

319, filed on May 26, 2000, entitled "KEYBOARD SYSTEM WITH AUTOMATIC CORRECTION". This detailed description is hereby incorporated by reference.

[0102] Each letter in a keyboard group has a relative weight to nearby letters. When one letter is entered, nearby letters are taken into account, and all of these letters are assigned a likelihood weight. The actual letter entered has the highest weight, and the weight decreases with distance from the exact letter. These letter weights combine to alter the order of likely words presented in the word choice list.

[0103] Recently used words may be weighted as more frequent, so their likelihood is increased and they are shown higher in the word choice list. Recency information is also used for determining the placement of user-defined words in the word choice list.

[0104] The directional input system 100 also supports word completion. If the system suspects that the letters entered are the beginning part of a longer word, longer words that roughly match are presented in the word choice list. Alternatively, the system can present the user a list of suffixes for a stem word. If a root word is selected with a "suffix button", a list of suffixes is then displayed at the end of the root, allowing the user to select the suffix of choice.

[0105] The directional input system 100 also allows the user to select a partial word while still building a word. The list is then filtered to only include words that begin with the chosen word stem. If a user scrolls down to an alternate word, and then adds more letters, this alternate word continues to be the selection, highlighted by the method discussed above, until it becomes invalid by further addition of characters.

[0106] Although the invention is described herein with reference to the preferred embodiment, one skilled in the art will readily appreciate that other applications may be substituted for those set forth herein without departing from the spirit and scope of the present invention.

[0107] Accordingly, the invention should only be limited by the claims included below.

1. A text entry input system, comprising:

a directional selection means, plus one or more buttons or equivalent user input means;

a collection of linguistic objects;

an output device with a text display area; and

a processor which comprises an object search engine, a distance value calculation module, a linguistic object module for evaluating and ordering linguistic objects, and a selection component;

wherein said directional selection means is used to point in a direction of each of the letters, or the letters' sub-word equivalents in each writing system, of a linguistic object, said processor calculating a distance to find letters and weight values for the letters in said pointing direction with said distance calculation module, said processor retrieving a predicted list of linguistic objects based on the letters and weight values with said object search engine, said processor evaluating and ordering said predicted list of linguistic objects with said linguistic object module, and said selection com-

ponent being used to select a desired linguistic object from said predicted list of linguistic objects.

2. The system of claim 1, further comprising an on-screen keyboard representation of a ring of letters or the letters' sub-word equivalents in each writing system.

3. The system of claim 2, wherein said on-screen keyboard is of any shape selected from a group comprising circle, square, oval and polygon.

4. The system of claim 1, further comprising a set of compass point letters, said compass point letters being placed at positions around in a linguistic object selection list, in a separate on-screen compass area, or around said directional selection means.

5. The system of claim 2, wherein said letters have bottoms towards the center of said ring.

6. The system of claim 2, wherein said letters have an alphabetical order, QWERTY order, or Dvorak order.

7. The system of claim 2, wherein said letters start at the 12 o'clock or 9 o'clock position.

8. The system of claim 2, wherein said letters have a moving starting position.

9. The system of claim 2, wherein said letters have a clockwise or counterclockwise layout.

10. The system of claim 2, wherein each of said letters occupies different amount of radians depending upon use frequency.

11. The system of claim 1, wherein a number of characters are printed around said directional input means.

12. The system of claim 1, wherein said directional selection means is a joystick or an omni-directional rocker switch.

13. The system of claim 12, wherein said joystick has at least a 100 precision.

14. The system of claim 1, wherein said one or more buttons or equivalent user input means is comprised of at least four buttons independent of said directional selection means.

15. The system of claim 1, wherein said one or more buttons or equivalent user input means comprises a joystick or directional rocker switch.

16. The system of claim 12, wherein said joystick or omni-directional rocker switch is a component of a multi-function video game controller.

17. The system of claim 2, wherein said system provides auditory or visual feedback on each movement of said directional selection means.

18. The system of claim 17, wherein said visual feedback is a solid or gradient-fill pie wedge shape appearing on said on-screen keyboard, said pie wedge shape being centered on a current selected direction.

19. The system of claim 1, wherein said linguistic objects are ordered according to a linguistic model.

20. The system of claim 19, where said linguistic model includes one or more of:

frequency of occurrence of a linguistic object in formal or conversational written text;

frequency of occurrence of a linguistic object when following a preceding linguistic object or linguistic objects;

proper or common grammar of the surrounding sentence;

application context of current linguistic object entry; and