



(51) International Patent Classification:

G06F 3/023 (2006.01) H04N 21/422 (2011.01)
G06F 3/0489 (2013.01) H04N 5/44 (2011.01)

(21) International Application Number:

PCT/EP2014/073292

(22) International Filing Date:

30 October 2014 (30.10.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

A 2013/15491 30 December 2013 (30.12.2013) TR

(71) Applicant: ARCELIK ANONIM SIRKETI [TR/TR]; E5
Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul (TR).

(72) Inventors: KURT, Fatih; E5 Ankara Asfalti Uzeri, Tuzla,
34950 Istanbul (TR). ERTAS, Engin; E5 Ankara Asfalti
Uzeri, Tuzla, 34950 Istanbul (TR). OZCELIK, Ihsan
Mert; E5 Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul
(TR).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG,
MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM,
PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC,
SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

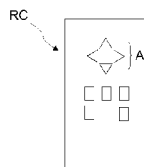
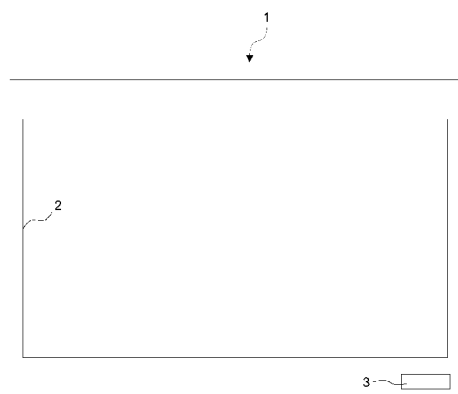
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ,
TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU,
TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE,
DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,
LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: A DISPLAY DEVICE AND INPUT METHOD

Figure 1



(57) Abstract: The present invention relates to a display device (1) that is suitable to be commanded by a remote control (RC) comprising direction keys (A) enabling to navigate in four different directions, that is up, down, right, left, and that comprises a screen (2) and a control unit (3) creating output by interpreting the received input, determining the operation to be performed depending on the output and enabling the output to be displayed on the screen (2).

Description**A DISPLAY DEVICE AND INPUT METHOD**

- [0001] The present invention relates to a display device comprising a screen and an input method related to using the on-screen keyboard.
- [0002] In smart televisions, on-screen keyboards / virtual keyboards are used for text input process and the user navigates between the letters by means of the direction keys on the remote control and finds the desired letter. The writing process by navigating on the virtual keyboard requires a multitude of clicks to write the next letter when it is required to write letters that are far away from one another and since the writing process is performed by starting from a different letter each time, a certain usage habit cannot be gained. Another text input method is grouping the letters on the numbers on the remote control. Habit of writing with the letters on the numbers can be gained and fast writing can be performed. But the fact that using nine keys is mandatory and the need for waiting some time to write another letter on the same number are the disadvantages of this method. These operations are difficult and tiring for the average users. The social media that increase every day require the users to enter more text. The users do not prefer to use applications developed for smart televisions due to difficulties encountered in entering the text. This situation causes the users not to make use of the opportunities provided by the smart television and furthermore causes the user to feel that unnecessary spending has been made for the smart television.
- [0003] In the Patent Application No. KR20000031696, realization of the writing process by navigating on the virtual keyboard is explained.
- [0004] In the Patent Application No. KR20040066614, realization of the writing process by assigning number keys on the virtual keyboard to the keys on the remote control is disclosed.
- [0005] The aim of the present invention is the realization of a display device that enables the user to write conveniently and swiftly by using the remote control.
- [0006] The display device realized in order to attain the aim of the present invention, and explicated in the first claim and the respective claims

thereof, comprises a remote control comprising up, down, right, left direction keys, a screen suitable to be commanded, and a control unit that forms a virtual keyboard on screen where the characters on the keyboard are shown by being divided into four groups on the up, down, right, left direction arrows when text is to be entered, and that separates the characters in the selected direction into four groups according to the selections made by the user with the remote control until one character remains and shows them with the arrows in the up, right, down, left directions, thus determining the character to be entered.

[0007] By means of the present invention, the user does not have to press another key for confirming the character desired to be written. Since the user makes selection from among the character group until one character remains, the emerging character as the result of selection is detected as the character desired to be written and is written on the screen.

[0008] In an embodiment of the present invention, the control unit enables the virtual keyboard to resume its initial position after the user makes the selection where a single character remains. Thus, the user does not have to press an extra key for writing a new character.

[0009] In an embodiment of the present invention, each time the user opens the virtual keyboard the first time, a virtual keyboard is displayed by the control unit that is composed of the default letters. By means of this embodiment, access to the commonly used letter set is facilitated. When the user desires to write a special character, he/she can switch to the keyboard composed of special characters by pressing a key apart from the direction keys.

[0010] In an embodiment of the present invention, the user can determine the grouping of letters on the virtual keyboard. Thus, for the users familiar with the Q keyboard, the letters are separated into 4 groups as per the arrangement on the Q keyboard.

[0011] By means of the present invention, when the users have to enter text with the remote control by using the virtual keyboard, operation of inputting characters by only using the direction keys is performed by a maximum of three clicks. By only using the direction keys while inputting the characters,

the elderly users can easily enter the text by using the virtual keyboard.

[0012] The display device realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

[0013] Figure 1 – is the schematic view of a display device and a remote control.

[0014] The elements illustrated in the figures are numbered as follows:

[0015] 1. Display device

[0016] 2. Screen

[0017] 3. Control unit

[0018] A. Direction key

[0019] RC. Remote control

[0020] The display device (1) is suitable to be commanded by a remote control (RC) that comprises direction keys (A) enabling to navigate in four different directions, that is up, down, right, left, and comprises a screen (2) and a control unit (3) that creates output by interpreting the received input, determines the operation to be performed depending on the output and that enables the output to be displayed on the screen (2).

[0021] When a text is desired to be entered to the display device (1), the control unit (3) enables an on-screen keyboard to be formed and the on-screen keyboard to be displayed on the screen (2). The user can enter the text via the on-screen keyboard by using the remote control (RC).

[0022] The display device (1) of the present invention comprises the control unit (3) that provides the displaying of the characters on the keyboard onto the screen (2) by the arrows in up, right, down and left directions by being divided into four groups when entering the text command is given, and that divides the characters in the said character group again into four when the direction key (A) corresponding to the character to be selected is pressed on and repeats this operation until one character remains opposite to each direction arrow, thus determining the character to be selected. The arrows formed by the control unit (3) in up, right, down and left directions and the characters corresponding to these are displayed on the screen (2). Each time the user presses on the direction key (A) including the character desired to be entered, the characters in the respective group are again divided into four groups and are displayed on the screen (2) by the

direction arrows. By means of the present invention, the users are enabled to enter a text more easily by using the on-screen keyboard.

- [0023] By means of the present invention, the users that use an alphabet made up of 28 letters, are enabled to write the desired letter in maximum 3 steps. For example, when the user wants to write the letter a, the letters are divided into four according to their order in the alphabet and the character group of 7 letters starting with a is selected by the up direction key (A) and the selected character group of 7 letters is again divided into four, the user again presses the up direction key (A) for selecting the binary group including letters a and b and the remaining two letters are grouped as one letter and the user selects the letter a. In this example, the user enables the letter a to be written in three steps (up – up – up).
- [0024] In an embodiment of the present invention, the control unit (3) changes the on-screen keyboard to the initial position after the selection of each character. Thus, the user does not have to do an extra operation for writing a new character.
- [0025] In an embodiment of the present invention, the control unit (3) displays the on-screen keyboard made up of letters each time the on-screen keyboard is first opened. The on-screen keyboard containing the special characters can be changed to by a key on the remote control (RC). Thus, the user does not have to do an operation for accessing the letters that are used more frequently.
- [0026] In an embodiment of the present invention, the user is enabled to determine the character grouping in the on-screen keyboard formed by the control unit (3). Thus, the users can select how the characters are grouped, for example in Q keyboard arrangement or alphabetically.
- [0027] In the display device (1) of the present invention, the user is enabled to enter the text by an input method including the following steps which is executed by the control unit (3):
- displaying the on-screen keyboard containing the letters on the screen (2) as default each time the on-screen keyboard is opened,
 - opening the virtual keyboard where the special characters are divided into 4 groups by means of a key, if the user wants to write a special

character,

- selecting the group including the desired character by making selection with the direction keys (A) on the virtual keyboard formed of letters/special characters
- dividing the selected group again into 4 groups
- the user selecting the group containing the desired character from the new groups
- repeating the last two steps until reaching the desired character
- the virtual keyboard resuming its initial position after the desired character is written.

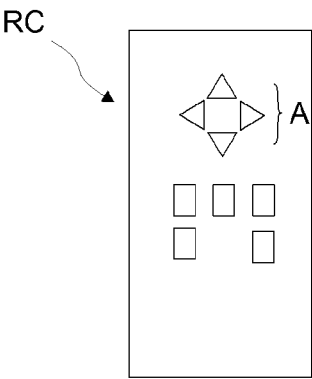
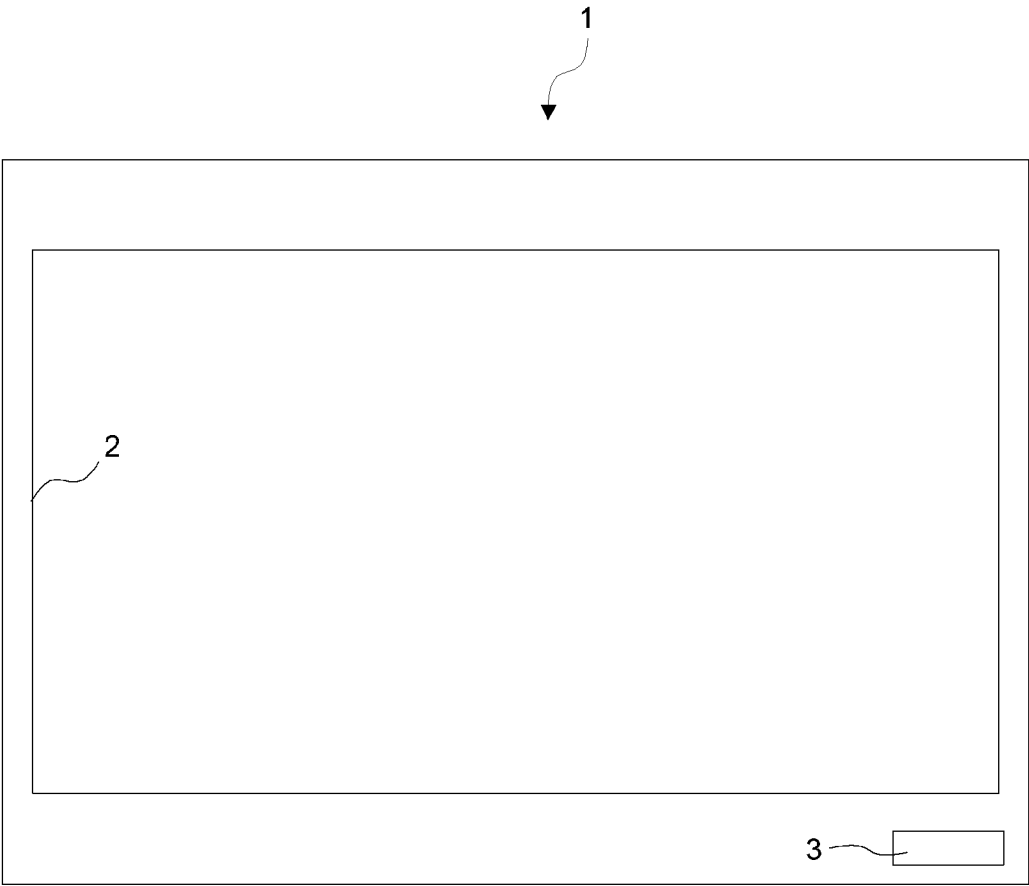
[0028] By means of the display device (1) and the input method of the present invention, the users are enabled to enter the text by using the virtual keyboard easily and swiftly. The users can gain writing habit since there is a certain clicking order for each letter. The manufacturer is not required to produce a multiple number of keys on the remote control (RC) and production costs are lowered.

Claims

1. A display device (1) suitable to be commanded by a remote control (RC) that comprises direction keys (A) enabling to navigate in four different directions, that is up, down, right, left, and **comprising** a screen (2) and a control unit (3) that creates output by interpreting the received input, determines the operation to be performed depending on the output and that enables the output to be displayed on the screen (2), **characterized in that** the control unit (3) that provides the displaying of the characters on the keyboard onto the screen (2) by the arrows in up, right, down and left directions by being divided into four groups when entering the text command is given, and that divides the characters in the said character group again into four when the direction key (A) corresponding to the character to be selected is pressed on and repeats this operation until one character remains opposite to each direction arrow, thus determining the character to be selected.
2. A display device (1) as in Claim 1, **characterized in that** the control unit (3) that changes the on-screen keyboard to the initial position after the selection of each character.
3. A display device (1) as in any one of the above claims, **characterized in that** the control unit (3) that displays the on-screen keyboard made up of letters each time the on-screen keyboard is first opened.
4. A display device (1) as in any one of the above claims, **characterized in that** the control unit (3) wherein the user is enabled to determine the character grouping in the on-screen keyboard.
5. An input method executed by the control unit (3) for a display device (1) as in any one of the above claims, **characterized in that** the following steps:
 - displaying the on-screen keyboard containing the letters on the screen (2) as default each time the on-screen keyboard is opened,
 - opening the virtual keyboard where the special characters are divided into 4 groups by means of a key, if the user wants to write a special character,
 - selecting the group including the desired character by making selection with the direction keys (A) on the virtual keyboard formed of letters/special characters
 - dividing the selected group again into 4 groups

- the user selecting the group containing the desired character from the new groups
- repeating the last two steps until reaching the desired character
- the virtual keyboard resuming its initial position after the desired character is written.

Figure 1



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2014/073292

A. CLASSIFICATION OF SUBJECT MATTER

INV. G06F3/023 G06F3/0489 H04N21/422 H04N5/44
ADD.

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)

G06F H04N

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 332 293 A (BRITISH TELECOMM [GB]) 16 June 1999 (1999-06-16) abstract page 9, line 14 - page 11, line 2; figures 2-3L page 13, line 13 - page 14, line 9; figures 7b-8d -----	1-5
X	US 2005/140650 A1 (LANG ERIC G [US]) 30 June 2005 (2005-06-30) abstract paragraph [0034] - paragraph [0037]; figure 1 paragraph [0050] - paragraph [0051]; figure 5 paragraph [0063] - paragraph [0067]; figures 11-14 -----	1-5



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 relevance

"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 another 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 relevance; 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 relevance; 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

29 January 2015

Date of mailing of the international search report

04/02/2015

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Bravo, Piero

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2014/073292

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2332293	A	16-06-1999	CA 2248057 A1 11-06-1999
		GB 2332293 A	16-06-1999

US 2005140650	A1	30-06-2005	US 6972748 B1 06-12-2005
		US 2005140650 A1	30-06-2005
