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DISPLAYING INFORMATION RELATING TO SELECTED TEXT

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ABSTRACT

A device (e.g., a mobile phone, a camera device, a smart display, a tablet computer, a laptop computer, a desktop computer, a gaming system, a media player, an e-book reader, a television platform, a vehicle infotainment system or head unit, etc.) may display useful information such as a translation, definition, and/or description of text selected on the device by a user. The user may select text, such as a character, word, phrase, sentence, paragraph, passage, etc. on the device (e.g., by using a long press, drag, tap, click, or other gesture or input) to cause a language identification module to identify the language of the selected text and determine whether the language of the selected text is a language the user understands. If the language identification module determines that the language of the selected text is not a language the user understands (e.g., based on a system language, user preferences, etc.), a dictionary module and/or other module for displaying information related to the selected text may display a translation, definition, and/or description of the selected text in a non-obtrusive manner on the device (e.g., the translation may be in-line with the selected text, positioned above the selected text, positioned below the selected text, etc.).

DESCRIPTION

The present disclosure describes displaying information (e.g., translation, definition, description, image, etc.) associated with text selected by a user on a device. In some examples, the device may include a display (e.g., a mobile phone, a camera device, a smart display, a tablet computer, a laptop computer, a desktop computer, a gaming system, a media player, an e-book

reader, a television platform, a vehicle infotainment system or head unit, etc.). The device may be configured to use one or more modules, applications, interfaces, programs, algorithms, and/or other code to display a translation, definition, and/or description of text selected on the device by a user based on whether the language of the selected text is a language the user understands.

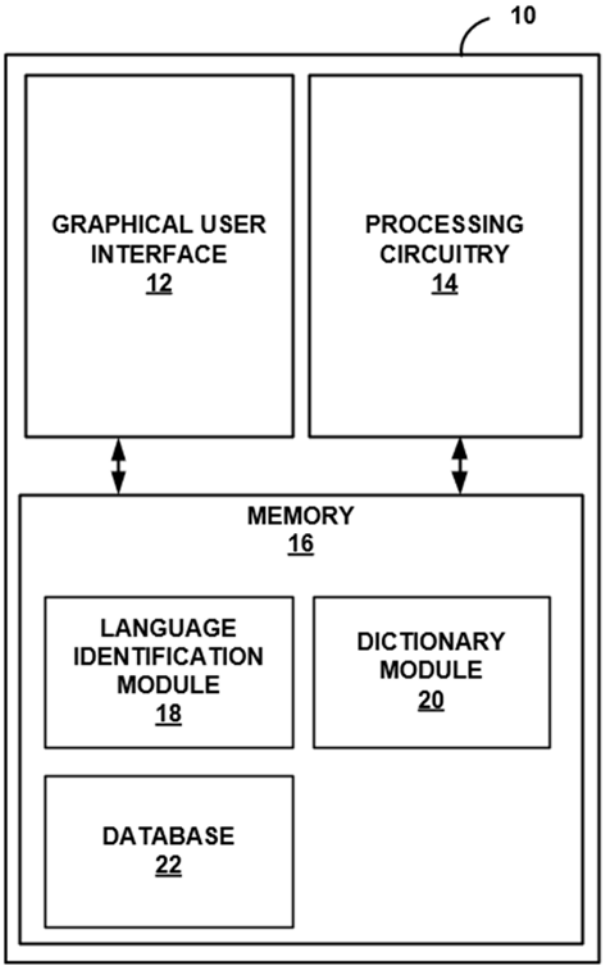

FIG. 1

FIG. 1 is a block diagram illustrating a device 10 in accordance with techniques described herein. As illustrated by FIG. 1, device 10 may include a graphical user interface (GUI) 12, processing circuitry 14, and memory 16. GUI 12 may be configured to display text, images, videos, and/or other graphical elements. Processing circuitry 14 may be configured to

execute a language identification module 18, a dictionary module 20, and/or other modules, applications, interfaces, programs, algorithms, and/or code (not shown in FIG. 1). Memory 16 may be configured to store data for device 10 such as system settings (e.g., display language the user sets as default for the operating system of device, etc.), modules, (e.g., language identification module 18, dictionary module 20, etc.), and/or other data. While shown in FIG. 1 as being elements of device 10, language identification module 18 and dictionary module 20 may be elements of a remote computing system (e.g., a cloud network) such that the functionality attributed here to language identification module 18 and dictionary module 20 may be provided in whole or in part by the remote computing system.

GUI 12 output by a display of device 10 may include text (e.g., a character, a word, a phrase, a sentence, a paragraph, etc.) that the user may select. After the user selects the text, processing circuitry 14 may cause language identification module 18 to identify the language of the selected text. For example, language identification module 18 may identify the language of the selected text and compare it to one or more languages the user of device 10 is able to understand. In identifying the language of the selected text, language identification module 18 may use computational approaches (e.g., software, etc.) such as a content detection and analysis framework and/or a machine learning based toolkit for the processing of natural language text.

After identifying the language of selected text, language identification module 18 may determine whether the language of the selected text is (e.g., the same as) a language the user understands. Language identification module 18 may determine the language or languages the user understands in a variety of ways. For example, language identification module 18 may determine the language or languages the user understands from the system language (e.g., the display language). In other examples, language identification module 18 may determine the

language or languages the user understands based on user preferences inputted by the user (e.g., via a language setting of device 10).

For example, the user may provide input specifying English, French, and German as languages the user understands. In such an example, if language identification module 18 determines that the language of the selected text is not English, French, or German, dictionary module 20 and/or any other module may determine a translation, definition, and/or description of the selected text. Dictionary module 20 and/or any other module may then output, for display by device 10, the translation, definition, and/or description of the selected text in a language the user understands. For example, dictionary module 20 and/or any other module may output the translation, definition, and/or description of the selected text in the system language, which, for example, may be English. Alternatively, if the language is English, French, or German, dictionary module 20 and/or other module may not output a translation, definition, and/or description of the selected text. For example, if the language is English, dictionary module 20 and/or other module may not output a translation or definition but may still output a description of the selected text.

In some examples, dictionary module 20 and/or any other module may output the translation, definition, and/or description of the selected text in the system language according to the user preferences. For example, if the user has one preferred language, then dictionary module 20 and/or any other module may output the translation, definition, and/or description of the selected text in the preferred language, for example, French. If the user has a plurality of preferred languages, the user may provide input to select a preferred language of the plurality of preferred languages for the translation, definition, and/or description of the selected text. For example, device 10 may display a plurality of buttons corresponding to the plurality of preferred

languages, and the user may select (e.g., by tapping, clicking, pressing, etc.) a button to cause dictionary module 20 and/or any other module to output the translation, definition, and/or description of the selected text in the preferred language corresponding to the selected button (e.g., German).

In some examples, dictionary module 20 and/or other module may output a translation, definition, and/or description of the selected text, by accessing a database 22 containing information relating to the selected text. The database may be stored in memory 16 of device 10 and/or on a remote server.

In some examples, other modules may output information relating to the selected text or facilitate the display of information relating to the selected text. For example, other modules may include an optical character recognition (OCR) module for identifying text in an image, which may then enable a user to select the text in the image. In another example, other modules may include a thesaurus module for providing words related to the selected text (e.g., synonyms, antonyms, etc.). In yet another example, other modules may include a search module for compiling and outputting other instances of the selected text (e.g., in the same document as the selected text or in another document).

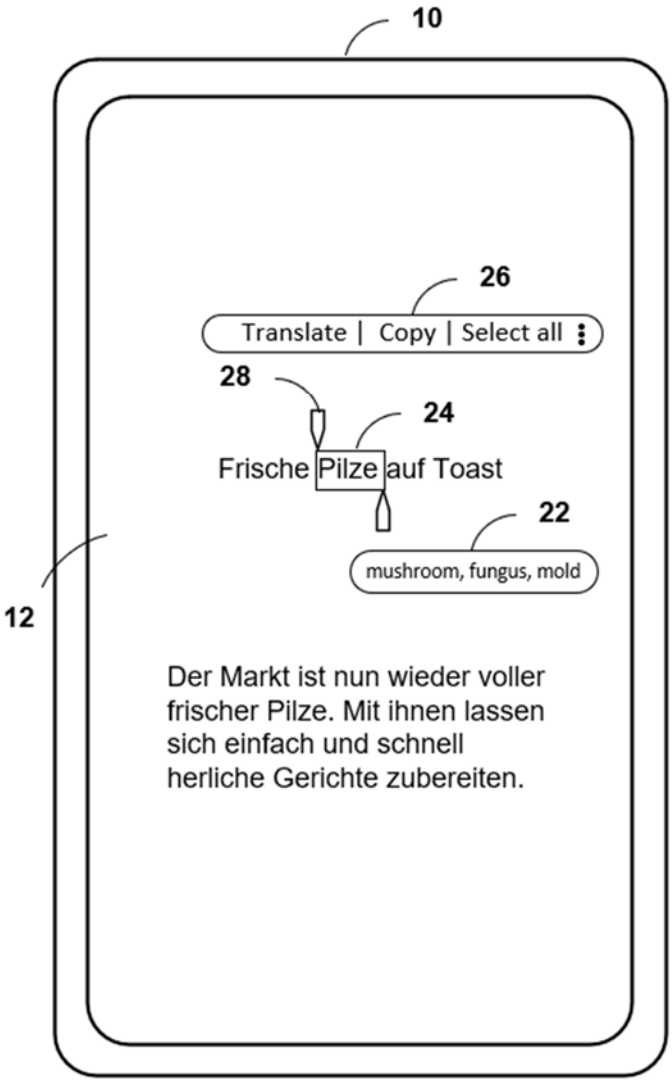

FIG. 2

FIG. 2 is a conceptual diagram illustrating a device in accordance with techniques of this disclosure. As illustrated in FIG. 2, device 10 may display information 22 (e.g., translation, definition, and /or description) relating to a selected text 24 provided by dictionary module 20 and/or other module via GUI 12. Device 10 may display information 22 in a non-obtrusive manner (e.g., as a bubble of text that is in-line with selected text 24, positioned above selected text 24, positioned below the selected text 24, etc.). Device 10 may stop displaying information 22 relating to selected text 24 in response to user input. For example, device 10 may stop

presenting translation, definition, and/or description 22 of selected text 24 in response to the user de-selecting text (e.g., by clicking another region of the display of device 10), rendering translation, definition, and/or description 22 no longer visible to the user.

In some examples, after the user selects text 24, the display of device 10 may present the user with a plurality of text selection buttons, one or more of which may cause device 10 to display translation, definition, and/or description 22 of selected text 24. In such an example, a text selection menu 26 (e.g., a floating text selection toolbar) that is in-line with selected text 24, positioned above selected text 24, positioned below selected text 24, etc., may include the one or more text selection buttons for causing device 10 to display translation, definition, and/or description 22 of selected text 24. In some examples, text selection menu 26 may include standard actions such as cut, copy, paste, share, select all, and other actions commonly used in relation to text.

Additionally or alternatively, language identification module 18 may be configured to automatically determine (e.g., before, while, or after the user selects text) whether selected text 24 is a language the user understands, and information 22 relating to selected text 24 floating text selection toolbar may responsively appear based on whether language identification module 16 determines that the language of selected text 24 is the same as a language the user understands. For example, as illustrated in FIG. 2, the user may select text 24. Language identification module 18 may then automatically determine (e.g., without the user providing input besides selecting text) whether ‘Pilze’ included in text 24 is part of a language that the user understands. If ‘Pilze’ is not part of a language that the user understands, dictionary module 20 may output a translation, definition, and/or description 26 (e.g., ‘mushroom, fungus, mold’) of ‘Pilze’ in a non-obtrusive manner.

The user may select text 24 in a variety of ways. For example, the user may long-press the text to select a word. In another example, the user may press the general vicinity of the GUI 12 displaying the text to be selected until one or more handles 28 appear on the GUI 12. The user may then grab one or more handles 28 to define a selection of text 24. In yet another example, the user may tap, one or more times, the general vicinity of GUI 12 displaying the text to be selected, where the various number of taps causes the device to select a character, word, phrase, sentence, paragraph, or some other length of text. As such, the user may tap, press, drag, click, or perform any other gesture or provide any other input to select text 24.

In some examples, device 10 may display information 22 relating to a plurality of words. For example, device 10 may translate, define, and/or describe a phrase, sentence, paragraph, or any other passage of text. The plurality of words may include words belonging to a continuous passage of text (e.g., a phrase, sentence, paragraph, etc.). For example, the plurality of words may include each word of the following sentence: ‘The quick brown fox jumps over the lazy dog.’ Language identification module 16 may then determine whether the language of the text “The quick brown fox jumps over the lazy dog” is the same as a language user understands (e.g., based on the display language, language setting, etc.), and if it is not, dictionary module 20 may output a translation, definition, and/or description of the continuous passage of selected text.

Additionally or alternatively, the plurality of words may include words not belonging to a continuous passage of text. For example, the plurality of words may include a word from one sentence and another word from another sentence. As such, the plurality of words may include, for example, the word ‘quick’ from the following sentence: ‘The quick brown fox jumps over the lazy dog.’ The plurality of words may also include, for example, the word ‘pangram’ from the following sentence: ‘A pangram is a sentence using all the letters of an alphabet.’ Language

identification module may then determine whether the language of the selected text ‘quick’ and ‘pangram’ is the same as the display language, and if it is not, dictionary module 20 may display, via GUI 12, a translation, definition, and/or description of the non-continuous passage of selected text.

In some examples, dictionary module 20 and/or other module may provide a translation, definition, and/or description of the selected text exceeding a length threshold. For example, the translation, definition, and/or description of the selected text may be so long that the translation, definition, and/or description cannot be presented in-line with the selected text in a non-obtrusive manner. As such, in those examples, dictionary module 20 and/or other module may provide a truncated or abbreviated translation, definition, description of the selected text to be displayed via GUI 12.