

## MULTI-CONFIGURABLE TACTILE TOUCH-SCREEN KEYBOARD AND ASSOCIATED METHODS

### FIELD

[0001] The invention relates generally to computer keyboard devices and display systems, and in one aspect to computer keyboard devices that may adapt to multiple configurations, e.g., for use with two or more keyboard configurations such as QWERTY or AZERTY configurations.

### BACKGROUND

[0002] Computer systems running Windows™ XP, Macintosh™, Linux™, or other similar operating systems may include the ability to change the language in which information is displayed. For example, a user may select a language at start-up such that subsequent information is presented in a display in accordance with the selected language.

[0003] Travelers often experience difficulty using computers outside their native country (despite the ability to select a desired language for the display of information) because input devices such as keyboards, and in particular keyboard key and character layouts, often differ across different countries. For example, a typical keyboard layout in France uses an AZERTY key configuration that is different from that commonly used in the United States, a QWERTY key configuration. The difficulty of using an unfamiliar keyboard arises particularly when travelers use computers located in public places, in business offices, or in hotels where keyboards are generally configured for the local keyboard configuration.

[0004] Physical keyboards with raised, movable keys are a worldwide standard input device, and experienced computer users or typists are comfortable using physical keyboards to accurately type information into a computer. Physical keyboards also provide resistance over a short distance while the key is being pressed that softens the impact of a typist's fingers against the keys. Physical keyboards, however, do not offer the flexibility of changing the characters displayed on the keys to match multiple desired keyboard layouts. Accordingly, two different physical keyboards are generally needed to accommodate two different users desiring different keyboard configurations. This is solution is generally not very satisfactory.

[0005] Accordingly, it would be desirable to have an input device that allows users to select from and use multiple keyboard configurations, for example, to accommodate various user preferences and the like.

### BRIEF SUMMARY

[0006] According to one aspect provided herein, an input device for use with computer systems is described. In one example, an input device comprises a touch-sensitive screen and an overlay positioned over the touch-sensitive screen, the overlay having a plurality of tactile features. The touch-sensitive screen is operable to display one or more images, e.g., of multiple keyboard configurations, to facilitate input to a computer system. The image may be varied to provide a multi-configurable input device. Additionally, the tactile

features may include transparent extruded areas, such as ridges, molded key features, indentations, protrusions or the like arranged to provide users with a tactile feel (e.g., for motion and/or location) of varying portions of the underlying displayed image.

[0007] The exemplary input device may be incorporated with or operable to communicate with a desktop computer, laptop computer, tablet personal computer, kiosk, mobile device, and the like. Additionally, the touch sensitive screen may be configured to include a portion for displaying an image associated with the overlay and a second portion for displaying additional information such as user information, advertising information, or other visual or touch-sensitive functional items.

[0008] In another aspect, a system comprising a touch-sensitive screen and an overlay positioned over the touch-sensitive screen is provided. In one example, the system includes selection logic operable to receive a request for one of a plurality of keyboard configurations or languages, and display logic operable to display an input device image associated with the plurality of keyboard configurations or languages. The input device image is associated with the positions of the tactile features of the overlay.

[0009] According to another aspect provided herein a method for displaying one of a plurality of keyboard configurations on a touch-sensitive screen is provided. In one example, the method comprises receiving a request for one of a plurality of languages or keyboard configurations, and displaying an image on a touch-sensitive screen corresponding to a keyboard configuration associated with the language or keyboard configuration, wherein the touch-sensitive screen is operable to provide keyboard input to the computer based on touching of the touch-sensitive screen, and wherein the keyboard includes an overlay comprising tactile features associated therewith.

[0010] The present invention and its various embodiments are better understood upon consideration of the detailed description below in conjunction with the accompanying drawings and claims.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIGS. 1A and 1B illustrate exploded front and top views, respectively, of a multi-configurable keyboard comprising a keyboard overlay and a touch-sensitive screen according to one example.

[0012] FIG. 1C illustrates an exploded front view of a multi-configurable keyboard comprising a keyboard overlay and a touch-sensitive screen according to another example.

[0013] FIG. 2 illustrates a top view of an overlay according to one example.

[0014] FIGS. 3A-3E illustrate top, front, rear, right, and left views, respectively, of a multi-configurable keyboard according to one example.

[0015] FIGS. 4A-4C illustrate a cross-sectional view of an extruded area of an overlay adjacent a portion of a touch-sensitive screen, and a user pressing the extruded area according to one example.

[0016] FIGS. 5A-5D illustrate various systems including a touch-sensitive keyboard according to some examples.