(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 February 2003 (20.02.2003)

PCT

(10) International Publication Number
WO 03/015379 A1

(51) International Patent Classification[7]: H04M 1/23

(21) International Application Number: PCT/KR02/01512

(22) International Filing Date: 8 August 2002 (08.08.2002)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
2001/24104 U 8 August 2001 (08.08.2001) KR

(71) Applicant *(for US only)*: **JONE, Woo-Myoung** [KR/KR]; #93-9 Yonhui-dong, Sudaemun-ku, Seoul 120-110 (KR).

(71) Applicant and
(72) Inventor: **HONG, Woo-Pio** [KR/KR]; Seoul Centural, P.O. Box 3111, Jung-ku, Seoul 100-631 (KR).

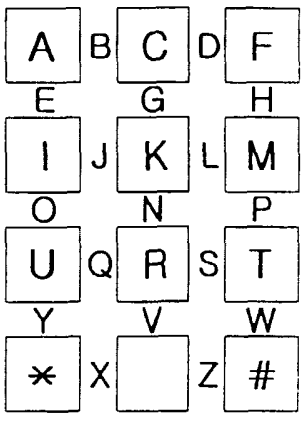
(81) Designated States *(national)*: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title:** UNIVERSAL SIMPLIFIED KEYBOARD SYSTEM



(57) **Abstract:** In these days, we use a multiple typing method for entry of alphabet characters to a mobile phone using a simplified keyboard systm. However, using this method is not only cumbersome because you have to remember the position of each character and the typing count, but also causes incorrect typing and low typing speed, not to mention the difficulty of entering many characters (mms). The present invention removes these inconveniences because each character has its unique position like a regular computer keyboard to enable users of the mobile phone to enter any character by a single typing. In other words, by coupling two different code keys in the simplified keyboard with 12 key buttons and by simultaneousl typing the coupled keys, we can enter another code (character). In this manner, we can secure additional 17 "space keys", totaling 29 character positions. If this is insufficient, we can also double the number of available character positions by utilizing "Combination Typing" or "ezTyping". This "Universal Simplified Keyboard" is very practical because it is easy to remember and enter keys. It is also appropriate for CDMA, the essential technology in the 21st century.

WO 03/015379 A1

UNIVERSAL SIMPLIFIED KEYBOARD SYSTEM

Technical Field

This invention relates to a text input method using a simplified keyboard system for mobile phones or PDAs.

Background Art

The present simplified keyboard for mobile phones is adopting a multiple typing method by which users have to press each key button once or up to three times. In this method, since we have to remember the position of each character as well as the typing count, there is much confusion and high error rate specifically with the second and third characters of a button. These inconveniencies not only lower typing speed, but also do not allow entering a large number of characters (MMS: Multiple Message System). In addition to mobile phones, the keyboards of personal digital assistant (PDA), palm-sized computer and CDMA are also designed in the same way as the large keyboard or are just composed of 30 to 40 keys. The purpose of this present invention is to eliminate these inconveniences. The Universal Simplified Keyboard secures a unique position for each character, and allows entering every character by the "Single Typing Method". This enables us to enter a large quantity of data with much convenience and high speed comparable to a regular computer keyboard, thus providing the maximum convenience in data entry for the Internet or CDMA which are essential elements in the 21st century.

Summary of the Invention

This present invention is a Universal Simplified Keyboard System, and it includes a few different keyboard systems, which will be described below in three sections.

1. Universal Simplified Keyboard Using "Space Keys"

(1) Simplified Keyboard With 12 Key Buttons For Mobile Phone

So far, we have considered the spaces between the 12 key buttons on the keyboard of mobile phone as useless, but the Universal Simplified Keyboard of the present invention utilizes these useless spaces. In other words, with this system, we can program a microchip controlled by CPU in such a way that we can enter a third code (character) by typing two different code (character) keys simultaneously. In this manner, we can secure a unique position for each character, which enables us to enter a character by a single typing in the same way as we do with a regular computer keyboard. We call these new keys that are created by coupling each of the 12 key buttons with its adjacent keys in the upper, lower, left, or right direction as "space keys". We can get 17 "space keys" in total, and with these, we can enter 29 characters by single typing with the mobile phone keyboard with 12 key buttons (Please refer to FIG. 1 to FIG. 7).

Space Keys: the keys created by programming a microchip in such a way as to enable entry of another character by pushing two keys adjacent in upper, lower, left, or right direction simultaneously to utilize the free spaces between key buttons.

Vertical Keyboard: the keyboard with the key buttons arranged in a vertically long style as shown in FIG.1 to FIG.5.

Horizontal Keyboard: the keyboard with the key buttons arranged in a horizontally long style as shown in FIG.6 and FIG. 7.

(2) Simplified Keyboard With 13, 14 or 15 Key Buttons

Not confined to just the mobile phone keyboard with 12 key buttons, we may increase the number of key buttons to 13, 14 or 15 in the future as needed, and of course these can also be designed as the Universal Simplified Keyboard using the "Space Keys". In addition, as mentioned above, it can be a vertical or horizontal keyboard as needed. Vertical-type will be mainly used for mobile phones, and horizontal-type will be required as the data entry system for electronic hand-held devices such as PDA or palm-sized computer.

Below is a table of the number of key buttons, the space keys arising from them, the total of both, as well as the double of the total for your reference.

TABLE.1 UNIT: key

Number of Key Buttons	12	13	14	15
Number of "Space Keys"	17	18	20	22
Total	29	31	34	37
Double Number of the Total	58	62	68	74

By using the Universal Simplified Keyboard System, we can utilize up to 29 characters with a keyboard with only 12 key buttons, and up to 37 with a keyboard with 15 key buttons, which can be used for various purposes.

2. Universal Simplified Keyboard With "Combination Typing Method"

Multiple Typing Method: a typing method with which you position a few characters for one key button, and different characters are entered according to the typing count.

Single Typing Method: a typing method with which you position one character for each key button, and you enter each character by typing a single key

button.

Character: the smallest unit of phonemic letters.

Combination Typing Method: a typing method with which the use of "space keys" is combined with the multiple typing method. Here, we limited the count of typing to two for the multiple typing method, and by entering different characters depending on whether we push a key once or twice for the basic key buttons, and by combining the "space keys", we can double the capacity of character entry again. (Please refer to the last row on the above Table 1.)

For example, with 12 key buttons, we have 29 character positions, and if we use the "Combination Typing Method" we can use up to 58 characters.

3. Universal Simplified Keyboard Using "ezTyping Method"

"EzTyping" is a different representation of "Easy Typing", which designates the "two finger typing" Instead of pushing a key button twice in the "Combination Typing Method", in this "ezTyping", we enter a character by a single typing of a key button or space key together with another key or a manual key used as a shift key. In the same way as the Section 1 above, this is the most ideal "Single Typing Method" that can allow the entry of all characters. Using this method, we can enter so many as 58 characters by "single typing" with a 12 key keyboard. As mentioned above, it is worthy of note that this "Single Typing Method" is a more advanced method to reduce typos and increase typing speed.

FIG.4 is an example of the Universal Simplified Keyboard that applied the "ezTyping Method" to the 12 key simplified keyboard for Japanese Kana characters. In this example, the アカサタヤラ column characters are arranged horizontally with 5 characters in each row from the top according to the basic key buttons and the "space keys". In addition, by pressing shift key to enter

ア column characters, small ヤユヨ characters, and ナハマワ column characters as well as the marks for softened and hardened sounds, we have included all 58 Japanese Kana characters.

In the same way as the method described in the previous Section 2, using the present method, we can accept a double number of characters of the available positions. Both vertical and horizontal types are possible, and for the shift key, we can use the manual key of the mobile phone, or we can add a new key as needed.

4. Other special characters or symbols are omitted here since we will enter them by selecting desired symbols or characters on the window after changing the mobile phone to graphic mode.

Brief Descriptions of the Drawings

FIG. 1 is the existing keyboard of mobile phone.

FIG. 2 is an example of a vertical Universal Simplified Keyboard with 12 basic key buttons in which the English vowel alphabets, i.e., AEIOUY, are arranged in one direction.

FIG. 3 is an example of a vertical Universal Simplified Keyboard with 12 basic key buttons in which Russian vowel alphabets are arranged in one direction, and the 33 consonant and vowel alphabets are marked with circles according to the "Combination Typing" and the "ezTyping".

FIG. 4 is an example of a vertical Universal Simplified Keyboard in which Japanese "Kana" characters are arranged and marked with the "Ah" line characters of the Kana within parentheses according to the "Combination

Typing" and the "ezTyping".

FIG. 5 is a vertical simplified keyboard with 15 key buttons.

FIG. 6 is an example of a horizontal Universal Simplified Keyboard with 12 basic key buttons in which the English vowel alphabets, i.e., AEIOU and WY, are arranged on the left side and on the bottom row.

FIG. 7 is a horizontal simplified keyboard with 15 key buttons.

Best Applications of the Invention

If we use "Combination Typing Method" or "ezTyping Method", we can expand available characters to 58 and even up to 74 characters. Therefore its applications are many. Even 33 alphabets of Russian and 57 characters of Japanese Kana can be input by single typing with a keyboard with 15 or less key buttons. The Russian keyboard of FIG. 3 and Kana keyboard of FIG.4 are both examples of the Combination Typing or ezTyping methods. Therefore, we can safely presume that there will be many uses for the Universal Simplified Keyboard System, and its effects will be truly far-reaching.

1. Concept of the simultaneous typing and examples

The simultaneous typing occurs when a button A is pressed, i.e., while the micro-switch (m/s) under the button A moves from cut-off to connected state, a button B is pressed even for a moment, i.e. the m/s under the button B moves from cut-off to connected state.

The text input method is different from other simplified keyboards in that the character is not input to the window when the button is pressed but when a finger is released from the button, i.e., the m/s moves from connection to cut-off.

In other words, the CPU does not transfer the information immediately to the window when a key inputs a character but maintains a suspension state, and when another button is pressed, the two key buttons selects a third code, and when the finger is releases m/s connection by removing the finger, then the CPU sends this to the window. Therefore, the third code assigned to the two key buttons is transferred to the CPU when the m/s of the two buttons are both in connection state, and then when the m/s of the key button A and B are cut off from the electric connection, i.e., when the simultaneous typing of A and B is released, the CPU inputs the third code of A+B to the window.

The text input method for the simplified keyboard of traditional mobiles phones and PDAs is different from the above method. When a key button is pressed, the m/s under the button is electrically connected and the button's code is selected which the CPU inputs to the window. In other words, with the traditional text input system for PDAs, eve if two key buttons A and B are simultaneously pressed, one among the two will electrically connect its m/s before the other, and if it is button A, A code will be selected and the CPU inputs A to the window, preventing a third code A+B to be input.

2. Key applications of the invention

Mobile phones, CDMAs and PDAs are rapidly developing but their simplified keyboard input systems still keep using the most inconvenient multiple typing method. Therefore even if a compact mobile phone tries to play like a PC, its text input method or structure is staying at a toy level. However, the present invention adopts MMS for mobile phones to enable the same text input capacity as a PC, which we can conveniently carry during travel or movement.

Claims

We claim:

1. A vertical or horizontal Universal Simplified Keyboard which comprises:
   a means of programming a microchip in such a manner that we can enter a third code (character) by simultaneously pushing two different codes (characters) on the simplified keyboard of a mobile phone, and thus securing additional 17 "space keys";
   a means of allowing entry of 29 characters by the "Single Typing Method" with the 17 space keys added to the basic 12 keys;
   a means of creating new keyboards with 13, 14 or 15 basic key buttons, in case the fore-mentioned 29 characters are insufficient, which secures 31, 34, or 37 character positions each, and by arranging the desired characters to these positions to allow data entry by the "Single Typing Method".

2. The simplified keyboard of claim 1 wherein the "Combination Typing Method" is applied, which combines the "Multiple Typing Method," in which typing count is limited to two, with each of the basic key buttons and the "space key" buttons.

3. The simplified keyboard of claim 2 wherein, instead of the multiple typing method, the "ezTyping Method" is applied, which allows entry of another character by pushing each of the basic key buttons or the "space key" buttons while pushing the shift key.

FIG. 1

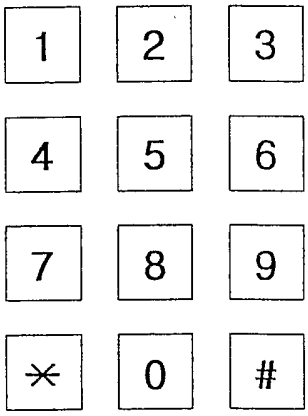


FIG. 2

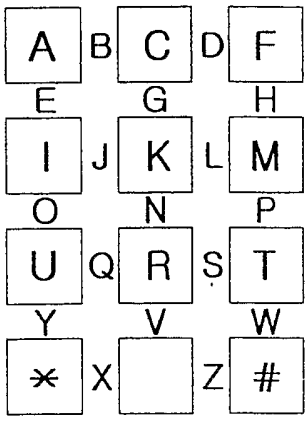


FIG. 3

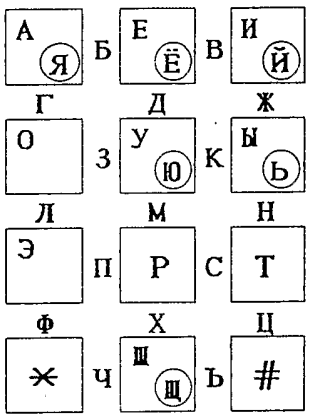

А
Я
Б
Е
Ё
В
И
Й
Г
Д
Ж
О
З
У
Ю
К
Ы
Ь
Л
М
Н
Э
П
Р
С
Т
Ф
Х
Ц
Ш
Щ
Ч
Ъ
#

FIG. 4

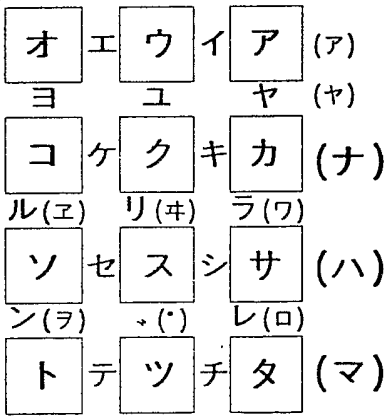

オ
エ
ウ
イ
ア
(ア)
ヨ
ユ
ヤ
(ヤ)
コ
ケ
ク
キ
カ
(ナ)
ル(ヱ)
リ(ヰ)
ラ(ワ)
ソ
セ
ス
シ
サ
(ハ)
ン(ヲ)
゛(゜)
レ(ロ)
ト
テ
ツ
チ
タ
(マ)

FIG. 5

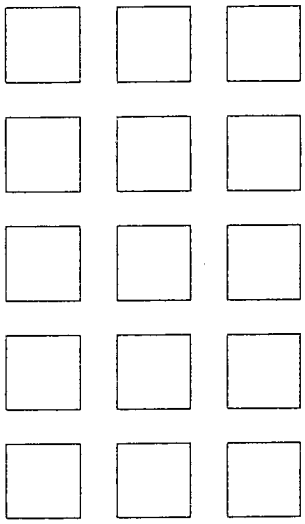


FIG. 6

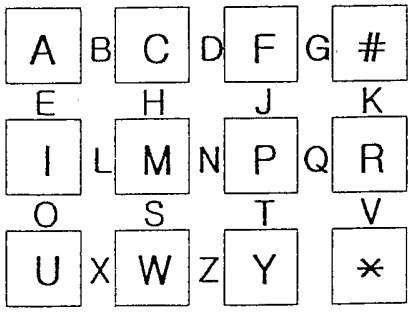
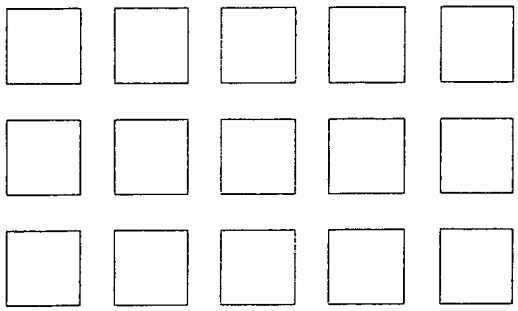


FIG. 7



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR02/01512

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04M 1/23

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 H04M, H04B, G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KR; IPC as above

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,339,358 A (Danish International, Inc.) 16 Aug 1994 See the whole document	1-3
P, Y	KR 2002-4465 A (Dong-Hyun Yoon) 16 Jan 2002 See the whole document	1-3
A	KR 2001-56048 A (Korean Steno Co., ltd) 04 July 2001 See the whole document	1-3

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevence

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevence; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevence; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
07 NOVEMBER 2002 (07.11.2002)	07 NOVEMBER 2002 (07.11.2002)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

OH, Heung Soo

Telephone No. 82-42-481-5704

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/KR02/01512

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5,339,358 A	16-08-1994	NONE	
KR 2002-4465 A	16-01-2002	NONE	
KR 2001-56048 A	04-07-2001	NONE	