

## TEXT INPUT SYSTEM FOR A MOBILE ELECTRONIC DEVICE AND METHODS THEREOF

### FIELD OF THE INVENTION

[0001] The present invention relates generally to mobile electronic devices having text input.

### BACKGROUND OF THE INVENTION

[0002] Many mobile electronic devices now include functionality that requires text input, such as, for example, sending e-mail, writing short message service (SMS) messages, browsing the Internet, entering data into applications such as contacts, notes, task list, and calendars, etc. Many different text input systems are currently available, and some mobile electronic devices provide more than one text input system. A non-exhaustive list of text input systems in mobile electronic devices includes, for example, a) a virtual keyboard from which text is entered by selecting keys using a narrow-tipped stylus; b) a QWERTY thumbboard; and c) nine number keys for the numbers 1-9, where typically up to three or four letters are associated with a particular number key. In the latter example, text is entered by pressing the number key associated with the desired letter, for example, using multi-tap, long-press, and similar techniques, or by pressing the number key only once (and possibly pressing additional keys) and using a predictive text algorithm such as, for example, "text on nine keys" (T9®) from Tegic Communications Inc. of Seattle, Wash., iTAP® from the Lexicus Division of Motorola in Mountain View, Calif. or LetterWise from Eatoni Ergonomics Inc. of New York, N.Y.

[0003] Since many mobile electronic devices are handheld, it may be beneficial to reduce their size.

### SUMMARY OF THE INVENTION

[0004] A method includes associating overlapping areas of a touch interface of a mobile electronic device with letters such that each area is associated with only one letter. The method also includes detecting a location of a user's touch on the touch interface. For each area of the touch interface which includes the location, the letter associated therewith is identified.

[0005] If two or more letters are identified, predictive text software is used to determine which of the identified letters the user intended to select. The predictive text software may be provided with an indication that the location is closer to one of the identified letters than to others of the identified letters. The predictive text software may be provided with an indication of how much closer the location is to one of the identified letters than to others of the identified letters.

[0006] A mobile electronic device may include one or more touch interfaces to receive a touch by a user, means for displaying one or more rows of letters, and means for associating overlapping areas of the one or more touch interfaces with the letters such that each area is associated with only one letter. The mobile electronic device may also include a microprocessor. The microprocessor may identify which letters are associated with areas of the touch interfaces that include a location of the touch. The microprocessor may also execute a predictive text software module to determine which of the identified letters the user intended to select

[0007] The touch interfaces may be a single touchpad. In that situation, the rows of letters may be spaced at a sufficient vertical distance that there is no ambiguity as to which row of letters is being touched. Alternatively, the touch interfaces may be two or more touchpads.

[0008] The touch interfaces may be a single touchscreen. The rows of letters may be spaced at a sufficient vertical distance that there is no ambiguity as to which row of letters is being touched. Alternatively, for at least one particular letter, an area of the touchscreen associated with the particular letter may be overlapped by an area of the touchscreen associated with a different letter of an adjacent row.

[0009] For at least one particular letter, an area of the touch interface associated with the particular letter may be completely overlapped jointly by a portion of an area of the touch interface associated with an adjacent letter to the left of the particular letter and by a portion of an area of the touch interface associated with an adjacent letter to the right of the particular letter.

[0010] For at least one particular letter, an area of the touch interface associated with the particular letter may be partially overlapped by a portion of an area of the touch interface associated with an adjacent letter to the left of the particular letter and by a portion of an area of the touch interface associated with an adjacent letter to the right of the particular letter.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0011] Embodiments of the invention are illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like reference numerals indicate corresponding, analogous or similar elements, and in which:

[0012] **FIG. 1** is a simplified front view of an exemplary mobile electronic device;

[0013] **FIG. 2** is a simplified front view of another exemplary mobile electronic device;

[0014] **FIG. 3** is a flowchart illustration of an exemplary method for determining which two adjacent letters to pass to the predictive text software module;

[0015] **FIG. 4** is an illustration of a virtual "T" key, a virtual "R" key and a virtual "Y" key, in accordance with some embodiments of the present invention;

[0016] **FIG. 5** is a flowchart illustration of another exemplary method for determining which letter to select as input or which two adjacent letters to pass to the predictive text software module;

[0017] **FIG. 6** is an illustration of a virtual "T" key, a virtual "R" key and a virtual "Y" key, in accordance with some embodiments of the present invention;

[0018] **FIG. 7** is a flowchart illustration of an exemplary method for determining which letters to pass to the predictive text software module;

[0019] **FIGS. 8A and 8B** are illustrations of a virtual "G" key in accordance with alternate embodiments of the present invention; and

[0020] **FIG. 9** is a block diagram of an exemplary mobile electronic device.