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(71) Applicant: **ORANGE** [FR/FR]; 78 Rue Olivier De Serres, 75015 Paris (FR).

(72) Inventors; and

(71) Applicants *(for US only)*: **GUO, Zhihong** [CN/CN]; Orange Labs International Centers Beijing, 23F Tower A, Beijing Global Trade Center, 36 North Third Ring Road East, Beijing 100013 (CN). **CHEN, Cheng** [CN/CN]; Orange Labs International Centers Beijing, 23F Tower A, Beijing Global Trade Center, 36 North Third Ring Road East, Beijing 100013 (CN).

(74) Agent: **LIU, SHEN & ASSOCIATES**; 10th Floor, Building 1, 10 Caihefang Road, Haidian District, Beijing 100080 (CN).

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(54) Title: METHOD FOR OPERATING A TERMINAL WHEN ACCESSING A WEB PAGE DEFINED BY A CODE IN A MARKUP LANGUAGE

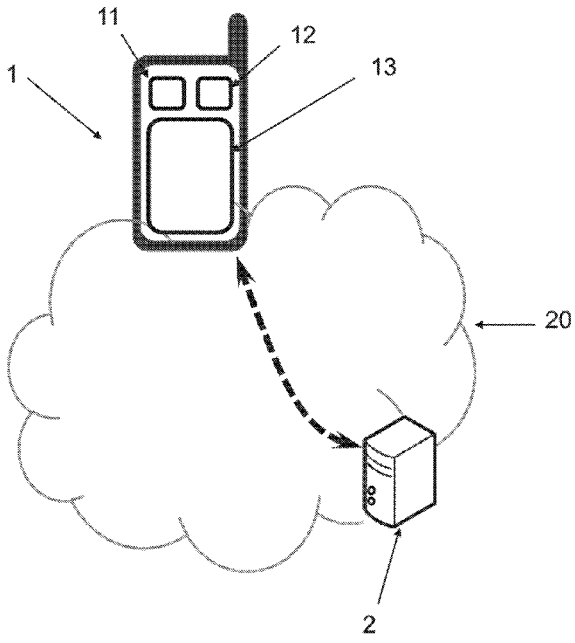

FIG.1

(57) Abstract: The present invention relates to a method for operating a terminal (1) when accessing a web page defined by a code in a markup language, the method comprising the following steps, performed by a processing unit (11) of the terminal (1) : - detecting (a) that a user of the terminal (1) focuses on a text input box of said web page; - determining (b) that said code comprises an attribute defining an expected input language for the text input box; and - applying (c) said expected input language for inputting text into the text input box.

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METHOD FOR OPERATING A TERMINAL WHEN ACCESSING A WEB PAGE DEFINED BY A CODE IN A MARKUP LANGUAGE

TECHNICAL FIELD

The field of this invention is that of user interfaces of terminals. More particularly, the invention relates to a method for operating a terminal when its user visits a web page.

BACKGROUND

Users are very often required the input of various information while browsing webpages. In some cases, the user has to use a foreign language. For example, the webpage may be that of a translation service, wherein the user has to type a text to be translated in a text box, or simply that of a foreign entity (for instance the user may wish to shop online, apply for a job, request a visa, take a survey, etc.).

However, switching from a first input language to a second input language may require actions such as changing a virtual keyboard layout (for example from a QWERTY virtual keyboard to a PIN-YIN virtual keyboard if the user wishes to input Chinese). This switching is usually done manually, which may be cumbersome for the user.

Automatic input language switching solutions have been proposed to alleviate this situation, see for instance the US patent 9,002,699.

In this solution, when a user visits a web page with his computer, a dedicated module installed in his computer detects the language of the text used in this web page (for instance Chinese) in order to automatically switch the input language used by the computer to this detected language. In a specific embodiment, this automatic input language switching may be conditioned to the detection of some user activity, for example when the user clicks on a text input area.

Such a solution, while improving the situation when compared to a fully-manual implementation, presents some drawback. In particular, it may be difficult for the module to clearly determine the input language, especially when the visited web page contains little text or texts in different languages. In addition, such a solution only

enables the automatic detection of a single input language for a given web page, which remains inconvenient for cases when the user needs to use different input languages in the same web page. Finally, this solution requires to install on the user's computer the dedicated software module able to analyze a visited web page in order to detect its language, which may not be accepted by numerous users and consumes processing and memory resources of the computer.

There is therefore a need for a new solution for automatically switching languages when browsing web pages, which does not have the aforementioned drawbacks of the prior art.

SUMMARY OF THE INVENTION

For these purposes, the present invention provides a method for operating a terminal when accessing a web page defined by a code in a markup language, the method comprising the following steps, performed by a processing unit of the terminal:

- detecting that a user of the terminal focuses on a text input box of said web page;
- determining that said code comprises an attribute defining an expected input language for the text input box; and
- applying said expected input language for inputting text into the text input box.

Preferred but non limiting features of the present invention are as follow:

- Said code comprises, for each text input box of a plurality of text input boxes of the web page, an attribute defining an expected input language of the text input box.
- A reference input language of the terminal is defined, said applying step comprising selecting said expected input language as the reference input language.
- Said applying step comprises, if said expected input language of the text input box is different from the current reference input language of the terminal, switching the reference input language to said expected input language.

- Said applying step comprises selecting a virtual keyboard layout, among a set of virtual keyboard layouts displayable by the terminal, as a function of the reference input language.
- The method further comprises a step of acquiring a text being inputted by the user on a user interface of the terminal.
- Said acquiring step comprises automatically translating the inputted text into the expected input language if the text is inputted in a different language from the expected input language.
- The web page is that of a translation service, each text input box corresponding to a possible language in which a text to be translated may be inputted, the expected input language defined by the attribute being said possible language in which a text to be translated may be inputted.
- The method further comprises a step of detecting that a user of the terminal is no more focusing on said text input box or a new occurrence of said detecting step.
- Said markup language is HyperText Markup Language, also referred as HTML.
- Detecting that the user of the terminal focuses on a text input box comprises detecting the selection of the text input box by the user on a user interface of the terminal.

According to a second aspect, the invention provides a terminal comprising a processing unit configured to:

- when accessing a web page defined by a code in a markup language, detecting that a user of the terminal focuses on a text input box of said web page,
- determining that said code comprises an attribute defining an expected input language for the text input box; and
- applying said expected input language for inputting text into the text input box.

According to a third and a fourth aspects, the invention provides a computer program product, comprising code instructions for executing a method according to the first aspect for operating a terminal when accessing a web page defined by a code in a markup language; and a computer-readable medium, on which is stored a computer program product comprising code instructions for executing a method according to the first aspect for operating a terminal when accessing a web page defined by a code in a markup language.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects, features and advantages of this invention will be apparent in the following detailed description of an illustrative embodiment thereof, which is to be read in connection with the accompanying drawings wherein:

- figure 1 illustrates an example of architecture in which the method according to the invention is performed;
- figure 2 illustrates an embodiment of a method for inputting a message on a terminal according to the present invention; and
- figure 3 illustrates an exemplary interface using the method in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION OF THE EMBODIMENTS

Architecture

The present invention relates to a method for operating a terminal 1 as represented by **figure 1**.

The terminal 1 can be any device comprising a processing unit 11, i.e. a CPU (one or more processors), a memory 12 (for example flash memory), and a user interface 13 for input (for instance a keyboard, preferably a touch sensitive screen with at least one virtual keyboard). The memory 12 is in particular for storing applications, which can be of various types, and data.

The terminal 1 is typically a smartphone, a tablet computer, a laptop, etc. In the following description, the example of a smartphone will be used.

The terminal 1 may further comprise other units such as a battery, a communication unit for connecting (in particular wirelessly) the terminal 1 to a communication network 20 such as internet, etc.

Accessing a web page

The present method is performed by the processing unit 11 of the terminal 1, when accessing a web page defined by a code in a markup language. By web page, it is meant any document provided by a website. A web page is generally identified by a distinct Uniform Resource Locator (URL). Accessing a web page thus typically involves retrieving the code of this web page from a location designated by said URL, in particular a web server 2 (in other words, the code of the web page is downloaded from the web server 2 where it is stocked or dynamically generated).

The present method is preferably implemented by an application of the terminal able to execute such code to render the web page, in particular a web browser. Note that it may be directly implemented by the operating system of the terminal 1 itself. Said markup language is typically HTML (Hypertext Markup Language), which is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.

It is supposed that the web page comprises at least one "text input box" (or text input area), i.e. a part of the web page allowing to type a text using the user interface 13, in particular through a virtual keyboard, i.e. a "soft keyboard", when terminal 1 is a smartphone, or any physical keyboard or even through voice recognition.

In a preferred embodiment, wherein a virtual keyboard is to be used for typing a text, the virtual keyboard is provided with a plurality of virtual keyboard layouts displayable on the screen 13, forming a set. Advantageously, the set of virtual keyboard layouts at least comprises two layouts associated with different languages, and in particular there is generally a "default" layout (typically the layout of the keyboard associated with the set language of the terminal 1, for instance a QWERTY-based layout if the language is English), and one or more "international" layouts (layouts of the keyboard associated with other languages than the set language of the

terminal 1, for example AZERTY-based, PIN-YIN-based, Cyrillic, etc., layouts). There may be also "non-alphabetical" layouts such a "numerical" layout, "emoji" layouts, etc.

As it will explained, the present method does not need any specific module to be installed by the terminal 1, and may be performed by any application able to execute code in a markup language, provided that this application is up to date, i.e. able to handle a new proposed language attribute of the markup language. Note that an outdated application would still be able to access said web page but the above-mentioned language attribute would not be supported and the present method therefore not performed, but the user's experience would not be impacted.

In the following description, we will suppose that the application is a web browser, and that this web browser supports said attribute.

Input language selection method

With reference to **figure 2**, the method may start with a step (a0) of obtaining the code of the web page (for instance by downloading it from the web server 2), and executing it for displaying the web page to the user (in particular in a browser).

In the present invention, this code comprises an attribute defining an expected input language of one or more text input box(es) of the web page.

In other words, the web page comprises at least one text input box and the part of the code defining this text input box(es) comprises an attribute defining an expected input language of this text input box(es).

In an embodiment where the web page comprises a plurality of text input boxes, the web page code comprises an attribute defining an expected input language for each of these text input boxes. This attribute may have different values for two of these input boxes, allowing a "multi-languages" web page.

Thus, the present invention proposes to introduce a new language attribute to be associated with a text input box, this language attribute determining the default input language associated with this input text box. When a developer is developing a web page with a text box component (i.e. is writing the code), he/she can allocate this

language attribute to the input text box, in order to control the default input language associated with this input box. Note that the attribute may be associated to an element including the text box (a block, possibly the whole web page), and thus every input text box of said element is affected by the attribute.

In the exemplary case of HTML language, the tag <textarea> defines a text input box, with existing possible attributes such as “id”, “name”, etc. HTML attributes are indeed special words used inside the opening tag to control the element's behaviour. HTML attributes are a modifier of an HTML element type. An attribute either modifies the default functionality of an element type or provides functionality to certain element types unable to function correctly without them. In HTML syntax, an attribute is added to an HTML start tag.

As an example, the new input language attribute of the present invention may have the name “default-lang”, and the expected input language be defined by a code (for instance according to the standardized nomenclature ISO 639-1).

To illustrate this language attribute, in the case of a webpage containing a given input text bow, the part of HTML web page code for this given input text box could be as follows:

<textarea id="box1" name="box1" rows="4" cols="50" default-lang="en">Input here your text</textarea>

Such an exemplary code defines a text input box of size 4x50, labelled as “box1” and containing the message “Input here your text”, with English language set as the default input language for this text input box (“en” being the language code of English).

In another example of webpage containing this time two input text boxes with different input languages, the part of HTML web page code for these input text boxes could be as follows:

<textarea id="box1" name="box1" rows="4" cols="50" default-lang="en">Input here your text</textarea>

<textarea id="box2" name="box2" rows="5" cols="75" default-lang="fr">Entrez votre texte</textarea>

This other exemplary code defines a first text input box as previously described as well as a second text input box of size 5x75, labelled as "box2" and containing the message "Entrez votre texte" (meaning "Input your text" in French), with French language set as the default input language for this text input box ("fr" being the language code of French).

Note that the new language attribute has no effect on the appearance of the text input box, but provide information that will be used in further steps of the method. In the absence of the new language attribute associated to a given box, it is assumed that no language is specifically expected for this box as in the prior art.

Coming back to the method, in a first step (a), it is detected that a user of the terminal 1 is focusing on a text input box of said web page.

By "focusing" on a text input box, it is meant any action done by the user showing that he/she intends to input text in this box in particular.

Generally, the focus action is simply a selection of the text input box using the user interface 13, in particular by touching/clicking it or pressing the tabulator key on a keyboard. Therefore, detecting that a user of the terminal 1 is focusing on a text input box advantageously comprises detecting the selection of the text input box by the user (with the user interface 13). Alternatively, this focus action could even be detecting that a mouse cursor is moved above this text input box by the user, in other words detecting the user's intention to select this text input box. This detection may be performed by the web browser itself, in a way known to the skilled person.

Alternatively, there may be several text input boxes in the same web page and the user may focus on one by switching between them, for instance with tabs.

Figure 3 represents an example of a web page of a translation service, wherein different tabs correspond to different possible languages language in which a text to be translated may be inputted (for example "Detect language", "Chinese", "English", "Spanish"). Each of these tags is associated to a text input box, and some of them may be associated with a language attribute defining the expected input language for this

text input box, the expected input language being a possible language in which a text to be translated may be inputted (e.g. no language attribute for "Detect language" box, and respectively "zh", "en", "es" for the three other boxes). In such a case, "focusing" on one text input box is simply performed by by clicking on the corresponding tab in order to select this input box. In the example of figure 3, the focus is on the Chinese box, therefore the expected input language is Chinese, allowing for instance to automatically select an input virtual keyboard in Chinese language.

Note that, if there is for instance a large element of the page associated to a given language attribute, any of the text input boxes included in this element may share the same expected input language, so that it may be considered that focusing on this large element (for example a click anywhere on the block) is considered as focusing on all included text input boxes included in this large element.

Then, in the following step (b), the processing unit 11 determines whether or not the web page code comprises a language attribute defining an expected input language for the text input box.

In order to do so, the processing unit 11 parses the web page code in order to find a language attribute which would be associated with the text input box the user is focusing on. In a typical embodiment, this is achieved by parsing the web page code in order to find the part especially dedicated to the input text bow the user is focusing on, then parsing this code part in order to find a language attribute as aforementioned.

If such a language attribute is not found, this means that no specific input language is expected for this input text box, just as in web pages of the prior art.

If such a language attribute is found, then the language designated by this language attribute is the expected input language specifically associated with this input text box.

It is to be noted that focus detection step (a) and language attribute determination step (b) may be performed in any order, i.e. one after the other, or even simultaneously. Performing focus detection step (a) first allows to save processing power by avoiding searching uselessly for input languages associated with text input boxes which are never focused on by a user. On the contrary, performing language attribute determination step (b) first, typically as soon as a new page is visited, and

thus its code downloaded and parsed in entirety by the processing unit 11, may enable a quicker input language switching once the user focuses on a specific input text box.

When a language attribute has been found in the web page code as associated with the text input box the user is focusing on, and thus being the expected input language for this text input box, the method comprises a further step (c) of applying this expected input language for inputting some text into the text input box.

By "input language", it is meant the language locally set for text input, not a system language of the terminal 1. Indeed, a default system language is generally defined (in particular at the first activation of the terminal 1), this language being the one actually used by the operating system and the applications running on this operating system (the user may still use any language of his/her choice for inputting text), but this default system language is not intended to be changed by the present method.

In some embodiments, a reference input language is set on the terminal 1 (the reference input language being the one automatically applied when inputting text), so that the step (c) of applying said expected input language comprises selecting this expected input language as the reference input language for inputting text into the text input box. By default, the reference input language may be the above-mentioned system language, or a language associated with a currently selected virtual keyboard layout, as explained. The reference input language may dynamically change independently from the present method (in particular if the user manually selects another virtual keyboard layout).

Thus, step (c) preferably comprises, if the expected input language of the text input box is different from the current reference input language of the terminal 1, switching (c) the reference input language to the expected input language. In other words, the expected input language is selected as the "new" reference input language by processing unit 11.

Note that the reference input language is considered as a lasting parameter (it will keep being used for further inputs), while the expected input language is not saved (and just applied once, for a given input text box which is focused on).

To sum up, in the preferred embodiment of step (c) involving a reference input language:

- if the expected input language is different from the current reference input language of the terminal 1, the reference input language is changed (the current reference input language is replaced by the expected one, which becomes the new reference input language);
- if the expected input language is the same as the current reference input language of the terminal 1, the reference input language is unchanged (the current reference input language is already the right one);
- if the user is focusing on a text input box which is not associated to a language attribute (i.e. there is no expected input language for this text input box), the reference input language is unchanged.

The selection of the reference input language may have various impacts to the terminal 1. The reference input language may determine a virtual keyboard layout, as explained before. In that case, so step (c) advantageously comprises selecting a virtual keyboard layout, among a set of virtual keyboard layouts displayable by the terminal 1, as a function of the selected reference input language. In more details, each virtual keyboard layout is preferably associated to a list of refence input languages (for instance, the QWERTY-based layout is mainly for English, and also for others languages such as Dutch).

The method then advantageously comprises, in a further step (d), the actual input by the user (using the interface 13) of a text in the text input box, wherein the expected input language is applied, for instance inputting the text using a virtual keyboard layout designed for the expected input language associated with the text input box.

Note that the present invention is not limited to a selection of a virtual keyboard layout (and may be applied to terminals with a physical keyboard), and the expected input language may determine:

- which grammar is used by a spell checker (for automatic detection of misspellings in the inputted text);

- which voice is used by a screen reader (for assisting visually impaired people who inputs text);
- etc.

Note also that, in a specific embodiment, there may be an automatic translation of a text inputted in the text input box into the expected input language, when the text is inputted in another language in the text input box. For example, if the user is a native French speaker who fills a web form comprising some input boxes wherein information in English is required, these input boxes can be associated with a language attribute having English language value. The user can use French language everywhere in the web form and an automatic translation from French to English occurs when filling these text input boxes, so that the inputted text is translated from the native language into the expected input language (here English) for these input boxes.

Note that the effects of step (c) may occurs immediately (for instance when changing a virtual keyboard layout) or during step (d) (e.g. spell check or translation). In case the expected input language is used as a source language for automatic translation of the inputted text, in a known fashion step (c) may comprises analysis of the inputted text (for example using a machine learning model) so as to determine the actually used input language and compare it with the expected input language. If they are different, automatic translation is performed.

Once the text has been inputted, a new occurrence of step (a) may be performed if the user focuses on another text input box of the web page. Otherwise, the method may comprise a step (e) of detecting that the user is no more focusing on the text input box (for instance he/she has clicked elsewhere, in particular he/she is focusing on sorting which is not a text input box and/or is not assisted with a language parameter as previously defined).

In such case, the reference input language may be switched back to its "previous" value (i.e. before step (c)), or be switched to a default language (for instance the default system language). Like for step (b), step (e) may have effects such as changing the virtual keyboard layout.

Note that it may alternatively be provided that the reference input language is kept unchanged if focus on the text input box is lost (unless as explained the user

focuses on another text input box, or manually changes the reference input language) for avoiding multiple unnecessary changes of languages if the user is browsing a complex web page.

It is to be understood that step (e) or new occurrence of step (a) may be performed without step (d) occurring: the user might for instance select a first text input box (the reference input language is changed), then a second text input box (the reference input language is changed) without having filled the first text input box if he/she has changed his/her mind.

Terminal and computer program

The present invention concerns a terminal 1 comprising a processing unit 11. This terminal 1 may also comprise a memory 12, a user interface 13.

The aforementioned processing unit 11 is in particular configured to implement, when accessing a web page defined by a code in a markup language (in particular via a browser), the steps of:

- detecting that a user of the terminal 1 focuses on a text input box of said web page;
- determining that said code comprises an attribute defining an expected input language of the text input box; and
- applying said expected input language for inputting text into the text input box.

The invention further proposes a computer program product, comprising code instructions for executing (in particular with a processing unit 11 of the terminal 1) the previously described method, as well as a computer-readable medium (in particular a memory 12 of the terminal 1), on which is stored a computer program product comprising code instructions for executing said method. In particular, this computer program product may correspond to a browser application.

CLAIMS

1. A method for operating a terminal (1) when accessing a web page defined by a code in a markup language, the method comprising the following steps, performed by a processing unit (11) of the terminal (1):

- detecting (a) that a user of the terminal (1) focuses on a text input box of said web page;
- determining (b) that said code comprises an attribute defining an expected input language for the text input box; and
- applying (c) said expected input language for inputting text into the text input box.

2. A method according to claim 1, wherein said code comprising, for each text input box of a plurality of text input boxes of the web page, an attribute defining an expected input language of the text input box.

3. A method according to any one of claims 1 to 2, wherein a reference input language of the terminal (1) is defined, step (c) comprising selecting said expected input language as the reference input language.

4. A method according to claim 3, wherein step (c) comprises, if said expected input language of the text input box is different from the current reference input language of the terminal (1), switching (c) the reference input language to said expected input language.

5. A method according to any one of claims 3 and 4, wherein step (c) comprises selecting a virtual keyboard layout, among a set of virtual keyboard layouts displayable by the terminal (1), as a function of the reference input language.

6. A method according to any one of claims 1 to 5, further comprising a step of acquiring (d) a text being inputted by the user on a user interface (13) of the terminal (1).

7. A method according to claim 6, wherein step (d) comprises automatically translating the inputted text into the expected input language if the text is inputted in a different language from the expected input language.

8. A method according to any one of claims 1 to 7, wherein the web page is that of a translation service, each text input box corresponding to a possible language in which a text to be translated may be inputted, the expected input language defined by the attribute being said possible language in which a text to be translated may be inputted.

9. A method according to any one of claims 1 to 8, further comprising a step of detecting (e) that a user of the terminal (1) is no more focusing on said text input box or a new occurrence of step (a).

10. A method according to any one of claims 1 to 9, wherein said markup language is HyperText Markup Language, also referred as HTML.

11. A method according to any one of claims 1 to 10, wherein detecting (a) that the user of the terminal (1) focuses on a text input box comprises detecting the selection of the text input box by the user on a user interface (13) of the terminal (1).

12. A terminal (1) comprising a processing unit (11) configured to:

- when accessing a web page defined by a code in a markup language, detecting (a) that a user of the terminal (1) focuses on a text input box of said web page,
- determining (b) that said code comprises an attribute defining an expected input language for the text input box; and
- applying (c) said expected input language for inputting text into the text input box.

13. A computer program product, comprising code instructions for executing a method according to any one of claims 1 to 11 for operating a terminal (1) when accessing a web page defined by a code in a markup language, when executed by a processing unit.

14. A computer-readable medium, on which is stored a computer program product comprising code instructions for executing a method according to any one of claims 1 to 11 for operating a terminal (1) when accessing a web page defined by a code in a markup language.

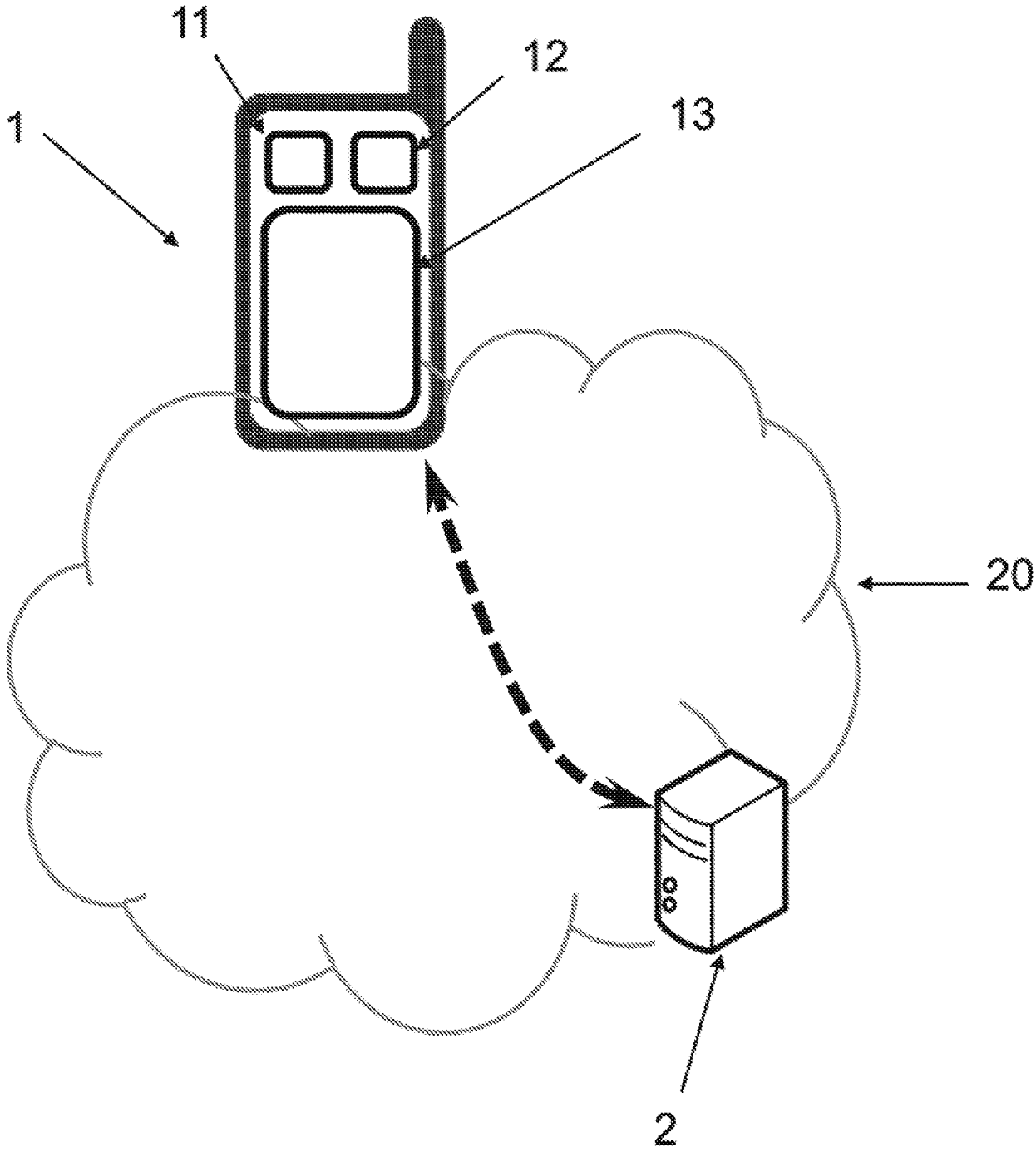

FIG.1

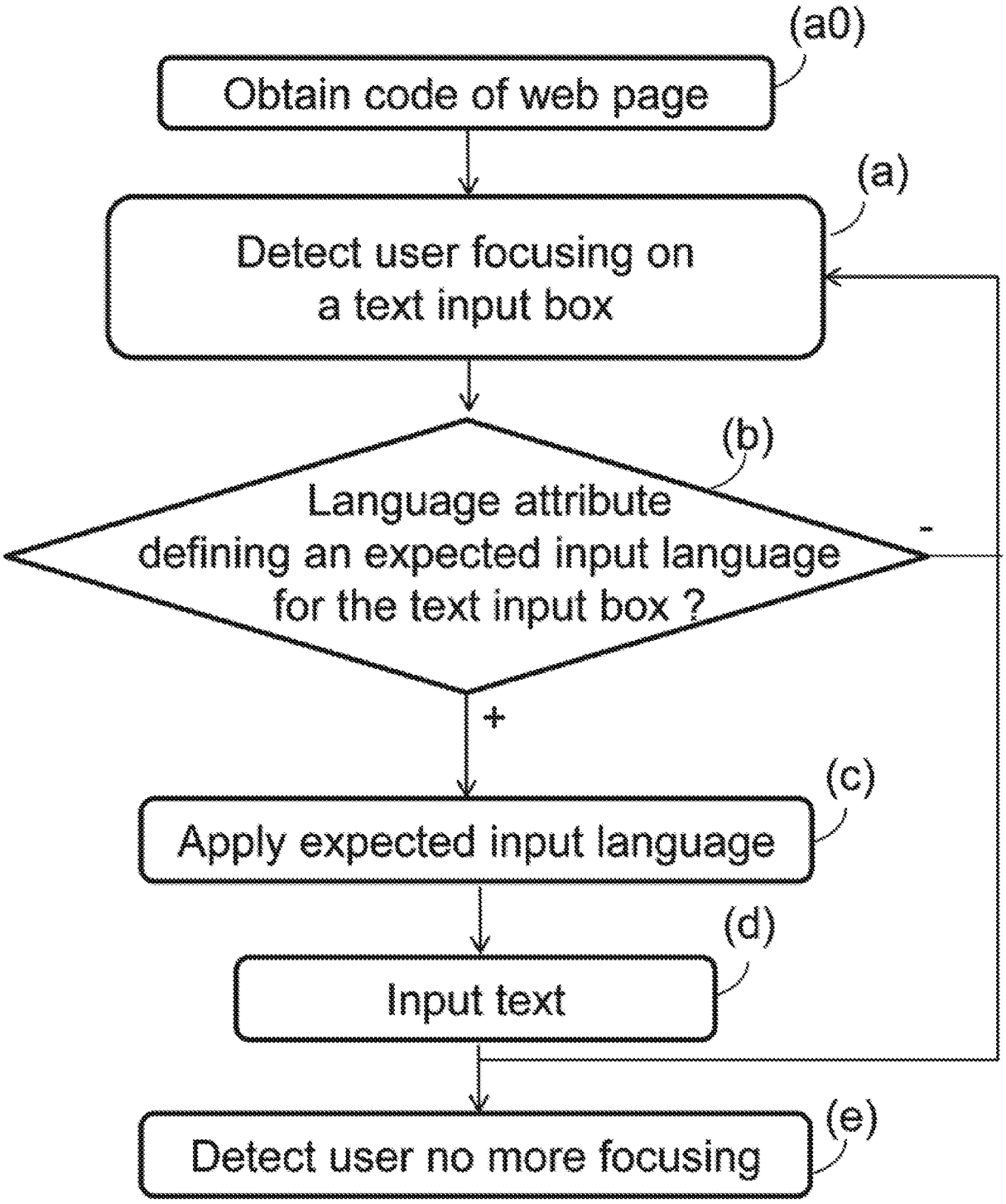
(a0)
Obtain code of web page
(a)
Detect user focusing on a text input box
(b)
Language attribute defining an expected input language for the text input box ?
-
+
(c)
Apply expected input language
(d)
Input text
(e)
Detect user no more focusing

FIG. 2

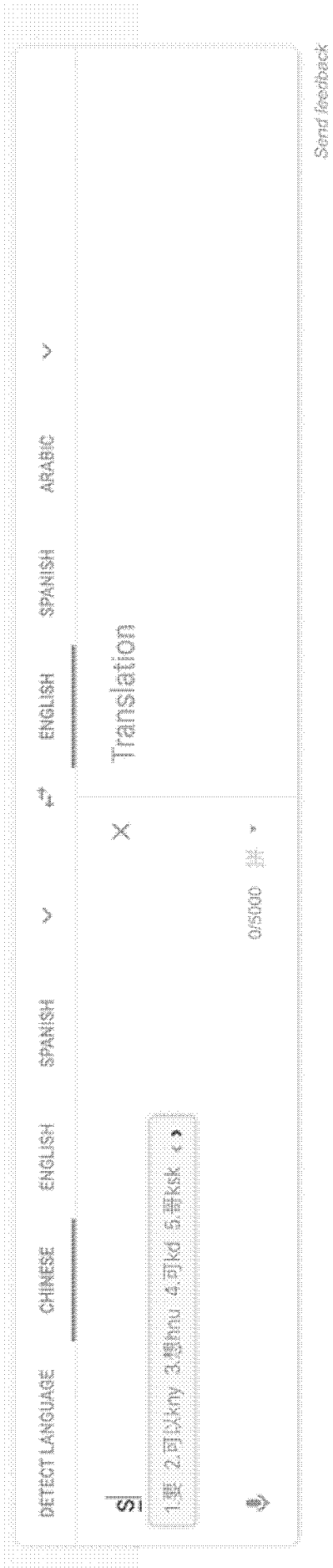
DETECT LANGUAGE
CHINESE
ENGLISH
SPANISH
ENGLISH
SPANISH
ARABIC
Translation
0/5000
Send feedback

FIG. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2020/118295

A. CLASSIFICATION OF SUBJECT MATTER

G06F 9/44(2018.01)i

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)

GO6F; H04M

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)

WPI;EPODOC;CNPAT;CNKI: code+, box+, frame+, web page+, multi+, mode, Browser, qwerty+, azerty+, switch +, input, method, input+, attribut+, language+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 103714085 A (TOSHIBA TEC INFORMATION SYSTEMS SHENZHEN CO., LTD.) 09 April 2014 (2014-04-09) description, paragraphs [0018]-[0038]	1-14
X	CN 101895631 A (SHENZHEN WUJU SCI&TECHNOLOGY CO., LTD.) 24 November 2010 (2010-11-24) description, paragraphs [0039]-[0085]	1-14
A	CN 102436454 A (TENCENT TECHNOLOGY SHENZHEN CO., LTD.) 02 May 2012 (2012-05-02) the whole document	1-14
A	US 2013024802 A1 (INTERNATIONAL BUSINESS MACHINES CORPORATION) 24 January 2013 (2013-01-24) the whole document	1-14
A	US 2012290287 A1 (FUX, Vadim et al.) 15 November 2012 (2012-11-15) the whole document	1-14

☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:
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"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
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"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	Date of mailing of the international search report
07 June 2021	**28 June 2021**
Name and mailing address of the ISA/CN **National Intellectual Property Administration, PRC** **6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088** **China** Facsimile No. **(86-10)62019451**	Authorized officer **ZHANG,Huajing** Telephone No. **86-010-53961629**

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2020/118295

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 103714085 A	09 April 2014	None	
CN 101895631 A	24 November 2010	None	
CN 102436454 A	02 May 2012	None	
US 2013024802 A1	24 January 2013	CN 102890598 A	23 January 2013
US 2012290287 A1	15 November 2012	EP 2523104 A1	14 November 2012
		WO 2012162791 A1	06 December 2012