

if the letters of the selected word had been entered directly by the user, and a new list of predicted words is generated.

[0053] The most likely word is the word added if the user does not try to select a different word. The default word may be a copy of the exact spelling sequence if the user was accurate. Alternatively, it may be the selected word as described above. In addition, the exact spelling sequence may become the default word if a precision method or mode (described below) is used to explicitly choose at least one letter in the sequence.

[0054] Words that are longer than the number of joystick actions registered in the current entry sequence may be included in the prediction list. Alternately, a further means can be provided to extend a selected word with completions. For example, longer words that begin with a selected word may appear on a pop-up list after a button press or directional input, similar to the cascading menus on PC windowing systems.

[0055] Once a word is entered, the word is typically displayed in the message area 220.

[0056] Alternatively, the directional input system 100 can be implemented as an input method editor (IME). In this case, the text entered by the system goes into whatever program is actively accepting input from the system. Other applications may be linked to the system, or the system may be incorporated as part of another application. These applications include but are not limited to: instant messaging, electronic mail, chat programs, web browsing, communication within a video game, supplying text to a video game, as well as word processing.

[0057] To enter a text message using the directional input system 100, the user first points the joystick in the general direction of the desired letter, and then continues pointing roughly to each letter in the desired word. Once all letters have been roughly selected, buttons are used to select a specific word from the list of potential matches. The selected word goes into the message area 220, which may be an appropriate text application such as email or instant message.

[0058] The invention also provides a method for precisely choosing the letters of a word. The method is useful for entering uncommon names and any word that is not part of the standard language currently active. The method can also be used to change the last character entered by stepping between characters adjacent to the last character entered. To step between characters adjacent to the last character entered, a forward button and a backward button may be used. Once the character entered has been changed, the word choice list refreshes to reflect the changes in the predicted words. Alternatively, the system may be switched to a precision mode and the directional input means may be used to cycle through letters. To switch to the precision mode, the system may choose to use the degree of joystick tilt from the center. Once the tilt exceeds a preconfigured limit, the system switches to the precision mode. Alternatively, the system may use the time interval that the joystick dwells at the perimeter. Once the time interval reaches a preconfigured limit, the system switches to the precision mode and notifies the user through a visual cue or a tone. The system may also include a button for switching to precision mode.

[0059] FIG. 6 is a flow diagram illustrating a process for operating the directional input system in the precision mode to select an exact letter. The process includes the following steps:

[0060] Step 600: The user switches to precision mode. This is typically a clicking on a predefined button. However, any of the above mentioned method can be used.

[0061] Step 602: The system can optionally zoom in on the area of the last character entered.

[0062] Step 604: The user uses directional input to drive an indicator to the desired character. If the joystick is used for directional input and if the zoom-in has been employed, then the system processes joystick movement at a finer resolution. For example, a radial move of 90° is treated as if it were only 30°.

[0063] Step 606: The user uses a button to accept the character.

[0064] Step 608: The system optionally returns to normal directional text entry mode.

[0065] In addition to the preceding methods, the system may determine the precise letters by detecting the difference in speed of selection or change in acceleration, especially when the system embodiment is based on a directional selection means employing a wheel.

[0066] In the preferred embodiment above, the directional input system 100 is deployed to a home video game console machine. However, this technology can also be deployed to many other products such as portable video game devices, phones with the appropriate input methods, wheelchairs, and TV related electronic devices, etc. In TV related electronic devices, for example, the invention may be deployed as set-top boxes and the joystick/rocker may be incorporated in the remote controls.

[0067] FIG. 7 is a flow diagram illustrating a direction input method according to another preferred embodiment of the invention. The method includes the following steps:

[0068] Step 700: The user moves an on-screen cursor in the direction of the desired letter using a joystick, or any other directional input means.

[0069] Step 702: The system records the X-Y coordinate position of the cursor.

[0070] Step 704: The system converts recorded X-Y coordinate position into corresponding set of polar coordinates.

[0071] Step 706: The system applies a selection weight value to each input based on the set of polar coordinates of the recorded cursor position.

[0072] Step 708: The system retrieves a list of predicted words based on the weight values for each of input and a set of pre-determined values.

[0073] For internal calculations, the on-screen keyboard 130 may be represented internally in the same way as the screen using direct mapping. Alternatively, it can be represented in a very different format using virtual mapping. The