[0029] **FIG. 4** illustrates an example of the distance determination step **204** of **FIG. 2**. Specifically, the length of each line segment **402***q*, **402***w*, **402***e*, etc. represents the distance between the touch location "X"**108** and each respective key locations **106***q*, **106***w*, **106***e*, etc. It can be seen that the line segment **402** having the shortest such length is **402***q*, which would be the result of step **208** as applied to the example of **FIG. 1** and **FIG. 3**.

[0030] With **FIG. 3** in particular as background, we discuss step **206** of the **FIG. 2** flowchart. At step **206** (shown as a dashed rectangle), the distances determined at step **204** may be weighted by a weighting factor. For example, each distance may be multiplied by a weighting factor. The weighting factor for each virtual key affects the size of that virtual key. The smaller the weighting factor associated with a first virtual key relative to the weighting factor associated with a second virtual key, the smaller the first virtual key is relative to the second virtual key (that is, the closer a touch location must be to a key location, relatively, to cause activation of the virtual key to which the key location corresponds.) In some examples, the weighting factors are normalized such that a weighting factor of one has no effect on the size of a virtual key, while a weighting factor greater than one has the effect of enlarging a virtual key, while a weighting factor less than one has the effect of diminishing the virtual key. The application of the weighting factors need not be linear. For example, the square root of the distance may be multiplied by the weighting factor.

[0031] We now turn to **FIG. 5**, which illustrates an example layout of virtual keys on a touch screen where each of at least one of the virtual keys has a set of greater than one key location corresponding to that virtual key. For example, referring to **FIG. 5**, a plurality of virtual keys (for example, designated by reference numerals **502***a* through **502***h* are illustrated. The boundary of each virtual key (**502**, generally) is a function of the position (and, if applicable, weighting) of the plural key locations corresponding to that virtual key. It is noted that the keyboard graphic actually viewable by the user may not directly coincide with the irregularly-shaped boundaries of the virtual keys **502**.

[0032] **FIG. 6** illustrates steps **602** and **604**, which may be included in step **204** of **FIG. 2**. In particular, step **602** determines, for each key location in the set of at least one key location corresponding to a virtual key, the distance between the touch location and the key location. With regard to the specific example of the virtual "m" key in **FIG. 5**, step **602** includes determining the distances da and db. The distance provided to step **206** or step **208** (**FIG. 2**) for the virtual "m" key is then determined, at step **604**, as the average of da and db. In some examples, a step **606** (which, like step **206** in **FIG. 2**, is shown as a dashed rectangle) is included in which the distances determined in step **602** (e.g., da, db and dc) may be weighted before an average is determined at step **604**. Some reasons that it may be desired to weight particular key locations corresponding to a virtual key are discussed later.

[0033] Referring still to **FIG. 6**, steps **602** and **604** (and, sometimes, step **606**) are also performed for virtual "j" and "n" keys (and the other virtual keys). For the virtual "j" key, distances dx, dy and dz are determined. For the virtual "n" key, distances dj, dk and dk are determined. In some examples, some optimizations are realized such that the distances are not determined for every virtual key and/or for every key location associated with a particular virtual key.

[0034] Referring back to **FIG. 2**, optional step **206** and step **208** are carried out using the distances determined in the step **604** processing for the each virtual keys. As a result, the activated virtual key is the one virtual key for which there is the shortest physical distance between the key locations, associated with that virtual key, and the touch location.

[0035] We now discuss how the key locations are determined, in some examples. While in some examples, the key locations may be predetermined, in other examples, the key locations are dynamically determined. For example, a keyboard interface may be initially activated on a touch screen by processing that detects simultaneous touching of the touch screen by a plurality of fingers, where the particular number may vary by example. In one example, the keyboard interface is only activated if the relative positions of the touching fingers on the touch screen are consistent (within some threshold) with the positions of fingers on an actual keyboard. Once the initial positions of some of the keys (more properly, the initial key locations associated with virtual keys) are determined based on the respective positions of the touching fingers, initial key locations for remaining virtual keys of the keyboard, even though not directly corresponding to touch locations, may be determined. For example, the key locations for the remaining virtual keys of the keyboard may be set to have a predetermined relationship to the key locations for the virtual keys whose key locations are determined directly from the touch locations.

[0036] **FIG. 7** illustrates a portion of a virtual keyboard. The lines **702** indicate the boundaries of the virtual keys, whereas the lines **704** indicate the key boundaries as displayed to the user on the touch screen. The "dots" (for example, **706***a*, **706***b* and **706***c*; **708***a*, **708***b* and **708***c*; and **710***a* and **710***b*) are not typically displayed but, rather, indicate key locations for the virtual keys.

[0037] In some examples, rather than strictly considering distance between a touch location and key locations, statistical parameters of the distribution of the key locations is taken into account. Thus, for example, a touch location that is "closer" in standard deviation terms to the distribution of key locations for a first virtual key than to the distribution of key locations for a second virtual key is considered to correspond to an activation of the first virtual key. Thus, in one example, a first virtual key has corresponding to it a relatively closely-spaced distribution of key locations, relative to the distribution of key locations corresponding to a second virtual key. With these example distributions of key locations, in order for a touch location to correspond to activation of the a touch location would have to be relatively closer (in physical distance) to the center of the relatively closely-spaced distribution of key locations corresponding to the first virtual key than to the center of the distribution of relatively further-spaced key locations corresponding to the second virtual key.

[0038] We now discuss how, in one example, how particular virtual keys come to have multiple key locations associated with them. In particular, when it is determined which virtual key a touch location has activated, that touch location may be considered as an additional key location for the activated virtual key. In some examples, the key locations for the virtual keys are accumulated, although the