

**USER INTERFACE FOR VISUAL COOPERATION  
BETWEEN TEXT INPUT AND DISPLAY DEVICE**CROSS-REFERENCE TO RELATED  
APPLICATIONS

[0001] This application claims the benefit under 35 U.S.C. §119(e) of U.S. Provisional Patent Application No. 60/711,867, filed on Aug. 26, 2005, entitled User Interface for Text Entry Input to a Television, which is herein incorporated by reference in its entirety.

## BACKGROUND

[0002] 1. Field of Invention

[0003] The present invention relates to techniques for text entry input into a search interface that assists users in both stages of text entry, including (1) locating the desired characters without having to look at the physical text entry device and (2) selecting the desired character or symbol.

[0004] 2. Description of Related Art

[0005] User interface options to enter text input to a television using a remote control are currently very limited and cumbersome. Some remote controls just have numerals and do not have alphabets on the keypad as illustrated in FIG. 1. To overcome the limitation of the absence of alphabets on the remote control, some interfaces display a mapping of the keys of the remote control to the letters of the alphabet. The user must then find the appropriate key corresponding to the desired letter in the map and then look at the physical device to select the appropriate number key (a cognitive task that is perceived to be cumbersome by an average user). Another approach used in practice today is to have both numerals and alphabets listed in the form of a matrix as illustrated in FIG. 2 and have the user navigate the matrix using the five button interface (FIG. 3). This interface solves the problem of not having to look at the remote, but fails to address the long traversal paths between characters (explained in detail below).

[0006] Two prominent options for text entry input to television in practice today are (1) keypad based text entry and (2) “navigation and select” based text entry. Most keypad text entry interfaces in use today require the user to look at the remote control device to locate a character. This makes the interface hard to use, because the user has to toggle his visual focus between the remote control and the television screen. Additionally, looking at the remote control while watching television is cumbersome since the ambient lighting in the room may not be sufficient to see the remote control (e.g. watching television at night and in the dark).

[0007] Current “navigation and select” interfaces are also lacking, because the planar navigation distance is quite high in some of the popular interfaces for text entry, such as TIVO® (FIG. 2). A 10×4 matrix is shown, making it hard for user to easily locate a character on the screen —user needs to navigate long distances in order to reach between characters (the maximum traversal path is 12 hops to select an alphabet/number, assuming row and column movement only). The familiarity a user gains over time with usage does not assist in reducing the distance traversed between keys. This lack of reduction in effort expended would be perceived in most users’ minds as a cumbersome interface.

[0008] An interface that can assist the user to (1) locate the desired character without having to look at the remote control and (2) select the located character easily from an overloaded keypad (or from an input device lacking a keypad), would significantly reduce the effort expended by the user to enter text.

## SUMMARY

[0009] The invention provides methods and systems enabling a user to enter text into a search interface. The methods and systems allow the user to enter text without looking at the physical text entry device.

[0010] In accordance with one embodiment of the invention, a user-interface system for entering an alphanumeric string for identifying information content has presentation logic for displaying an image of a virtual user alphanumeric interface on a presentation device. The virtual user alphanumeric interface includes an image of an overloaded keypad that has a two dimensional configuration of alphanumeric clusters. Each cluster corresponds to a set of selectable alphanumeric characters. The virtual user alphanumeric interface further includes a string field for displaying the alphanumeric string of selected alphanumeric characters. The user-interface system also has selection logic for receiving user actions from an input device to select an alphanumeric cluster and to select an alphanumeric character from the set of selectable alphanumeric characters corresponding to the selected cluster to cause the selected character to be displayed in the string field of the virtual user alphanumeric interface.

[0011] In accordance with another embodiment of the invention, a user-interface system for entering at least one alphanumeric cluster for identifying information content has presentation logic for displaying an image of a virtual user alphanumeric interface on a presentation device. The virtual user alphanumeric interface includes an image of an overloaded keypad that has a two dimensional configuration of alphanumeric clusters. Each cluster corresponds to a set of alphanumeric characters. The virtual user alphanumeric interface further includes a display field for displaying at least one selected alphanumeric cluster. The user-interface system also has cluster selection logic for receiving user actions from an input device to select an alphanumeric cluster and to cause the selected alphanumeric cluster to be displayed in the display field of the virtual user alphanumeric interface. The user-interface system can also have character selection logic for receiving user actions from the input device to select an alphanumeric character from the set of alphanumeric characters corresponding to the selected cluster and causing the selected character to be visually emphasized in the display field of the virtual user alphanumeric interface.

[0012] According to one or more embodiments, each character of at least one of the sets of selectable alphanumeric characters is selectable by acting only on the corresponding cluster.

[0013] According to one or more embodiments, the presentation device is separate from the input device so that the user can enter the alphanumeric string while focusing on the presentation device.

[0014] According to one or more embodiments, an alphanumeric cluster is selectable via a cluster selection action