character input method is described based on drawing.
FIG. 1 is a block diagram which shows the structure of 1st Embodiment of the mobile telephone apparatus by this invention.
The input part 13 in this FIG. 1 is comprised from the input key 102 which comprises the input part 13, as shown in FIG. 2,
The input key 102 is comprised from the "1" key 1 - the "0" key 10, and the symbol key 11 of the ten-key pad.
The input key 102 becomes a structure which abbreviate|omitted the character key 12 from the structure of the input key 100 shown in the said FIG. 4,
About the number and character which were displayed on the "1" key 1 - the "0" key 10, and the symbol key 11, it is the same as the case of FIG. 4,
A predetermined character is grouped for every key,
It divides into groups and the character display is carried out.

The line of matrix Table 101 shown in the said FIG. 8 is designated by pressing down each "1" key 1 which comprises this input key 102 - the "0" key 10, and the symbol key 11 by the 1st time,
The signal coded by the display part 14 and the control part 15 according to these "1" keys 1 - the "0" key 10, and the symbol key 11 is each made to input by designating the row|line|column of matrix Table 101 of FIG. 8 by pressing the "1" key 1 - the "9" key 9 by the 2nd time.
The control part 15 determines the character which should obtain|require the character shown on the line of matrix Table 101 and the intersection of a row|line|column which were designated by the key pressed down by the 2nd time, that is, should be inputted, and displays it on the display part 14,
And he is trying to memorize|store in the memory|storage part 16.

The character display of * of three lines 3 or more rows as shows the display part 14 in FIG. 3 is attained.
This FIG. 3 has shown the character chart 103 which the input key 102 displays on the display part 14 at the time of pressing-down operation of the 1st time.
The character chart 103 shown in this FIG. 3 is prepared so that it may respectively correspond to key arrangement|positioning of the "1" key 1 of the input key 102 shown in FIG. 2 - the "0" key 10, and the symbol key 11, a predetermined character may be divided into groups and it may display on the display part 14 by making the character of * of three lines 3 rows into character chart A-K.
A character and a symbol which describe the display content of each character chart A-K below are included.
Even if the display content of each character chart A-K contrasts with matrix Table 101 of FIG. 8, the display content of each character chart A-K is the same as the character currently displayed on each line

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of matrix Table 101 evidently.

On the character chart A, on number "1", and kana character "A, I, U, E, O" and the character chart B,
On number "2", kana character "Ka, Ki, Ku, Ke, Ko", and English character "ABC" and the character chart C,
On number "3", kana character "Sa, Shi, Su, Se, So", and English character "DEF" and the character chart D,
On number "4", a kana character "ta-chi-tsu-te-to" and an English character "GHI", and the character chart E,
number "5", a kana character "ナ 2 ヌネノ" and an English character "JKL", and the character chart F -- number "6", a kana character "ha-hi-fu-he-ho" and an English character "MNO", and the character chart G -- number "7", a kana character "ma-mi-mu-me-mo" and an English character "PQR", and the character chart H
On number "8", a kana character "ya-yu-yo" and an English character "STU", and the character chart I,
Symbol " '' ", "_", "degree", ".", "*", "'" "-", and ":" are made to display as a list by number "0", a kana character "wa-wo-n" and an English character "YZ", and the character chart K at number "9", kana character ""ra", "ri", "ru", "re", "ro"", and an English character "VWX" and the character chart J.

Next, the operation|movement of 1st Embodiment of the mobile telephone apparatus comprised as mentioned above is demonstrated.
It will serve as description of 1st Embodiment by the character input method of the mobile telephone apparatus by this invention by demonstrating this operation|movement.
In this case, the process in which the control part 15 determines the input character to the display content and the memory|storage part 16 to the display part 14 according to the key pressing-down from the input part 13 is demonstrated.

In the input part 13, either of the "1" key 1- "symbol" keys 11 shown in FIG. 2 to the 1st time is pressed down,
The line of matrix Table 101 shown in FIG. 8 is designated,
The row|line|column of matrix Table 101 is designated by pressing down the "1" key 1 of FIG. 2 - the "9" key 9 to the 2nd time.
This calculates|requires the line designated by two key pressing-down in the control part 15, and the character shown on the intersection of a row|line|column, and the input character to the memory|storage part 16 is determined.
In this case, the content displayed on the display part 14 by control of the control part 15 after key pressing-down of the 1st time is decided that the display content in any one of the pressing-down key of the input key 102 and character chart A-K to correspond one-to-one is displayed,
Since the "1" key 1- "symbol" key 11 of FIG. 2 respond|corresponds to character chart A-K shown in FIG. 3, the display content corresponding to after pressing-down of the input key 102 of the 1st time is identified in the control part 15,
It displays on the display part 14 as a character chart.

Then, the control part 15 will identify the row|line|column of matrix Table 101 by pressing down either the "1" key 1 - the "0" key 9 to the 2nd time,
The character of the intersection of the line of matrix Table 101 and row|line|column by the pressing-down key of the 1st time and the pressing-down key of the 2nd time is determined as an input character,
While replacing with the display of the character chart corresponding to the pressing-down key of the said character chart A-K and displaying on the display part 14, it memorize|stores in the memory|storage part 16.

Next, the operation|movement in the case of each inputting ""a"" of a katakana character, "Z" of an English character, and "5" of a number is divided each separately as an input example of a concrete character, for example, and it demonstrates concretely.
First, it demonstrates from the case where ""a"" of a katakana character is inputted.
It is the "1" key 1 that character ""a"" is displayed in the input key 100,
Therefore, the control part 15 designates the line (1st line) of matrix Table 101 by "1" key 1 pressing-down of the 1st time initially,

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The control part 15 displays the display content 1 of the character chart A of FIG. 3 corresponding to this "1" key 1, i.e., ""a", "i", "u", "e", "o"", on the display part 14.
Furthermore, the control part 15 identifies the 1st line's input character ""a", "i", "u", "e", "o" 1" of matrix Table 101 by pressing-down of the "1" key 1 of this 1st time in other words.

Next, it is the 1st row that character ""a"" exists in the display content ""a", "i", "u", "e", "o" 1" of the character chart A,
therefore
By "1" key 1 pressing-down of the 2nd time, the data based on pressing-down of the "1" key 1 are inputted from the input part 13, and the control part 15 identifies a matrix Table 101 row|line|column (the 1st row),
The control part 15 determines ""a"" of the character of the intersection of the 1 rows 1 columns eye|texture of matrix Table 101.
While being able to come, simultaneously replacing the control part 15 with the display content of the character chart A currently displayed on the display part 14 and displaying the character of this ""a"" on the display part 14, it is made to memorize|store in the memory|storage part 16.

It is the same point, next the case where "Z" of an English character is inputted is demonstrated.
In the input key 100, it is the "0" key 10 that English character "Z" is displayed,
Therefore, the control part 15 designates the 10th line of matrix Table 101 by "0" key 10 pressing-down of the 1st time initially,
The display content "wa-wo-n 0YZ" of the character chart J shown in FIG. 3 corresponding to this "0" key 10 is displayed on the display part 14 by the control part 16.
Next, English character "Z" of that of ゟ is the 8th row of matrix Table 101 in the display content "wa-wo-n 0YZ" of this character chart J.
Therefore, key pressing-down of the 2nd time is pressing down the "8" key 8, the data of pressing-down of this "8" key 8 are inputted into the control part 15, and the 8th row of matrix Table 101 is designated by control of the control part 15.
Thereby, the control part 15 determines English character "Z" of the intersection of the 10th line of matrix Table 101, and the 8th row,
It replaces with the display content of the said character chart J by control of the control part 15 at the display part 14, English character "Z" is displayed, and it memorize|stores in the memory|storage part 16.

Next, the case where "5" of a number is inputted is demonstrated.
It is the "5" key 5 that number "5" is displayed on the input key 102 in the way similar to the above also in this case,
Therefore, the control part 15 designates the 5th line of matrix Table 101 by pressing the "5" key 5 as pressing-down of the 1st time initially.
Thereby, corresponding to the "5" key 5, the control part 15 displays "na-ni-nu-ne-no 5JKL" which is a display content of the character chart E on the display part 14.
Subsequently, it is the 6th row of matrix Table 101 that number "5" is shown in the display content "na-ni-nu-ne-no 5JKL" of the character chart E.
Therefore, key pressing-down of the 2nd time is pressing down the "6" key 6, and the control part 15 determines number "5" of the 5th line of matrix Table 101, and the intersection of the 6th row by designating the 6th row of matrix Table 101,
The control part 15 is replaced with the display content "na-ni-nu-ne-no 5JKL" of the character chart E at the display part 14, and it is memorize|stored in the memory|storage part 16 while it displays number "5".

Next, 2nd Embodiment of the mobile telephone apparatus by this invention and its character input method is described.
FIG. 4 is a figure which shows the input key 100 which comprises the input part 13 in this 2nd Embodiment,
It is as having already demonstrated the input key 100 shown in this FIG. 4, and its printable character including the character key 12 (character input mode change key),
The duplication description is avoided.
Moreover, FIG. 5 has shown the character chart 104 corresponding to each of each "1" key 1 of the input key 100 of FIG. 4 - the "0" key 10, and the symbol key 11 (it does not respond|correspond about

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the character key 12),
The case of * of two lines 3 or more rows of the character which the character which can be displayed on the display part 14 displays to character chart A-K in this character chart 104 is shown.

He is trying to display the printable character of each character chart A-K of the character chart 104 in this FIG. 5 on the 10th line (the 10th line in a figure is displayed as zero line) from the 1st line of the key matrix respectively shown in FIG. 9.
The key matrix 105 shown in this FIG. 9 is shown as the key matrix 10 at the time of becoming a kana character input mode, when an input mode is switched by pressing down the character key 12 of the input key 100 of FIG. 4.
Whenever it presses down this character key 12 in this way, sequential input mode switches like "kana character input mode" -> "English character input mode" ->"number input mode" -> "kana character input mode."

Moreover, FIG. 10 switched the input mode by pressing-down operation of this character key 12, and has shown the key matrix 106 at the time of setting it in a "English character input mode."
Thus, in order for what is necessary just to be to perform pressing-down operation for the "1" key 1 - the "0" key 10 once by performing pressing-down operation of the character key 12 in the case of a number input mode, a key matrix as shown in FIG. 8 becomes unnecessary.

Here, the procedure in the case of each inputting kana character ""a"", English character "Z", and number "5", and memorize|storing as a display like the said 1st Embodiment, is demonstrated.
First, the example in the case of inputting ""a"" of a kana character by a kana character input is demonstrated.
In this case, the character key 12 is pressed down initially and it is set in a "kana character input mode."
By setting it in this "kana character input mode", the display content ("kana") of the character chart A in the character chart 108 shown in FIG. 7 by the control part 15 is displayed on the display part 14 by the control part 15.
Moreover, the display content (kana character) of each character chart A-K of the character chart 104 each shown in FIG. 5 from the 1st line at the key matrix 105 as shown in FIG. 9 at the 10th line is made the display part 14 with a display possible state.

Kana character "A, I, U, E, O" (Corresponding|compatible to the 1st row of the key matrix 105 of FIG. 9) which is a display content of the character chart A shown in FIG. 5 is displayed on the display part 14 by pressing down the 1st time of the "1" key 1 of the input key 100 which is this state, next is shown in FIG. 4.
Next, it is the 1st row that there exists kana character ""a"" corresponding to the display content "A, I, U, E, O" of this character chart A displayed on the display part 14,
Therefore, the 1 rows 1 columns eye|texture of the key matrix 105 of FIG. 9 cross|intersects by pressing down the "1" key 1 of the 2nd time,
Kana character ""a"" of the intersection is inputted into the control part 15, and it replaces with the display content "A, I, U, E, O" of the character chart A by control of the control part 15 at the display part 14, and it memorize|stores in the memory|storage part 16 at the same time kana character ""a"" is displayed.

Next, the concrete procedure in the case of inputting English character "Z" is demonstrated.
Also in this case, the character key 12 is first pressed down initially in the same way as the case of the input of the said kana character ""a"",
As a "English character input mode", the display content ("age") of the character chart B in the character chart 108 shown in FIG. 7 is displayed on the display part 14 by the control part 15.
The display of the English character is not made by the "1" key 1 in the input key 100 shown in FIG. 4 at the time of this "English character input mode."
Then, the character chart 107 corresponding to each to the "2" key 2 of the input key 100 of FIG. 4 - the character key 12 becomes character chart A-J, as shown in FIG. 6.

The character chart in which the character key 12 of FIG. 6 also respond|corresponds is not contained in this character chart A-J.
The display content of these character chart A-J respond|corresponds to below the 2nd line of the key

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matrix 106 each shown in FIG. 10.
If it becomes such a "English character input mode", the key matrix which displayed the English character shown to the display part 14 by the control part 15 at FIG. 10 will be displayed.

Next, in the input key 100, it is the "0" key 10 that English character "Z" is displayed,
This "0" key 10 is pressed down to the 1st time.
By control of the control part 15, the display content ("YZ") of the character chart I of FIG. 6 corresponding to this "0" key 10 is displayed on the 10th line of the key matrix 106 by the display part 14.
It is the 2nd row that the 10th line of this key matrix 106 has English character "Z",
Therefore, succeedingly, as key pressing-down of the 2nd time, if the "2" key 2 of the input key 100 of FIG. 4 is pressed down shortly,
English character "Z" of the 10th line of the key matrix 106 of FIG. 10 and the intersection of the 2nd row is inputted into the control part 15, and while it replaces with the display content "YZ" of the character chart I and English character "Z" is displayed on the display part 14 by control of the control part 15, this English character "Z" is memorize|stored in the memory|storage part 16.

Next, the case where number "5" is inputted is demonstrated.
Also in this case, initially, the character key 12 of FIG. 4 is pressed down 3 times, and it is set in a "number input mode."
Thereby, the display content ("スウジ") of the character chart C in the character chart 108 shown in FIG. 7 is displayed on the display part 14 by the control part 15.
Subsequently, while displaying number "5" on the display part 14 by the control part 15 by pressing down the "5" key 5 of the input key 100 of FIG. 4 as which number "5" is displayed to the 1st time, it memorize|stores in the memory|storage part 16.

ADVANTAGE of the Invention

As mentioned above, by performing switching control of a character key according to the character input method of the mobile telephone apparatus this invention,
When pressing-down operation of the input key as which the character divided into groups according to the selected character input mode is displayed if a predetermined character input mode is selected was carried out at least once, the character which should be inputted by a control part is determined and it was made to display on a display part.
Therefore
While being able to reduce the frequency|count of pressing-down of the key for a character input, a matrix can be made unnecessary, there is no necessary in which an operator memorizes a key sequence, and a character can be inputted reliably.

Moreover, according to the character input method of the mobile telephone apparatus this invention, if the 1st time of an input key is pressed down, the line of a table|surface matrix will be designated by control of a control part, and the character chart corresponding to the character set which divided into groups and displayed the predetermined character on the pressed-down input key will be displayed on a display part,
When the input key corresponded in the row|line|column which cross|intersects the line of the table|surface matrix in which the character which should be inputted into the character chart currently displayed exists was pressed down to the 2nd time, a control part determines the character which should be inputted and displayed it on the display part,
Therefore
While being able to reduce the frequency|count of pressing-down of the key for a character input, there is no necessary in which an operator memorizes a key sequence, and a character can be inputted reliably.

Furthermore, if a predetermined character input mode is selected by performing pressing-down operation of the character key of an input part according to the mobile telephone apparatus of this invention, that selected character input mode will be displayed by a display part by a control part,
When pressing-down operation was performed for the input key at least once so as to correspond to the displayed input mode, a control part determines the character which should be inputted and the

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determined character was displayed on the display part,
Therefore
While being able to reduce the frequency|count of pressing-down of the key for a character input, a matrix can be made unnecessary, there is no necessary in which an operator memorizes a key sequence, and a character can be inputted reliably.

Moreover, according to the mobile telephone apparatus of this invention, a control part displays the character chart corresponding to the character set which controls a display part and is displayed on that pressed-down input key on the line which the table|surface matrix designated at the time of pressing-down of the 1st time of an input key,
When the character which should be inputted in the character chart displayed on the display part existed, the character which should be inputted by a control part is determined and it was made to carry out display control to a display part by pressing down the input key corresponded in the row|line|column which cross|intersects the line of a table|surface matrix to the 2nd time,
Therefore
While being able to reduce the frequency|count of pressing-down of the key for a character input, there is no necessary in which an operator memorizes a key sequence, and a character can be inputted reliably.

BRIEF DESCRIPTION OF THE DRAWINGS

[FIG. 1]
It is a block diagram which shows the structure of 1st Embodiment of the mobile telephone apparatus by this invention.
[FIG. 2]
It is explanatory drawing which shows arrangement|positioning and the text display example of the input key which comprises the input part in the mobile telephone apparatus of FIG. 1.
[FIG. 3]
It is explanatory drawing which shows the character chart corresponding to the input key of FIG. 2.
[FIG. 4]
It is explanatory drawing which shows arrangement|positioning and the text display example of the input key applied to 2nd Embodiment of the mobile telephone apparatus by this invention.
[FIG. 5]
It is explanatory drawing of the character chart corresponding to the input key of FIG. 4.
[FIG. 6]
It is explanatory drawing of the character chart at the time of the alphabetic character input mode applied to 2nd Embodiment of the mobile telephone apparatus by this invention.
[FIG. 7]
It is explanatory drawing of the character chart at the time of the number input mode applied to 2nd Embodiment of the mobile telephone apparatus by this invention.
[FIG. 8]
It is explanatory drawing which shows the matrix table|surface applied to 1st Embodiment of the mobile telephone apparatus by this invention.
[FIG. 9]
It is explanatory drawing of the key matrix at the time of the kana character input mode applied to 2nd Embodiment of the mobile telephone apparatus by this invention.
[FIG. 10]
It is explanatory drawing of the key matrix at the time of the alphabetic character input mode applied to 2nd Embodiment of the mobile telephone apparatus by this invention.

Description of Symbols

1..... The "1" key,
2..... The "2" key,
3..... The "3" key,
4..... The "4" key,
5..... The "5" key,
6..... The "6" key,

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7..... The "7" key,
8..... The "8" key,
9..... The "9" key,
10..... The "0" key,
11..... Symbol key,
12..... Character key,
13..... Input part,
14..... Display part,
15..... Control part,
16..... Memory|storage part,
100..... Input key,
101..... Matrix table|surface,
102..... Input key,
103,104,107,108, A-K..... Character chart,
105,106..... Key matrix.
[FIG. 1]
[MAT_IMAGE 000003]
[FIG. 2]
[MAT_IMAGE 000004]
[FIG. 3]
[MAT_IMAGE 000005]
[FIG. 4]
[MAT_IMAGE 000006]
[FIG. 5]
[MAT_IMAGE 000007]
[FIG. 6]
[MAT_IMAGE 000008]
[FIG. 7]
[MAT_IMAGE 000009]
[FIG. 9]
[MAT_IMAGE 000011]
[FIG. 10]
[MAT_IMAGE 000012]
[FIG. 8]
[MAT_IMAGE 000010]

(Translation from Thomson Reuters)

Citations

Citation *Record level*

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Cited Patents (0)

Cited Non-patents (0)

Other

DWPI Title Terms

CHARACTER INPUT METHOD PORTABLE TELEPHONE DETERMINE PRESS KEY BASED DISPLAY MODE UNIT

Custom Fields

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Philips fam no

-

Business Classification

-

Technology Classification

-

Benchmark company name

-

Benchmark living status

-

Benchmark PSS

-

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審査請求　有　請求項の数10　OL　（全 16 頁）

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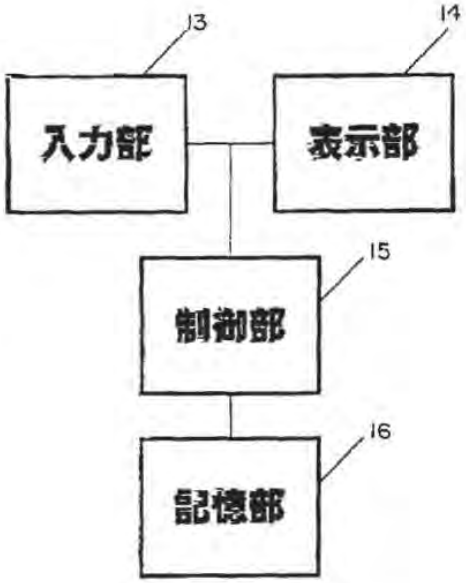
(71)出願人　000232106
日本電気テレコムシステム株式会社
神奈川県川崎市中原区小杉町1丁目403番地
(72)発明者　瓜田　秀之
神奈川県川崎市中原区小杉町一丁目403番地　日本電気テレコムシステム株式会社内
(74)代理人　100089875
弁理士　野田　茂

最終頁に続く

(54)【発明の名称】　携帯電話装置およびその文字入力方法

(57)【要約】
【課題】　少ないキー押下回数で文字入力ができ、別途にキーマトリックス表を準備する必要のない携帯電話装置を提供すること。
【解決手段】　予め決められた文字群を群分けして表示した入力部１３のテンキーと記号キーいずれかを第１回目に押下することにより、マトリックス表の行を指定し、押下したテンキーまたは記号キーに表示した文字群に対応する文字一覧表を制御部１５の制御により表示部１４に表示し、表示した文字一覧表の中に入力すべき文字の存在する列に対応するテンキーを２回目に押下してマトリック表の列を指定し、制御部１５ではマトリックス表の行と列の交点で示される文字を決定して、表示部１４に表示を行うとともに、記憶部１６に記憶させる。



【特許請求の範囲】

【請求項１】　「カナ文字入力モード」、「英文字入力モード」、「数字入力モード」に応じて文字キーの切替操作を行うことにより制御部により表示部に文字入力モードの表示を行う第１ステップと、

上記文字キーの操作により選択された文字入力モードに応じて群分けした文字の表示がなされた入力キーを少なくとも１回押下操作することにより上記制御部により入力すべき文字の決定と上記表示部への表示を行う第２ステップと、

とよりなることを特徴とする携帯電話装置の文字入力方法。

【請求項２】　上記制御部は、上記入力キーの押下時に上記表示部に表示され文字入力モードの表示に代えて上記決定された文字を上記表示部に表示することを特徴とする請求項１記載の携帯電話装置の文字入力方法。

【請求項３】　上記制御部は、上記文字キーにより上記「数字入力モード」の選択時に数字の表示した上記入力キーを押下することにより、上記表示部に表示されている「数字入力モード」の表示に代えて入力すべき数字を決定して上記表示部に表示するとともに記憶部に記憶することを特徴とする請求項１記載の携帯電話装置の文字入力方法。

【請求項４】　上記制御部は、上記文字キーにより上記「カナ文字入力モード」の選択時に群分けしてカナ文字が表示されている所定の上記入力キーの第１回目押下により、この押下された入力キーに対応して群分けされたカナ文字の文字一覧表を上記表示部に表示するとともに、表示部に表示された文字一覧表に存在する入力すべきカナ文字が表示された上記入力キーを第２回目に押下すると、上記表示部に表示されている上記文字一覧表に代えて入力すべきカナ文字を決定して上記表示部に表示し、かつ記憶部に記憶することを特徴とする請求項１記載の携帯電話装置の文字入力方法。

【請求項５】　上記制御部は、上記文字キーにより上記「英文字入力モード」の選択時に群分けして英文字が表示されている所定の上記入力キーの第１回目押下により、この押下された入力キーに対応して群分けされた英文字の文字一覧表を上記表示部に表示するとともに、表示部に表示された英文字の文字一覧表に存在する入力すべき英文字が表示された上記入力キーを第２回目に押下すると、上記表示部に表示されている上記英文字の文字一覧表に代えて入力すべき英文字を決定して上記表示部に表示し、かつ記憶部に記憶することを特徴とする請求項１記載の携帯電話装置の文字入力方法。

【請求項６】　上記入力キーは、テンキーと、文字キーと、記号キーとからなることを特徴とする請求項１乃至５に何れか１項に記載の携帯電話装置の文字入力方法。

【請求項７】　上記表示部は、２行×３列以上の文字の表示が可能であることを特徴とする請求項１乃至６に何れか１項に記載の携帯電話装置の文字入力方法。

【請求項８】　所定の文字を群分けして表示した入力キーから所定の文字を入力するために選定した入力キーの第１回目の押下時にその押下された入力キーに表示されている文字群に対応する文字一覧表を制御部の制御により表マトリックスの行を指定して表示部に表示する第１ステップと、

上記表マトリックスの指定された行に表示された上記文字一覧表の中に入力すべき文字の存在する上記表マトリックスの上記行と交差する列に相当する上記入力キーの第２回目の押下時に、上記制御部で入力すべき文字の決定を行って上記表示部に表示する第２ステップと、

よりなることを特徴とする携帯電話装置の文字入力方法。

【請求項９】　上記制御部は、上記入力すべき文字の決定時に上記表示部に表示されている上記文字一覧表に代えて決定した文字の表示を行うとともに記憶部に記憶することを特徴とする請求項８に記載の携帯電話装置の文字入力方法。

【請求項１０】　上記入力キーは、テンキーと記号キーとからなることを特徴とする請求項８または請求項９記載の携帯電話装置の文字入力方法。

【請求項１１】　上記表示部は、３行×３列以上の文字の表示が可能であることを特徴とする請求項８乃至１０に何れか１項に記載の携帯電話装置の文字入力方法。

【請求項１２】　表示部と、

「カナ文字入力モード」、「英文字入力モード」、「数字入力モード」に応じて切替操作を行う文字キーと記号キーとあらかじめ群分けして決められた文字を表示したテンキーとにより入力キーを構成する入力部と、

上記入力部の上記文字キーの操作により上記「カナ文字入力モード」、「英文字入力モード」、「数字入力モード」のずれかの選択時にその選択に応じて文字入力モードを上記表示部に表示するとともに、上記入力キーの少なくとも１回の押下操作により入力すべき文字の決定を行ってその決定した文字を上記表示部に表示する制御部と、

を備えることを特徴とする携帯電話装置。

【請求項１３】　上記制御部は、上記入力キーの押下時に上記表示部に表示されている入力モードの表示に代えて上記決定された文字の表示を行うことを特徴とする請求項１２記載の携帯電話装置。

【請求項１４】　上記制御部は、上記文字キーにより上記「数字入力モード」の選択時に数字の表示した上記入力キーを押下することにより上記表示部に表示されている「数字入力モード」の表示に代えて入力すべき数字を決定して上記表示部に表示するとともに記憶部に記憶することを特徴とする請求項１２記載の携帯電話装置。

【請求項１５】　上記制御部は、上記文字キーにより上記「カナ文字入力モード」の選択時に群分してカナ文字

が表示されている所定の上記入力キーの第１回目押下により、この押下された入力キーに対応して群分けされたカナ文字の文字一覧表を上記表示部に表示するとともに、表示部に表示された文字一覧表に存在する入力すべきカナ文字が表示された上記入力キーを第２回目に押下すると、上記表示部に表示されている上記文字一覧表に代えて入力すべきカナ文字を決定して上記表示部に表示し、かつ記憶部に記憶することを特徴とする請求項１２記載の携帯電話装置。

【請求項１６】　上記制御部は、上記文字キーにより上記「英文字入力モード」の選択時に群分けして英文字が表示されている所定の上記入力キーの第１回目押下により、この押下された入力キーに対応して群分けされた英文字の文字一覧表を上記表示部に表示するとともに、表示部に表示された英文字の文字一覧表に存在する入力すべき英文字が表示された上記入力キーを第２回目に押下すると、上記表示部に表示されている上記英文字の文字一覧表に代えて入力すべき英文字を決定して上記表示部に表示し、かつ記憶部に記憶することを特徴とする請求項１２記載の携帯電話装置。

【請求項１７】　上記表示部は、２行×３列以上の文字の表示が可能であることを特徴とする請求項１２乃至１６に何れか１項に記載の携帯電話装置。

【請求項１８】　表示部と、

記号キーとあらかじめ所定の文字を群分けして決められた文字を表示したテンキーとにより入力キーを構成する入力部と、

上記入力キーの第１回目の押下時にその押下された入力キーに表示されている文字群に対応する文字一覧表を表マトリックスの指定した行に表示するように上記表示部の制御を行い、かつ表示部に表示された上記文字一覧表の中に入力すべき文字が存在すると上記表マトリックスの行と交差する列に相当する上記入力キーの第２回目の押下時に上記入力すべき文字の決定を行って上記表示部に表示制御する制御部と、

を備えることを特徴とする携帯電話装置。

【請求項１９】　上記制御部は、上記入力すべき文字の決定時に上記表示部に表示されている上記文字一覧表に代えて決定した文字の表示を行うとともに、記憶部に記憶することを特徴とする請求項１８記載の携帯電話装置。

【請求項２０】　上記表示部は、３行×３列以上の文字の表示が可能であることを特徴とする請求項１８記載の携帯電話装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】この発明は、入力すべき文字を群分けした文字一覧表を表示部に表示させ、その群分けした文字一覧表の中から意図する文字が表示された入力キー押下により、意図する文字を選択して入力するようにして、限られたキーの数でも最小限のキー押下でなおかつ確実に文字を入力することが可能な携帯電話装置およびその文字入力方法に関する。

【０００２】

【従来の技術】携帯電話装置の小型化と多機能化に伴い、単なる通話のみならず文字の伝送も可能になってきており、携帯電話装置への文字の入力方式も種々開発されている。たとえば、特開平０９－２９４１７０号公報（移動体通信端末）には、１つのキーに対して群分けされた複数の文字が割り当てられた入力手段により特定の文字群を文字選択手段で選択し、その選択した文字群を文字の確定方法とともにガイダンス表示手段に表示するとともに、文字選択手段で選択した文字群からガイダンス表示手段の各文字の確定方法により成る文字を入力文字確定手段で確定し、その確定された文字からなる文字列を確定文字列表示手段に表示することが開示されている。

【０００３】また、特開平０８－３１４９２０号公報（文字入力装置）には、辞書手段に入力文字または入力文字列と変換結果の候補文字または候補文字列とが対応付けられて記憶し、複数の文字が割り当てられた複数のキーと、文字変換を指示するための変換／次候補キーと、変換結果を確定させるための確定器キーとを含む文字または文字列を入力するための入力手段から入力された文字または文字列について、文字変換手段により辞書手段を検索して候補文字または候補文字列を求めて、出力手段に出力することが開示されている。しかし、これらの従来例では、文字の入力操作が必ずしも簡便であるとは言い切れない。

【０００４】さらに、別の従来の携帯電話における文字入力方法について、後述するこの発明に用いる図面を援用して述べると、図４に示すように、「１」～「０」の数字の表示したテンキーの「１」キー１～「０」キー１０と、記号キー１１と、文字キー１２とが携帯電話装置の入力部の入力キー１００として用いられている。これらの入力キー１００のうちの「１」キー１から「０」キー１０には、それぞれ上記のように、数字「１」～「０」と、文字が表示されており、記号キー１１には、記号が表示されている。さらに文字キー１２は入力文字モードの切り替えを行うものである。

【０００５】「１」キー１には、数字「１」と、カナ文字「ア」、「２」キー２には、数字「２」と、カナ文字「カ」と、英文字「ＡＢＣ」、「３」キー３には、数字「３」と、カナ文字「サ」と、英文字「ＤＥＦ」、「４」キー４には、数字「４」と、カナ文字「タ」と、英文字「ＧＨＩ」、「５」キー５には、数字「５」と、カナ文字「ナ」と、英文字「ＪＫＬ」、「６」キー６には、数字「６」と、カナ文字「ハ」と、英文字「ＭＮＯ」、「７」キー７には、数字「７」と、カナ文字「マ」と、英文字「ＰＱＲ」、「８」キー８には、数字

「8」と、カナ文字「ヤ」と、英文字「STU」、「9」キー9には、数字「9」と、カナ文字「ラ」と、英文字「VWX」、「0」キー10には、数字「0」と、カナ文字「ワ」と、英文字「YZ」、記号キー11には、文字「記号」、文字キー12には、文字「文字」、がそれぞれ表示されている。

【0006】このように、図4に示すような入力キー100は文字入力モードを切り替える文字キー12を持つキー配列となっており、文字キー12を押下するごとに「カナ文字入力モード」／「英字入力モード」／「数字入力モード」などの文字入力モードを切り替えるようになっており、図8に示すように行（図8の例では、10行）と列（図8の例では、10列）の交点で文字を表すマトリックス表101をもとにして、行を1回目の入力キーの押下で指定し、列を入力キーの押下回数で指定することにより文字を入力する文字入力方式が一般的である。

【0007】

【発明が解決しようとする課題】しかしながら、このような文字入力方式では、たとえば、カナ文字の「ア」を入力する場合、文字キー12を1回押下後、「1」キー1を1回押下することで入力可能であるが 、カナ文字の「オ」を入力する場合、文字キー12を1回押した後、「1」キー1を5回押下する必要がある。したがって、入力する文字によりキー押下回数が多くなってしまう。また、電話でポケットベルへ文字を送る場合に使われる文字入力方法としては、上記図8に示すように、行と列の交点で文字を表すマトリックス表101をもとにして、行を1回目の押下キーで指定し、列を2回目の押下キーで指定することにより、2回のキー押下で文字を入力する文字入力方式が使われているが、文字に対応した行と列からなる2桁の文字コードを暗記しておくか対応するマトリックス表を見ながら入力する必要があるなど、入力操作が煩雑になるという課題がある。

【0008】この発明は、上記従来の課題を解決するためになされたもので、文字入力のためのキーの押下回数を削減できるとともに、マトリックスを不要とすることができ、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができる携帯電話装置の文字入力方法を提供することを目的とする。

【0009】また、この発明は、文字入力のためのキーの押下回数を削減できるとともに、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができ、携帯電話装置の文字入力方法を提供することを目的とする。

【0010】さらに、この発明は、文字入力のためのキーの押下回数を削減できるとともに、マトリックスを不要とすることができ、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができる携帯電話装置を提供することを目的とする。

【0011】また、この発明は、文字入力のためのキーの押下回数を削減できるとともに、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができる携帯電話装置を提供することを目的とする。

【0012】

【課題を解決するための手段】上記目的を達成するために、この発明による携帯電話装置の文字入力方法は、「カナ文字入力モード」、「英文字入力モード」、「数字入力モード」に応じて文字キーの切替操作を行うことにより制御部により表示部に文字入力モードの表示を行う第1ステップと、上記文字キーの操作により選択された文字入力モードに応じて群分けした文字の表示がなされた入力キーを少なくとも1回押下操作することにより上記制御部により入力すべき文字の決定と上記表示部への表示を行う第2ステップとよりなることを特徴とする。

【0013】この発明の携帯電話装置の文字入力方法によれば、文字キーの切替操作を行うことにより、「カナ文字入力モード」、「英文字入力モード」、「数字入力モード」のいずれかの文字入力モードを選択すると、その選択した文字入力モードに応じて群分けした文字の表示されている入力キーを少なくとも1回押下操作すると、制御部により入力すべき文字を決定して表示部に表示する。

【0014】したがって、この発明の携帯電話装置の文字入力方法では、文字入力のためのキーの押下回数を削減できるとともに、マトリックス表を不要とすることができ、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができる。

【0015】また、この発明の携帯電話装置の文字入力方法は、所定の文字を群分けして表示した入力キーから所定の文字を入力するために選定した入力キーの第1回目の押下時にその押下された入力キーに表示されている文字群に対応する文字一覧表を制御部の制御により表マトリックスの行を指定して表示部に表示する第1ステップと、上記表マトリックスの指定された行に表示された上記文字一覧表の中に入力すべき文字の存在する上記表マトリックスの上記行と交差する列に相当する上記入力キーの第2回目の押下時に、上記制御部で入力すべき文字の決定を行って上記表示部に表示する第2ステップとよりなることを特徴とする。

【0016】この発明の携帯電話装置の文字入力方法によれば、入力キーの第1回目の押下を行うと、押下された入力キーに所定の文字を群分けして表示した文字群に対応する文字一覧表を制御部の制御により表マトリックスの行を指定して表示部に表示する。この表マトリックスの指定した行に表示されている文字一覧表に入力すべき文字が存在する表マトリックスの行と交差する列に相当する入力キーを第2回目に押下すると、制御部は入力すべき文字を決定して表示部に表示する。

【0017】したがって、この発明による携帯電話装置の文字入力方法では、文字入力のためのキーの押下回数を削減できるとともに、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができる。

【0018】さらに、この発明の携帯電話装置は、表示部と、「カナ文字入力モード」、「英文字入力モード」、「数字入力モード」に応じて切替操作を行う文字キーと記号キーとあらかじめ群分けして決められた文字を表示したテンキーとにより入力キーを構成する入力部と、上記入力部の上記文字キーの操作により上記「カナ文字入力モード」、「英文字入力モード」、「数字入力モード」のずれかの選択時にその選択に応じて文字入力モードを上記表示部に表示するとともに、上記入力キーの少なくとも1回の押下操作により入力すべき文字の決定を行ってその決定した文字を上記表示部に表示する制御部とを備えることを特徴とする。

【0019】この発明の携帯電話装置によれば、入力部の文字キーの押下操作を行うことにより「カナ文字入力モード」、「英文字入力モード」、「数字入力モード」のいずれかの文字入力モードを選択すると、その選択した文字入力モードを制御部により表示部で表示する。この表示された入力モードに対応するように、入力キーを少なくとも1回押下操作を行うと、制御部は入力すべき文字の決定を行って、決定した文字を表示部に表示する。

【0020】したがって、この発明による携帯電話装置では、文字入力のためのキーの押下回数を削減できるとともに、マトリックスを不要とすることができ、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができる。

【0021】また、この発明の携帯電話装置は、表示部と、記号キーとあらかじめ所定の文字を群分けして決められた文字を表示したテンキーとにより入力キーを構成する入力部と、上記入力キーの第1回目の押下時にその押下された入力キーに表示されている文字群に対応する文字一覧表を表マトリックスの指定した行に表示するように上記表示部の制御を行い、かつ表示部に表示された上記文字一覧表の中に入力すべき文字が存在すると上記表マトリックスの行と交差する列に相当する上記入力キーの第2回目の押下時に上記入力すべき文字の決定を行って上記表示部に表示制御する制御部とを備えることを特徴とする。

【0022】この発明の携帯電話装置によれば、入力キーの第1回目の押下時に制御部は、表示部を制御してその押下された入力キーに表示されている文字群に対応する文字一覧表を表マトリックスの指定した行に表示する。次いで、表示部に表示された文字一覧表の中に入力すべき文字が存在すると、表マトリックスの行と交差する列に相当する入力キーを第2回目の押下操作時に制御部は入力すべき文字を決定して表示部に表示制御する。

【0023】したがって、この発明の携帯電話装置では、文字入力のためのキーの押下回数を削減できるとともに、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができる。

【0024】

【発明の実施の形態】以下、この発明による携帯電話装置およびその文字入力方法の実施の形態について図面に基づき説明する。図1はこの発明による携帯電話装置の第1実施の形態の構成を示すブロック図である。この図1における入力部13は図2に示すように、入力部13を構成する入力キー102から構成されており、入力キー102はテンキーの「1」キー1～「0」キー10と記号キー11とから構成されている。入力キー102は上記図4で示した入力キー100の構成から文字キー12を省略した構成となっており、「1」キー1～「0」キー10、記号キー11に表示した数字、文字については図4の場合と同じであり、各キーごとに所定の文字をグループ化して、群分けして文字表示がされている。

【0025】この入力キー102を構成する各「1」キー1～「0」キー10、記号キー11を第1回目で押下することにより、上記図8で示したマトリック表101の行を指定し、「1」キー1～「9」キー9を第2回目で押すことにより、図8のマトリックス表101の列を指定することにより、それぞれ表示部14と制御部15に、これらの「1」キー1～「0」キー10、記号キー11に応じてコード化された信号が入力されるようにしている。制御部15は2回目に押下されたキーで指定されたマトリックス表101の行と列の交点で示される文字を求めて、つまり、入力すべき文字を決定して表示部14に表示し、かつ記憶部16に記憶するようにしている。

【0026】表示部14は、図3に示すような3行×3列以上の文字表示が可能になっている。この図3は入力キー102が第1回目の押下操作時に表示部14に表示する文字一覧表103を示している。この図3に示す文字一覧表103は、図2で示した入力キー102の「1」キー1～「0」キー10、記号キー11のキー配置にそれぞれ対応して、所定の文字を群分けして3行×3列の文字を文字一覧表A～Kとして表示部14に表示するように、準備されている。各文字一覧表A～Kの表示内容は、以下に述べるような文字、記号が含まれている。各文字一覧表A～Kの表示内容は、図8のマトリックス表101と対比しても明らかなように、各文字一覧表A～Kの表示内容はマトリックス表101の各行に表示されている文字と同じである。

【0027】文字一覧表Aには、数字「1」と、カナ文字「アイウエオ」、文字一覧表Bには、数字「2」と、カナ文字「カキクケコ」と、英文字「ABC」、文字一覧表Cには、数字「3」と、カナ文字「サシスセソ」と、英文字「DEF」、文字一覧表Dには、数字「4」

と、カナ文字「タチツテト」と、英文字「GHI」、文字一覧表Eには、数字「5」と、カナ文字「ナニヌネノ」と、英文字「JKL」、文字一覧表Fには、数字「6」と、カナ文字「ハヒフヘホ」と、英文字「MNO」、文字一覧表Gには、数字「7」と、カナ文字「マミムメモ」と、英文字「PQR」、文字一覧表Hには、数字「8」と、カナ文字「ヤユヨ」と、英文字「STU」、文字一覧表Iには、数字「9」と、カナ文字「ラリルレロ」と、英文字「VWX」、文字一覧表Jには、数字「0」と、カナ文字「ワヲン」と、英文字「YZ」、文字一覧表Kには、記号「゛」、「゜」、「。」、「、」、「・」、「'」「ー」、「:」、が一覧表示されるようにしている。

【0028】次に、以上のように構成された携帯電話装置の第1実施の形態の動作について説明する。この動作の説明を行うことにより、この発明による携帯電話装置の文字入力方法による第1実施の形態の説明を兼ねることにする。この場合、制御部15が入力部13からのキー押下に応じて表示部14への表示内容と記憶部16への入力文字を決定する過程を説明する。

【0029】入力部13において、第1回目に図2で示す「1」キー1～「記号」キー11のいずれかを押下して、図8で示したマトリックス表101の行を指定し、第2回目に図2の「1」キー1～「9」キー9を押下することにより、マトリックス表101の列を指定する。これにより、制御部15において2回のキー押下で指定された行と列の交点で示される文字を求めて記憶部16への入力文字を決定する。この場合、第1回目のキー押下後に、制御部15の制御により表示部14へ表示する内容は、入力キー102の押下キーと1対1で対応する文字一覧表A～Kのいずれかの表示内容が表示されるように決められており、図2の「1」キー1～「記号」キー11が図3に示している文字一覧表A～Kに対応するため、第1回目の入力キー102の押下後に対応する表示内容を制御部15において特定し、表示部14へ文字一覧表として表示する。

【0030】続いて、「1」キー1～「0」キー9のいずれかを第2回目に押下することにより、制御部15はマトリック表101の列を特定することになり、第1回目の押下キーと第2回目の押下キーとによるマトリックス表101の行と列との交点の文字を入力文字として決定して、表示部14に上記文字一覧表A～Kのうちの押下キーに対応する文字一覧表の表示に代えて表示するとともに、記憶部16に記憶する。

【0031】次に、具体的な文字の入力例として、たとえば、カタカナ文字の「ア」、英文字の「Z」、数字の「5」をそれぞれ入力する場合の動作をそれぞれ個別に分けて具体的に説明する。まず、カタカナ文字の「ア」を入力する場合から説明する。入力キー100の中に文字「ア」が表示されているのは、「1」キー1であり、したがって、最初に第1回目の「1」キー1押下で、制御部15はマトリックス表101の行（1行目）を指定して、制御部15はこの「1」キー1に対応する図3の文字一覧表Aの表示内容、すなわち、「アイウエオ1」を表示部14に表示する。さらに、換言すれば、制御部15は、この第1回目の「1」キー1の押下により、マトリックス表101の1行目の入力文字「アイウエオ1」を特定することになる。

【0032】次に、文字一覧表Aの表示内容「アイウエオ1」の中に文字「ア」があるのは、1列目であるから、第2回目の「1」キー1押下で、入力部13から「1」キー1の押下によるデータが入力され、制御部15はマトリック表101列（1列目）を特定して、制御部15はマトリックス表101の1行1列目の交点の文字の「ア」を決定する。これと同時に、制御部15は表示部14に表示されている文字一覧表Aの表示内容に代えて、この「ア」の文字を表示部14に表示するとともに、記憶部16に記憶させる。

【0033】同様の要領で、次に、英文字の「Z」を入力する場合について説明する。入力キー100において、英文字「Z」が表示されているのは、「0」キー10であり、したがって、最初に第1回目の「0」キー10押下で、制御部15はマトリックス表101の10行目を指定して、この「0」キー10に対応する図3に示す文字一覧表Jの表示内容「ワヲン0YZ」を制御部16により表示部14に表示する。次に、この文字一覧表Jの表示内容「ワヲン0YZ」の中に英文字「Z」がるのは、マトリックス表101の8列目である。したがって、第2回目のキー押下は「8」キー8を押下することで、制御部15にはこの「8」キー8の押下のデータが入力され、制御部15の制御によりマトリックス表101の8列目が指定される。これにより、制御部15は、マトリックス表101の10行目と8列目との交点の英文字「Z」を決定して、制御部15の制御により表示部14に上記文字一覧表Jの表示内容に代えて英文字「Z」が表示され、記憶部16に記憶される。

【0034】次に、数字の「5」を入力する場合について説明する。この場合も、上記と同様の要領で、入力キー102に数字「5」が表示されているのは、「5」キー5であり、したがって、最初に第1回目の押下として、「5」キー5を押すことにより、制御部15はマトリックス表101の5行目を指定する。これにより、「5」キー5に対応して、制御部15は文字一覧表Eの表示内容である「ナニヌネノ5JKL」を表示部14に表示する。次いで、文字一覧表Eの表示内容「ナニヌネノ5JKL」に数字「5」があるのは、マトリックス表101の6列目である。したがって、第2回目のキー押下は、「6」キー6を押下することで、制御部15はマトリックス表101の6列目を指定することにより、マトリックス表101の5行目と6列目の交点の数字

「５」を決定して、制御部１５は表示部１４に文字一覧表Ｅの表示内容「ナニヌネノ５ＪＫＬ」に代えて、数字「５」の表示を行うとともに、記憶部１６に記憶する。

【００３５】次に、この発明による携帯電話装置およびその文字入力方法の第２実施の形態について説明する。図４はこの第２実施の形態における入力部１３を構成する入力キー１００を示す図であり、文字キー１２（文字入力モード切変キー）を含めて、この図４に示す入力キー１００とその表示文字については、既に説明した通りであり、その重複説明を避ける。また、図５は図４の入力キー１００の各「１」キー１～「０」キー１０、記号キー１１（文字キー１２については，対応していない）のそれぞれに対応した文字一覧表１０４を示しており、表示部１４に表示できる文字がこの文字一覧表１０４における文字一覧表Ａ～Ｋに表示している文字の２行×３列以上の場合を示している。

【００３６】この図５における文字一覧表１０４の各文字一覧表Ａ～Ｋの表示文字はそれぞれ、図９に示すキーマトリックスの１行目から１０行目（図中の１０行目は０行として表示）に表示するようにしている。この図９に示すキーマトリックス１０５は、図４の入力キー１００の文字キー１２を押下することにより、入力モードを切り替えたときに、カナ文字入力モードになった場合のキーマトリックス１０として示している。この文字キー１２は、このように、押下するごとに「カナ文字入力モード」→「英文字入力モード」→「数字入力モード」→「カナ文字入力モード」のように、順次入力モードが切り替るものである。

【００３７】また、図１０はこの文字キー１２の押下操作により入力モードを切り替えて、「英文字入力モード」にした場合のキーマトリックス１０６を示している。このように、文字キー１２の押下操作を行うことにより、数字入力モードの場合には、「１」キー１～「０」キー１０を１回押下操作を行うだけでよいため、図８で示したようなキーマトリックスは不要となる。

【００３８】ここで、上記第１実施の形態と同様に、カナ文字「ア」、英文字「Ｚ」、数字「５」をそれぞれ入力して表示と記憶する場合の手順について説明する。まず、カナ文字入力によりカナ文字の「ア」を入力する場合の具体例について説明する。この場合、最初に文字キー１２を押下して「カナ文字入力モード」にする。この「カナ文字入力モード」にすることにより、制御部１５により、図７に示す文字一覧表１０８における文字一覧表Ａの表示内容（「カナ」）を制御部１５により、表示部１４に表示する。また、表示部１４には、図９に示すようなキーマトリックス１０５に１行目から１０行目にそれぞれ図５に示す文字一覧表１０４の各文字一覧表Ａ～Ｋの表示内容（カナ文字）を表示可能状態とする。

【００３９】この状態で、次に、図４に示す入力キー１００の「１」キー１の第１回目の押下を行うことにより、図５に示す文字一覧表Ａの表示内容であるカナ文字「アイウエオ」（図９のキーマトリックス１０５の１列目に対応）を表示部１４に表示する。次に、表示部１４に表示されるこの文字一覧表Ａの表示内容「アイウエオ」に対応するカナ文字「ア」があるのは、１列目であり、したがって、第２回目の「１」キー１を押下することにより、図９のキーマトリックス１０５の１行１列目が交差し、その交点のカナ文字「ア」が制御部１５に入力され、制御部１５の制御により表示部１４に文字一覧表Ａの表示内容「アイウエオ」に代えて、カナ文字「ア」が表示されると同時に記憶部１６に記憶される。

【００４０】次に、英文字「Ｚ」を入力する場合の具体的手順について説明する。この場合も上記カナ文字「ア」の入力の場合と同様の要領で、まず、最初に文字キー１２を押下して、「英文字入力モード」として、図７に示す文字一覧表１０８における文字一覧表Ｂの表示内容（「エイジ」）を制御部１５により表示部１４に表示する。この「英文字入力モード」のときには、図４に示す入力キー１００における「１」キー１には英文字の表示がなされていない。そこで、図４の入力キー１００の「２」キー２～文字キー１２までのそれぞれに対応する文字一覧表１０７は図６に示すように、文字一覧表Ａ～Ｊとなる。

【００４１】この文字一覧表Ａ～Ｊには、図６の文字キー１２も対応する文字一覧表が含まれていない。これらの文字一覧表Ａ～Ｊの表示内容は、それぞれ図１０に示すキーマトリックス１０６の２行目以下に対応している。このような「英文字入力モード」になると、制御部１５により表示部１４に図１０に示す英文字を表示したキーマトリックスの表示を行う。

【００４２】次に、入力キー１００において、英文字「Ｚ」が表示されているのは、「０」キー１０であり、この「０」キー１０を第１回目に押下する。この「０」キー１０に対応する図６の文字一覧表Ｉの表示内容（「ＹＺ」）がキーマトリックス１０６の１０行目に制御部１５の制御により、表示部１４に表示される。このキーマトリックス１０６の１０行目に英文字「Ｚ」があるのは、２列目であり、したがって、引続き第２回目のキー押下として、今度は図４の入力キー１００の「２」キー２を押下すると、図１０のキーマトリックス１０６の１０行目と２列目の交点の英文字「Ｚ」が制御部１５に入力され、制御部１５の制御により、表示部１４に文字一覧表Ｉの表示内容「ＹＺ」に代えて、英文字「Ｚ」が表示されるとともに、記憶部１６にこの英文字「Ｚ」が記憶される。

【００４３】次に、数字「５」を入力する場合について説明する。この場合も最初に、図４の文字キー１２を３度押下して、「数字入力モード」にする。これにより、制御部１５により、表示部１４には、図７に示す文字一覧表１０８における文字一覧表Ｃの表示内容（「スウ

ジ」）が表示される。次いで、数字「５」が表示されている図４の入力キー１００の「５」キー５を第１回目に押下することにより、制御部１５により、表示部１４に数字「５」を表示するとともに、記憶部１６に記憶する。

【００４４】

【発明の効果】以上のように、この発明の携帯電話装置の文字入力方法によれば、文字キーの切替操作を行うことにより、所定の文字入力モードを選択すると、その選択した文字入力モードに応じて群分けした文字の表示されている入力キーを少なくとも１回押下操作すると、制御部により入力すべき文字を決定して表示部に表示するようにしたので、文字入力のためのキーの押下回数を削減できるとともに、マトリックスを不要とすることができ、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができる。

【００４５】また、この発明の携帯電話装置の文字入力方法によれば、入力キーの第１回目の押下を行うと、押下された入力キーに所定の文字を群分けして表示した文字群に対応する文字一覧表を制御部の制御により表マトリックスの行を指定して表示部に表示し、その表示されている文字一覧表に入力すべき文字が存在する表マトリックスの行と交差する列に相当する入力キーを第２回目に押下すると、制御部は入力すべき文字を決定して表示部に表示するようにしたので、文字入力のためのキーの押下回数を削減できるとともに、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができる。

【００４６】さらに、この発明の携帯電話装置によれば、入力部の文字キーの押下操作を行うことにより所定の文字入力モードを選択すると、その選択した文字入力モードを制御部により表示部で表示し、その表示された入力モードに対応するように、入力キーを少なくとも１回押下操作を行うと、制御部は入力すべき文字の決定を行って、決定した文字を表示部に表示するようにしたので、文字入力のためのキーの押下回数を削減できるとともに、マトリックスを不要とすることができ、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができる。

【００４７】また、この発明の携帯電話装置によれば、入力キーの第１回目の押下時に制御部は、表示部を制御してその押下された入力キーに表示されている文字群に対応する文字一覧表を表マトリックスの指定した行に表示し、表示部に表示された文字一覧表の中に入力すべき文字が存在すると、表マトリックスの行と交差する列に相当する入力キーを第２回目に押下することにより、制御部により入力すべき文字を決定して表示部に表示制御するようにしたので、文字入力のためのキーの押下回数を削減できるとともに、操作者がキーシーケンスを暗記する必用がなく、確実に文字を入力することができる。

【図面の簡単な説明】

【図１】この発明による携帯電話装置の第１実施の形態の構成を示すブロック図である。

【図２】図１の携帯電話装置における入力部を構成する入力キーの配置と文字表示例を示す説明図である。

【図３】図２の入力キーに対応する文字一覧表を示す説明図である。

【図４】この発明による携帯電話装置の第２実施の形態に適用される入力キーの配置と文字表示例を示す説明図である。

【図５】図４の入力キーに対応する文字一覧表の説明図である。

【図６】この発明による携帯電話装置の第２実施の形態に適用される英字入力モード時の文字一覧表の説明図である。

【図７】この発明による携帯電話装置の第２実施の形態に適用される数字入力モード時の文字一覧表の説明図である。

【図８】この発明による携帯電話装置の第１実施の形態に適用されるマトリックス表を示す説明図である。

【図９】この発明による携帯電話装置の第２実施の形態に適用されるカナ文字入力モード時のキーマトリックスの説明図である。

【図１０】この発明による携帯電話装置の第２実施の形態に適用される英字入力モード時のキーマトリックスの説明図である。

【符号の説明】

１……「１」キー、２……「２」キー、３……「３」キー、４……「４」キー、５……「５」キー、６……「６」キー、７……「７」キー、８……「８」キー、９……「９」キー、１０……「０」キー、１１……記号キー、１２……文字キー、１３……入力部、１４……表示部、１５……制御部、１６……記憶部、１００……入力キー、１０１……マトリックス表、１０２……入力キー、１０３，１０４，１０７，１０８、Ａ～Ｋ……文字一覧表、１０５，１０６……キーマトリックス。

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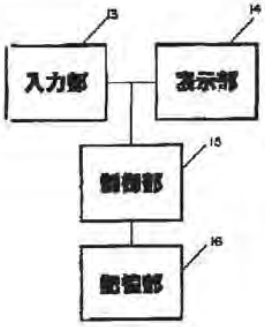
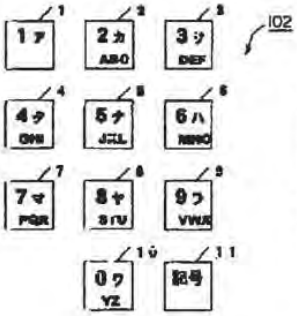
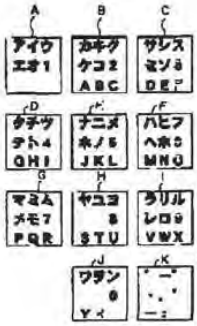
【図1】



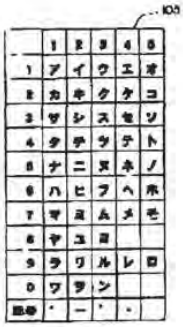
【図2】



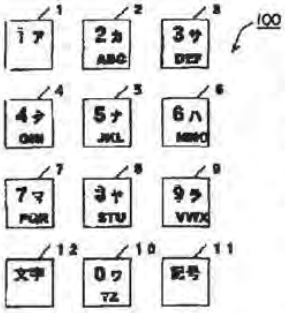
【図3】



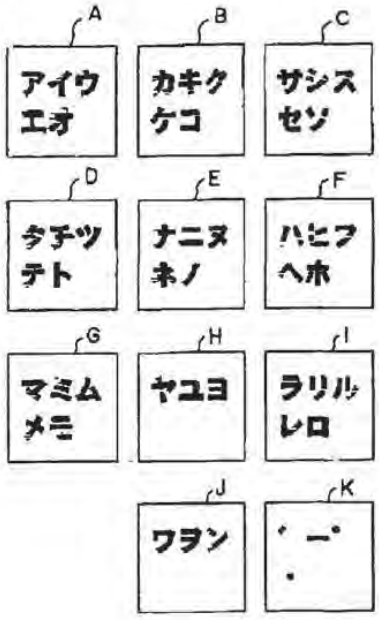
【図9】



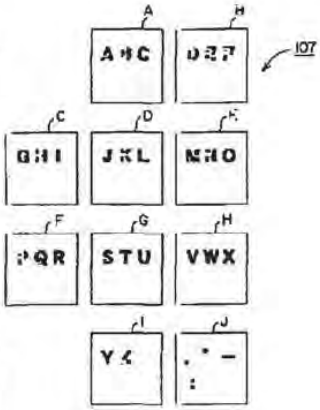
【図4】



【図5】

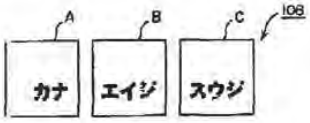


【図6】



【図10】

【図7】



【図8】

101

	1	2	3	4	5	6	7	8	9	0
1	ア	イ	ウ	エ	オ	1				
2	カ	キ	ク	ケ	コ	2	A	B	C	
3	サ	シ	ス	セ	ソ	3	D	E	F	
4	タ	チ	ツ	テ	ト	4	G	H	I	
5	ナ	ニ	ヌ	ネ	ノ	5	J	K	L	
6	ハ	ヒ	フ	ヘ	ホ	6	M	N	O	
7	マ	ミ	ム	メ	モ	7	P	Q	R	
8	ヤ	ユ	ヨ			8	S	T	U	
9	ラ	リ	ル	レ	ロ	9	V	W	X	
0	ワ	ヲ	ン			0	Y	Z		
記号	゛	ー	゜	・		．	゛	ー	：	

【手続補正書】
【提出日】平成11年12月8日（1999．12．8）
【手続補正1】
【補正対象書類名】明細書
【補正対象項目名】特許請求の範囲
【補正方法】変更
【補正内容】
【特許請求の範囲】
【請求項1】　「カナ文字入力モード」、「英文字入力モード」、「数字入力モード」に応じて所定の記号を表示した記号キーと、カナ文字と、数字と英文字とによる文字を群分けして表示したテンキーと、文字キーとにより構成された入力キーのうち上記文字キーの切替操作を行うことにより制御部により2行×3列以上の文字が表示可能の表示部に文字入力モードの表示を行う第1ステップと、
上記文字キーの操作により選択された文字入力モードに応じてカナ文字と数字と英文字による所定の文字を群分けして決められた文字の表示がなされた入力キーを少なくとも1回押下操作することにより上記表示部に表示された文字入力モードに応じて上記制御部により入力すべき文字を決定して、その決定した文字を上記表示部への表示を行うとともに記憶部に記憶する第2ステップと、とよりなることを特徴とする携帯電話装置の文字入力方法。
【請求項2】　上記制御部は、上記文字キーにより上記「数字入力モード」の選択時に数字の表示した上記入力キーを押下することにより、上記表示部に表示されている「数字入力モード」の表示に代えて入力すべき数字を決定して上記表示部に表示するとともに、記憶部に記憶することを特徴とする請求項1記載の携帯電話装置の文字入力方法。
【請求項3】　上記制御部は、上記文字キーにより上記「カナ文字入力モード」の選択時に群分けしてカナ文字が表示されている所定の上記入力キーの第1回目押下により、この押下された入力キーに対応して群分けされたカナ文字の文字一覧表を上記表示部に表示するとともに、表示部に表示された文字一覧表に存在する入力すべきカナ文字が表示された上記入力キーを第2回目に押下すると、上記表示部に表示されている上記文字一覧表に代えて入力すべきカナ文字を決定して上記表示部に表示し、かつ記憶部に記憶することを特徴とする請求項1記載の携帯電話装置の文字入力方法。
【請求項4】　上記制御部は、上記文字キーにより上記「英文字入力モード」の選択時に群分けして英文字が表示されている所定の上記入力キーの第1回目押下により、この押下された入力キーに対応して群分けされた英文字の文字一覧表を上記表示部に表示するとともに、表示部に表示された英文字の文字一覧表に存在する入力すべき英文字が表示された上記入力キーを第2回目に押下すると、上記表示部に表示されている上記英文字の文字一覧表に代えて入力すべき英文字を決定して上記表示部に表示し、かつ記憶部に記憶することを特徴とする請求項1記載の携帯電話装置の文字入力方法。