

will both be passed to the predictive text software module, whereas if the touch location is between the horizontal center of “T”**406** and the horizontal center of “Y”**408**, then the letters “T” and “Y” will both be passed to the predictive text software module. In this embodiment, a touch location should not be precisely at the horizontal center of a letter. This may be accomplished, for example, by requiring the touch location to be at one of a set of vertical lines and ensuring that the vertical lines are not aligned with the horizontal centers of the letters.

[0034] If the touch location is not between the horizontal centers of two adjacent letters (**302**), then the touch location is between the horizontal center of a letter at the end of a row and the corresponding edge of the touchpad/touchscreen. In this case, the letter whose horizontal center is closest to the touch location and its adjacent letter are sent to the predictive text software module (**306**). For example, if the touch location is between the horizontal center of “Q” and the edge of the touchpad/touchscreen nearest to the letter “Q”, then the letters “Q” and “Y” will both be passed to the predictive text software module.

[0035] In some embodiments, the two adjacent letters sent to the predictive text software module in block **304** or block **306** may be sent with one or more numerical weights indicating that the touch location is closer to one of the two adjacent letters than to the other, or indicating how much closer the touch location is to one of the two adjacent letters than to the other. The predictive text software module may take these numerical weights into account when determining which of the two adjacent letters the user intended to enter.

[0036] As shown in **FIG. 4**, a virtual “T” key has an area **412**, marked with horizontal hatching, which extends from the horizontal center of “R”**404** to the horizontal center of “Y”**408**. Similarly, a virtual “R” key has an area **414**, marked with wide diagonal hatching, which extends from the horizontal center of “E”**402** to the horizontal center of “T”**406**, and a virtual “Y” key has an area **416**, marked with narrow diagonal hatching, which extends from the horizontal center of “T”**406** to the horizontal center of “U”**410**. The area **412** of the virtual “T” key is completely overlapped jointly by a portion of the area **414** of the virtual “R” key and a portion of the area **416** of the virtual “Y” key.

[0037] The touchpads of **FIG. 1** may be designed so that the area of a virtual key (e.g. the area of the touchpad associated with a particular letter) is of an appropriate ergonomic size, shape and orientation for use by a finger or thumb. If n denotes the minimum horizontal length of a virtual key based on ergonomic considerations, then the overall horizontal length of a touchpad need not exceed $(n+1)n/2$, where n is the number of letters in the touchpad. In the example of device **100** shown in **FIG. 1**, n is 10 for the top touchpad, n is 9 for the middle touchpad and n is 7 for the bottom touchpad.

[0038] Similarly, the touchscreen of **FIG. 2** may be designed so that the area of a virtual key is of an appropriate ergonomic size, shape and orientation for use by a finger or thumb. If n denotes the minimum horizontal length of a virtual key based on ergonomic considerations, then the overall horizontal length of a touchscreen need not exceed $(n+1)n/2$, where n is the number of letters in the row of the touchscreen having the most letters. In the example of device **200** shown in **FIG. 2**, n is 10, since the top row has the most letters.

[0039] In contrast, if each touch of the touchpad/touchscreen were to select only a single letter, then the areas of the virtual keys would not be permitted to overlap and the overall horizontal length of the touchpad/touchscreen would have to be sufficient to accommodate this restriction while providing virtual key areas of an appropriate size for use by a finger or thumb. If n denotes the minimum horizontal length of a virtual key based on ergonomic considerations, then the overall horizontal length of a touchpad/touchscreen having virtual keys that are not permitted to overlap would need to be at least n^2 , where n is the number of letters in the touchpad or the number of letters in the row of the touchscreen having the most letters.

[0040] Reference is now made to **FIGS. 5 and 6**. **FIG. 5** illustrates another exemplary method for determining which two adjacent letters to pass to the predictive text software module. **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.

[0041] A touch location is received (**500**). If the touch location is within a predetermined distance $D/2$ of the horizontal centers of a letter (**502**), then the letter is the input (**504**). For example, as shown in **FIG. 6**, if the touch location is within $D/2$ of the horizontal center of “R”**404**, then the input is “R”. If the touch location is within $D/2$ of the horizontal center of “T”**406**, then the input is “T”. If the touch location is within $D/2$ of the horizontal center of “Y”**408**, then the input is “Y”.

[0042] However, if the touch location is not within the predetermined distance $D/2$ of the horizontal center of a letter, then it is checked whether the touch location is in an intermediate region between two adjacent letters (**506**). If so, then the two adjacent letters are sent to the predictive text software module (**508**). For example, as shown in **FIG. 6**, if the touch location is in an intermediate area **603** between “R” and “T”, then the letters “R” and “T” will both be passed to the predictive text software module. If the touch location is in an intermediate area **605** between “T” and “Y”, then the letters “T” and “Y” will both be passed to the predictive text software module.

[0043] If the touch location is not in an intermediate region between two adjacent letters (**506**), then the touch location is between the horizontal center of a letter at the end of a row and the corresponding end of the touchpad. The letter at the end of the row is then unambiguously the input (**510**).

[0044] As shown in **FIG. 6**, the virtual “T” key has an area **612**, marked with horizontal hatching, which extends from the left edge of intermediate area **603** to the right edge of intermediate area **605**. Similarly, the virtual “R” key has an area **614**, marked with wide diagonal hatching, which extends from the right edge of intermediate area **603** to within $D/2$ of the horizontal center of “E”**402**, and the virtual “Y” key has an area **616**, marked with narrow diagonal hatching, which extends from the left edge of intermediate area **605** to within $D/2$ of the horizontal center of “U”**410**. The areas of the virtual keys partially overlap to define the intermediate areas.

[0045] If n denotes the minimum horizontal length of a virtual key based on ergonomic considerations, then the overall horizontal length of a touchpad/touchscreen may be