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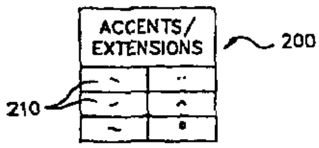

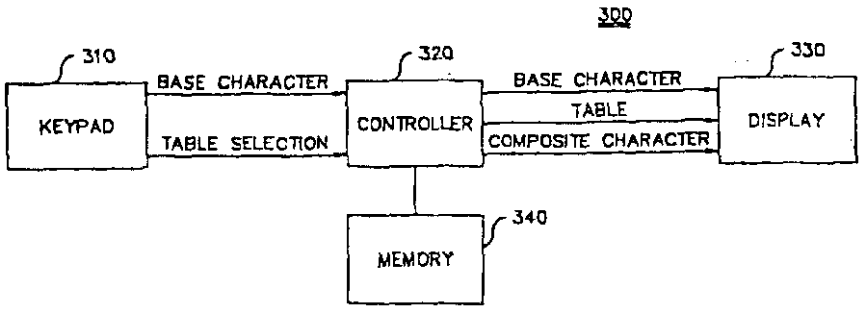

(57) Abstract

A method and apparatus for entering an alphanumeric character with an accent or extension into an electronic device. A base character is entered into the device using a keypad (310), and the base character is then displayed on the device display (330). Next, a table (200) that includes a plurality of accents or extensions (210) is displayed for the user on the device display (330). The user then selects an accent or extension (210) from the table (200) that the user wishes to associate with the base character. After the selection of the accent or extension from the table (200) by the user, the base character is replaced on the device display (330) with a composite character that consists of the base character and the accent or extension (210) selected by the user from the table (200).

160 x 13 = 2080 6

METHOD AND APPARATUS FOR ENTERING ALPHANUMERIC CHARACTERS WITH ACCENTS OR EXTENSIONS INTO AN ELECTRONIC DEVICE

BACKGROUND OF THE INVENTION

I. Field of the Invention

The present invention relates generally to systems for entering alphanumeric characters into electronic devices. More particularly, the present invention relates to systems for entering characters having accents or extensions into electronic devices.

II. Description of the Related Art

Multiple keystroke keypads are known in the art. In such keypads, each alphanumeric key is associated with one number and several text characters. For example, the second key on the keypad is typically associated with the number "2" and the text characters "A", "B", and "C". In order to enter text characters into an electronic device using such a key, the user will depress the key once to enter an "A", the user will depress the key twice to enter a "B", and the user will depress the key three times to enter a "C".

Languages other than English, such as French and Spanish, use accents on text characters. In order to accommodate the use of such accents, known multiple keystroke keypads associate more than three text characters with a single key. For example, the characters "À", "Á", "A", "B" and "C" may be associated with a single key. Due to the increased number of characters associated with the key, a user is required to depress the key as many as four or five times to select a particular character associated with the key. Requiring a user to depress a single key as many as five times to select a particular character is undesirable, as such a high number of keystrokes can be annoying to the user or difficult for the user to accurately perform.

It would therefore be desirable if there was a system which allowed a user to enter characters with accents or extensions into a device using a multiple keystroke keypad, and which minimized the number of keystrokes required by the user to enter the information.

SUMMARY OF THE INVENTION

The present invention is direct to a method and apparatus for entering an alphanumeric character with an accent or extension into an electronic device. A base character is entered into the device using a keypad, and the base character is then displayed on the device display. Next, a table that includes a plurality of accents or extensions is displayed for the user on the device display. The user then selects an accent or extension from the table that the user wishes to associate with the base character. After the selection of the accent or extension from the table by the user, the base character is replaced on the device display with a composite character that consists of the base character and the accent or extension selected by the user from the table.

In a particularly preferred embodiment, the accents or extensions in the table displayed for the user are ordered in response to the base character entered by the user and/or in response to a language selection entered by the user. In this embodiment, the accents or extensions that are most likely to be selected by the user are determined based on the language and the base character entered by the user, and the most likely extensions or accents are then placed at the top of the table displayed for the user. This aspect of the invention facilitates the rapid selection of the desired accent or extension from the table by the user.

BRIEF DESCRIPTION OF THE DRAWINGS

The features, objects and advantages of the present invention will become more apparent from the detailed description set forth below when taken in conjunction with the drawings in which like reference characters identify corresponding elements and wherein:

Figure 1 is a flow diagram of a method for entering an alphanumeric character having an accent or extension into an electronic device, in accordance with a preferred embodiment of the present invention.

Figure 2 shows an exemplary table for displaying accents or extensions that may be combined with a base character, in accordance with the present invention.

Figure 3 is a block diagram of a system for entering an alphanumeric character having an accent or extension into an electronic device, in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to Figure 1, there is shown a flow diagram of a method 100 for entering an alphanumeric character having an accent or extension into an electronic device such as a mobile or portable telephone, in accordance with a preferred embodiment of the present invention. In step 110, a user enters a base character (i.e., a text character with no accent or extension) into the device using a multiple keystroke keypad. In step 120, the base character entered in step 110 is displayed for the user on the device display. Next, in steps 130 and 140, a table (such as table 200 in Fig. 2) containing accents or extensions 210 that could be associated with the base character is prepared and displayed for the user. The accents or extensions 210 in table 200 are ordered in response to the base character entered by the user. More particularly, the accents or extensions that may possibly be associated with the base character are determined based on the base character entered by the user, and the most likely extensions or accents 210 to be selected by the user are placed at the top of the table 200. This aspect of the invention facilitates the rapid selection of the desired accent or extension 210 from the table by the user. In step 150, the user selects one of the accents or extensions 210 to associate with the base character by, for example, using a scroll button on the keypad or device to scroll through and then select one of the displayed accents/extensions 210. After the selection of the desired accent or extension 210 from the table 200 by the user, the base character is replaced on the device display in step 160 with a composite character that consists of the base character and the accent or extension selected by the user from the table. Thus, for example, if the base character selected by the user in step 110 corresponded to an "A", and the accent selected in step 150 corresponded to a " ´ ", then in step 160 the base character "A" would be replaced with the composite character "Á".

Referring now to Figure 3, there is shown a block diagram of a system 300 for implementing the method shown in Figure 1. The system 300 includes a multiple keystroke keypad 310 that transmits a signal representative of a base character selected by the user to a controller 320. A device display 330 is coupled to the controller 320, and functions to display the base character to the user.

The controller 320 is coupled to a memory 340, which preferably stores a separate ordered list of accents or extensions for each base character that might be entered by the user. Each of the ordered lists stored in the memory 340 preferably corresponds to the accents or extensions that may be selected by the

user for a given base character, with the most likely extensions or accents to be selected by the user being placed at the top of the list. In response to the base character selection, the controller 320 retrieves the accent/extension list associated with the base character from the memory 340, and the controller 320 sends a signal representative of the accent/extension list to the device display 330 which displays the list in the form of a table such as table 200.

After the table of accents/extensions is displayed for the user, the user selects an accent/extension to associate with the base character from the table using the keypad 310, which transmits a signal representative of the selected accent/extension to the controller 320. In response to this signal, the controller 320 sends a signal to the device display 330 that replaces the base character on the device display 330 with a composite character that consists of the base character and the accent or extension selected from the table by the user.

The previous description of the preferred embodiments is provided to enable any person skilled in the art to make or use the present invention. Various modifications to the embodiments described above will be readily apparent to those skilled in the art, and the generic principles defined herein may be applied to other embodiments without the use of inventive faculty. Thus, the present invention is not intended to be limited to the methods and apparatuses shown herein but is to be accorded the widest scope consistent with the claims set forth below.

What is claimed is

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CLAIMS

1. A method for entering an alphanumeric character with an accent or extension into an electronic device, comprising the steps of:

(A) entering a base character into the device using a keypad and displaying the base character on a device display;

(B) displaying, on the device display, a table that includes a plurality of accents or extensions;

(C) selecting an accent or extension from the table; and

(D) replacing, on the device display, the base character with a composite character that consists of the base character and the accent or extension selected in step (C).

2. The method of claim 1, wherein the accents or extensions in the table displayed in step (B) are ordered in response to the base character entered in step (A).

3. The method of claim 2, wherein the accents or extensions that are most likely to be selected in step (C) appear at the top of the table displayed in step (B).

4. The method of claim 1, wherein the keypad used in step (A) is a multiple keystroke keypad.

5. The method of claim 1, wherein the electronic device is a mobile telephone.

6. An apparatus for entering an alphanumeric character with an accent or extension into an electronic device, comprising:

(A) a keypad that transmits a signal representative of a base character selected by a user to a controller; and

(B) a device display, coupled to the controller, that displays the base character to the user, wherein the device display further displays a table that includes a plurality of accents or extensions to the user after the base character has been selected by the user, and the keypad transmits a signal representative of one of the accents or extensions from the table to the controller in response to a selection of the one of the accents or extensions from the table by the user;

wherein, in response to the signal representative of one of the accents or extensions from the table, the controller sends a signal to the device display that replaces the base character on the device display with a composite character that consists of the base character and the accent or extension selected from the table by the user.

7. The apparatus of claim 6, wherein the accents or extensions in the table displayed on the device display are ordered in response to the base character selected by the user.

8. The apparatus of claim 7, wherein the accents or extensions that are most likely to be selected by the user appear at the top of the table displayed on the device display.

9. The apparatus of claim 6, wherein the keypad is a multiple keystroke keypad.

10. The apparatus of claim 6, wherein the electronic device is a mobile telephone. .

11. The apparatus of claim 6, wherein the accents or extensions in the table displayed on the device display are selected and displayed in response to a selected language.

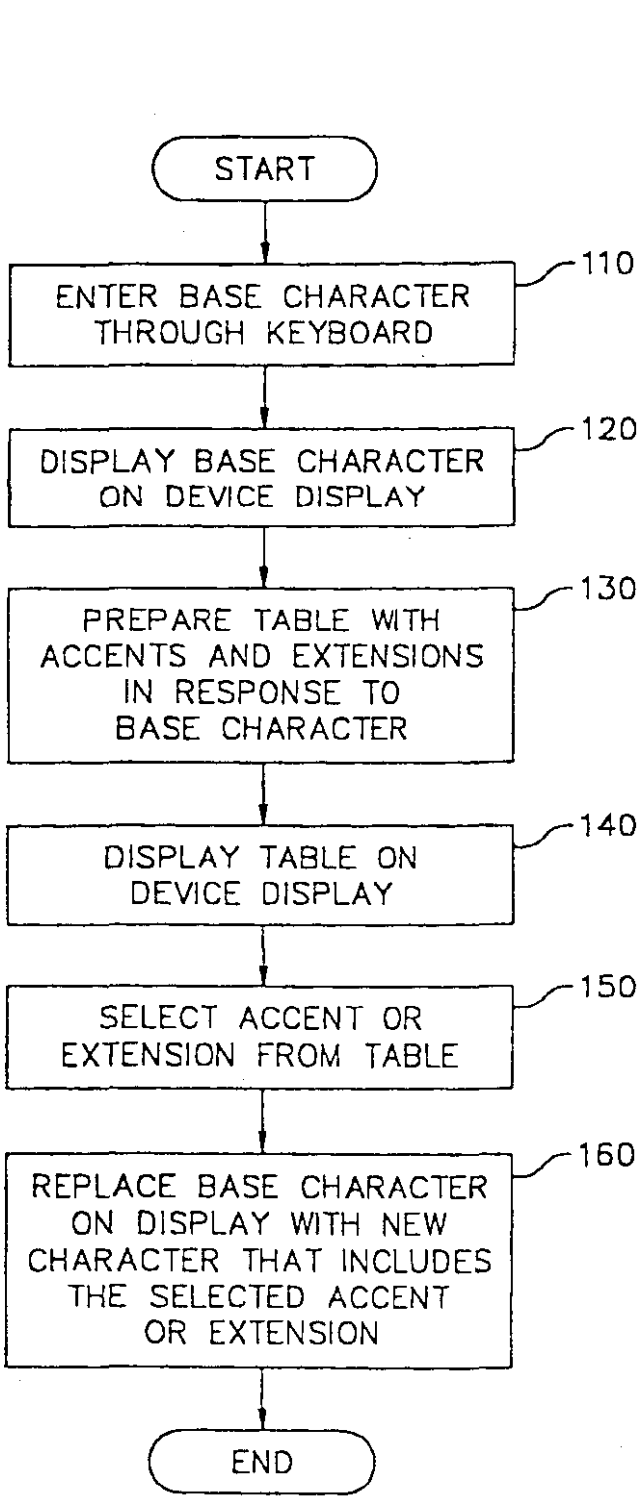
100
START
ENTER BASE CHARACTER THROUGH KEYBOARD
110
DISPLAY BASE CHARACTER ON DEVICE DISPLAY
120
PREPARE TABLE WITH ACCENTS AND EXTENSIONS IN RESPONSE TO BASE CHARACTER
130
DISPLAY TABLE ON DEVICE DISPLAY
140
SELECT ACCENT OR EXTENSION FROM TABLE
150
REPLACE BASE CHARACTER ON DISPLAY WITH NEW CHARACTER THAT INCLUDES THE SELECTED ACCENT OR EXTENSION
160
END

Fig. 1

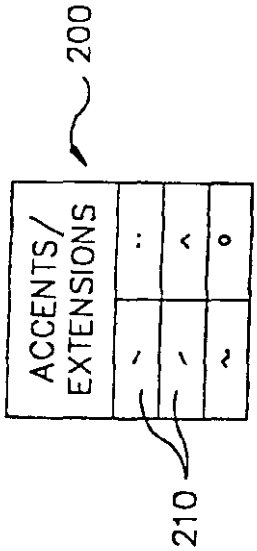
200
ACCENTS/
EXTENSIONS
~
:
^
°
'
~
210

Fig. 2

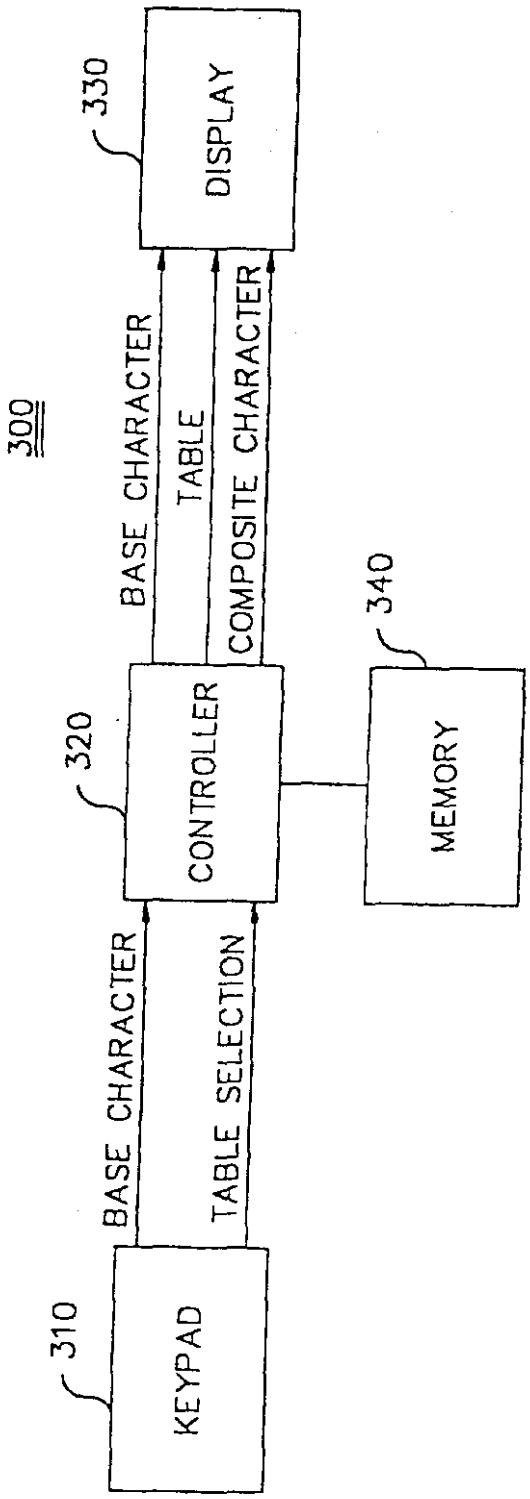
300
330
DISPLAY
BASE CHARACTER
TABLE
COMPOSITE CHARACTER
320
CONTROLLER
340
MEMORY
BASE CHARACTER
TABLE SELECTION
310
KEYPAD

Fig. 3

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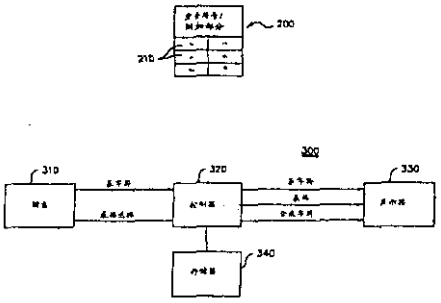
权利要求书2页 说明书3页 附图页数2页

[54]发明名称 将带有重音符号或附加部分的字母数字字符输入电子器件的方法和装置

[57]摘要

将带有重音符号或附加部分的字母数字字符输入电子器件的方法和装 置。用键盘(310)将基字符输入器件,然后基字符就在器件显示器(330)上显示。接着,一个包含多个重音符号或附加部分(210)的表格(200)为用户显示在器件 显示器(330)上。然后用户从表格(200)中选择一个与基字符关联的重音符号或 附加部分(210)。用户从表格(200)中选出重音符号或附加部分之后,器件显示 器(330)上的基字符就由一个含有基字符和用户从表中选出的重音符号或附加部 分的合成字符替代。



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权　利　要　求　书

1．一种将带有重音符号或附加部分的字母数字字符输入电子器件的方法，它包括以下步骤：

(A)用键盘将基字符输入器件，并在器件显示器上显示该基字符；

(B)在器件显示器上，显示一个包含多个重音符号或附加部分的表格；

(C)从表格中选择一个重音符号或附加部分；

(D)在器件显示器上，用一个含有基字符和步骤(C)中所选重音符号或附加部分的合成字符替换基字符。

2．如权利要求 1 所述的方法，其特征在于根据在步骤(A)中输入的基字符对步骤(B)显示的表格中的重音符号或附加部分排序。

3．如权利要求 2 所述的方法，其特征在于所述在步骤(C)中最可能被选中的重音符号或附加部分出现在步骤(B)中显示的表格的顶端。

4．如权利要求 1 所述的方法，其特征在于所述在步骤(A)步中使用的键盘是一个多击键键盘。

5．如权利要求 1 所述的方法，其特征在于所述电子器件是移动电话。

6．一种用于将带有重音符号或附加部分的字母数字字符输入到电子器件的装置，它包括：

(A)键盘，它把用户选中的基字符的信号表示传送到控制器；

(B)器件显示器，它和控制器耦合，为用户显示基字符，在用户选好基字符之后，器件显示器还为用户显示含有多个重音符号或附加部分的表格，并且键盘根据用户从表格中选出的某一重音符号或附加部分，将表格中该重音符号或附加部分的信号表示传送到控制器；

其中，根据表格中某一重音符号或附加部分的信号表示，控制器发出一个信号到器件显示器，以便用一个含有基字符和用户从表中选出的重音符号或附加部分的合成字符替换器件显示器上的基字符。

7．如权利要求 6 所述的装置，其特征在于所述显示在器件显示器上的表格中的重音符号或附加部分是根据用户选出的基字符排序的。

8．如权利要求 7 所述的装置，其特征在于所述用户最可能选中的重音符号或附加部分出现在显示于器件显示器上的表格顶端。

9．如权利要求 6 所述的装置，其特征在于所述键盘是多击键键盘。

10．如权利要求 6 所述的装置，其特征在于所述电子器件是移动电话。

11．如权利要求 6 所述的装置，其特征在于所述器件显示器上显示的重音符号或附加部分是根据选中的语言来选择和显示的。

说　　明　　书

将带有重音符号或附加部分的字母数字字符输入电子器件的方法和装置

发明领域

本发明涉及到一般把字母数字字符输入到电子器件中去的系统。更特殊的是，本发明涉及到把带有重音符号和附加部分的字符输入到电子器件中去的系统。

相关领域的描述

在本技术领域，多击键键盘大家都知道了。这种键盘，每个字母数字键与一个数字和几个文本字符关联。例如，键盘上第二个键一般与数字“2”以及字符“A”、“B”、“C”关联。为了用这个键把文本字符输入电子器件，用户将按键一次输入“A”，按键两次输入“B”，按键三次输入“C”。

英语以外的语言，例如法语和西班牙语，在文本字符上使用重音符号。为了适应这种重音符号的使用，众所周知的多击键键盘用一个键与超过三个的文本字符相关联。例如，字符“À”、“Á”、“A”、“B”和“C”可能与一个键关联，用户需要按键四次或五次选择一个与该键关联的特定字符。要用户按键五次选一个特定的字符是令人不快的，如此高的击键数会令用户感到讨厌，也会使准确操作变得困难。

因此，如果有一个系统，允许用户用多击键键盘向器件中输入带有重音符号和附加部分的字符，并把用户输入信息所需的击键数减到了最少，这将是大家所希望的。

发明内容

本发明涉及把带有重音符号和附加部分的字母数字字符输入电子器件的方法和装置。用键盘把一个基字符输入器件，然后基字符就在器件的显示器上显示。接着，一个包括多个重音符号或附加部分的表格就为用户显示在器件的显示器上。然后，用户就从表格中选择一个用户想要和基字符关联的重

音符号或者附加部分。用户从表格中选出重音符号或附加部分之后，在器件的显示器上，基字符就由一个合成字符替代，该合成字符含有基字符和用户从表中选出的重音符号或附加部分。

在一特殊的较佳实施例中，为用户显示的表中的重音符号或附加部分根据用户输入的基字符排序，和/或者根据用户输入的语言选择排序。在该实施例中，基于语言和用户输入的基字符，确定了用户最有可能选择的重音符号或附加部分，然后把最有可能用到的重音符号或附加部分放到表格的最上端显示给用户。本发明的此方面特点便于用户从表格中快速选出想要的重音符号或附加部分。

附图说明

结合附图，本发明的特点、目的和优点将在以下的详细描述中进一步显现出来，附图中用标号标识了相应的元件，其中：

图 1　是与本发明的较佳实施例一致的将带有重音符号或附加部分的字母数字字符输入电子器件的方法的流程图。

图 2　是与本发明一致的用于显示可以和基字符结合的重音符号或附加部分的举例表。

图 3 是与本发明的较佳实施例相一致的，将带有重音符号或附加部分的字母数字字符输入电子器件的系统模块图。

具体实施方式

参照图 1，与本发明的较佳实施例相一致，它显示了方法 100 的流程图，用于将一个带有重音符号或附加部分的字母数字字符输入电子器件，例如移动或便携式电话。在步骤 100，用户使用一多击键键盘将一个基字符(也就是一个没有重音符号或附加部分的文本字符)输入器件。在步骤 120，为用户将步骤 110 中输入的基字符显示在器件显示器上。紧接着，在步骤 130 和 140，包含能与基字符关联的重音符号或附加部分 210 的表格(如图 2 中表格 200 所示)被准备好，然后显示给用户。表格 200 中的重音符号或附加部分 210 根据用户输入的基字符排序。更特别的是，能与基字符关联的重音符号或附加部分由用户输入的基字符确定，最可能被用户选到的附加部分或重音符号 210 放在表格 200 的最上端。本发明的该特点易于用户从表格中快速选出想要的

重音符号或附加部分。在步骤 150，用户选出一个重音符号或附加部分 210 与基字符相关联，例如，用键盘或器件上的滚动键滚动显示的重音符号或附加部分 210，然后从中选选出一个。用户从表格 200 中选出了想要的重音符号或附加部分 210 之后，在步骤 160，器件显示器上的基字符就由一个含有基字符和用户从表中选出的重音符号或附加部分的合成字符替代。因此，例如，在步骤 110 中用户选出的基字符是“A”，步骤 150 中选出的重音符号是“'”，那么步骤 160 中基字符“A”将被合成字符“Á”替代。

参照图 3，它显示了实现图 1 所示方法的系统 300 的模块图。系统 300 包括一个多击键键盘 310，它传输一个表示用户选出的基字符的信号到控制器 320。器件显示器 330 和控制器 320 耦合，用于为用户显示基字符。

控制器 320 和存储器 340 耦合，存储器最好存储每个用户可能输入的基字符的重音符号或附加部分的离散排列列表。存储器 340 中的每个排列列表较佳地与用户为基字符选出的重音符号或附加部分相对应，最可能被用户选到的重音符号或附加部分放在列表的顶端。根据基字符的选择，控制器 320 检索存储器中与基字符关联的重音符号/附加部分的列表，控制器 320 发送一个表示重音符号/附加部分的信号列表到器件显示器 330，它用如表格 200 的形式显示列表。

为用户显示重音符号/附加部分的表格之后，用户用键盘 310 从表格中选出一个与基字符关联的重音符号/附加部分，键盘再传送一个表示选中的重音符号/附加部分的信号到控制器 320。根据这个信号，控制器 320 发出一个信号到器件显示器 330，把器件显示器 330 上的基字符替换成一个含有基字符和用户从表中选出的重音符号或附加部分的合成字符。

以上对较佳实施例的描述，使任何对本领域熟练的技术人员都能够制作和使用本发明。对上述实施例的各种改变对于本领域的熟练技术人员来说将是显而易见的，这里定义的一般原理无需创造性劳动，就能用于其他实施例。因此，本发明不想局限于这里提出的方法和装置，而是将符合与以下权利要求相一致的最广范围。

说　明　书　附　图

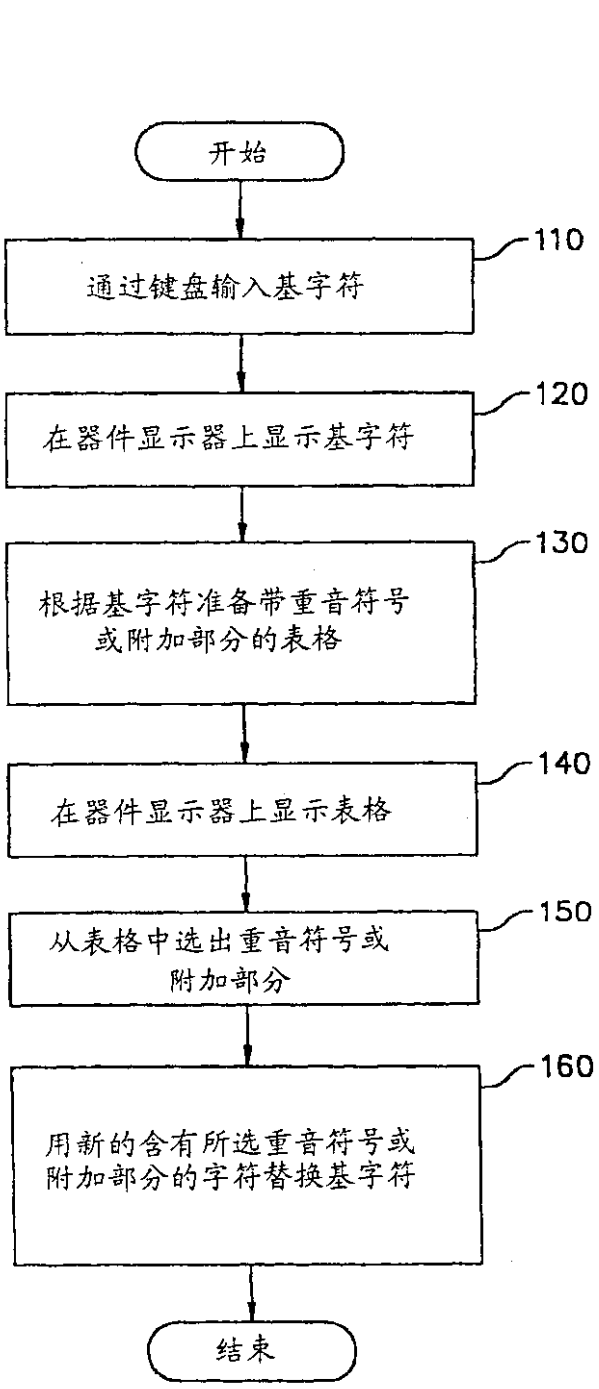
100
开始
通过键盘输入基字符
110
在器件显示器上显示基字符
120
根据基字符准备带重音符号或附加部分的表格
130
在器件显示器上显示表格
140
从表格中选出重音符号或附加部分
150
用新的含有所选重音符号或附加部分的字符替换基字符
160
结束

图　1

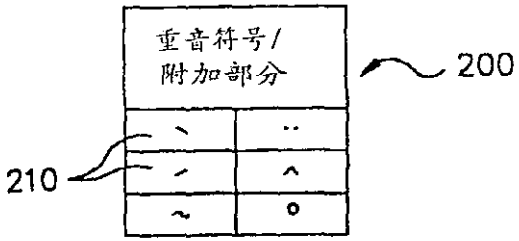
重音符号/
附加部分
200
210
、
··
ˊ
ˆ
~
°

图 2

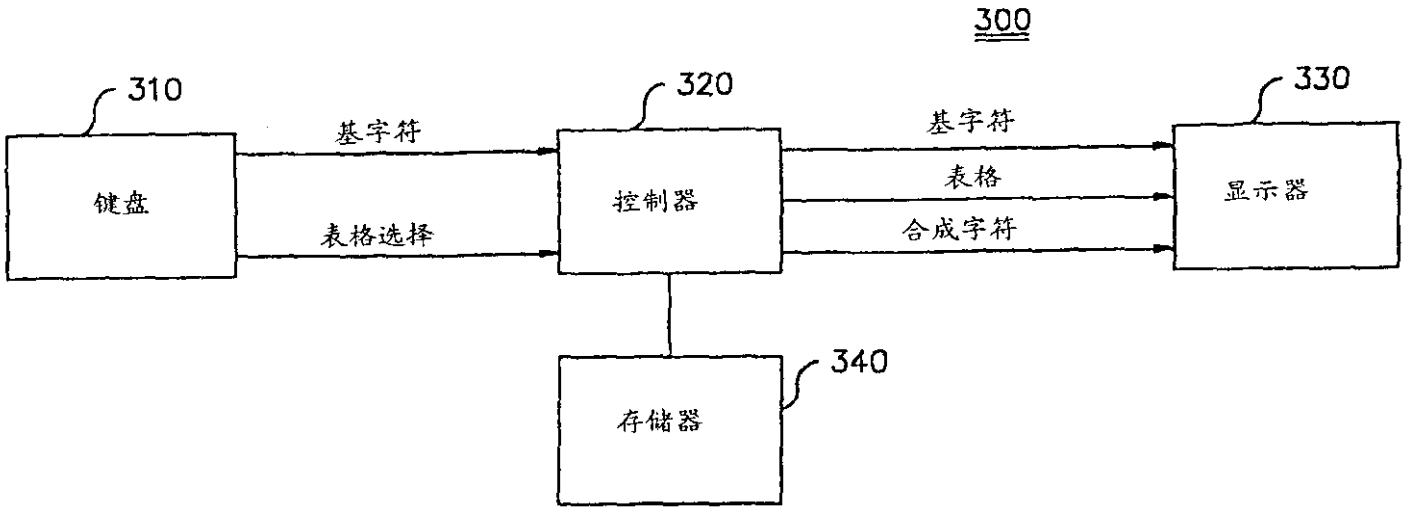
300
310
320
330
基字符
基字符
表格
表格选择
合成字符
键盘
控制器
显示器
340
存储器

图 3