

MOUSE HAVING A ROTARY DIAL

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Application No. 60/345,325, (Attorney Docket No.: APL1P213P), filed on Oct. 22, 2001, entitled "Mouse Having a Scrolling Feature", in which the disclosure is incorporated herein by reference. This application is also related to U.S. Patent Application No.: 60/346,237, (Attorney Docket No.: APL1P223P), entitled "Method and System for List Scrolling", filed on even date and which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates generally to a mouse for use in a computer system. More particularly, the present invention relates to scrolling features for a mouse.

[0004] 2. Description of the Related Art

[0005] Most computer systems, as for example general purpose computers such as portable computers and desktop computers, receive input from a user via an input device such as a mouse. As is generally well known, the mouse allows a user to move an input pointer and to make selections in a graphical user interface (GUI). The mouse generally includes a trackball, which is located on the underside of the mouse and which rolls when the mouse moves thus translating the motion of the users hand into signals that the computer system can use. The movement of the trackball generally corresponds to the movement of the input pointer in the GUI. That is, by positioning the mouse on a desktop and moving it thereon, the user can move the input pointer in similar directions in the GUI. The mouse also includes one or two buttons, which are located on the top side of the mouse, and which have a click movement that actuates a GUI action such as selecting a file or executing instructions. Recently, a scroll wheel has been added to the mouse to give the user scrolling functionality. The scroll wheel saves time and steps, and allows a user to move through documents by simply rolling the wheel forward or backward-instead of clicking on the scroll bar displayed on the GUI. In the past, scrolling was implemented by selecting the scroll bar displayed on the GUI with the mouse, and moving the scroll bar on the GUI by moving the mouse up or down.

[0006] FIG. 1 is a perspective diagram of a well known mouse 10. The mouse 10 generally includes a base 12, an upper body 14, a left button 16, a right button 18, and a scroll wheel 20. The base 12 carries the above components as well as a trackball or other device such as an optical sensor (not shown) for tracking the movement of the base 12 relative to a surface 22. The upper body 14 is rigidly attached to the base 12. The left and right buttons 16, 18 independently pivot relative to the upper body 14 in a direction towards the base 12 so as to activate the button functionality. The scroll wheel 20 rotates relative to the base 12 so as to activate the scrolling functionality. As shown, a small portion of the scroll wheel 20 protrudes above a top surface of the mouse 10 in order to allow a user to roll the scroll wheel 20 forwards towards a front of the mouse 10 and backwards towards the rear of the mouse 10. By moving the scroll

wheel forwards and backwards, the user can vertically scroll upwards or downwards through the GUI.

[0007] Unfortunately, the mouse described in FIG. 1 has several drawbacks. For example, the scroll wheel is limited in that it only provides a single finger position for accessing the scroll wheel (e.g., same position for left and right handed users). Furthermore, because only a small portion of the wheel can be used at any one time, the user cannot continuously turn the wheel. That is, the user must scroll, pick up a finger, scroll, pick up a finger, etc. This takes time and can be an annoyance to a user. In addition, because a portion of the wheel protrudes above the top surface of the mouse, inadvertent or accidental scrolling may occur when one of the two buttons is activated. That is, when the user goes to push the button or when the user switches from one button to the other, the user's finger may also engage the scroll wheel thus causing the wheel to turn when the button is depressed. Moreover, because the scroll wheel can only be manipulated in one direction, the use of the scroll wheel becomes counter intuitive when scrolling in a different direction in the GUI, as for example directions that are orthogonal thereto. That is, the scroll wheel only moves in one direction and thus it generally corresponds well to vertical scrolling and not horizontal scrolling (or vice versa). Also, the protruding scroll wheel is not aesthetically pleasing and thus it presents industrial design difficulties.

[0008] Thus, it would be desirable to provide improved scrolling features for a mouse.

SUMMARY OF THE INVENTION

[0009] The invention relates, in one embodiment, to a user operated input device comprising a housing and a rotary dial positioned relative to an external surface of the housing, the rotatable dial providing a control function.

[0010] The invention relates, in another embodiment, to a computer mouse for moving a cursor or pointer on a display screen. The computer mouse includes a mouse housing. The computer mouse also includes a disk coupled to the mouse housing and rotatable about an axis. The disk is configured to facilitate a control function on the display screen. The disk has a touchable surface for rotating the disk about the axis. The touchable surface is completely accessible to a finger of the user such that the disk can be continuously rotated by a simple swirling motion of the finger.

[0011] The invention relates, in another embodiment, to a computer mouse. The computer mouse includes a body moveable by a user. The computer mouse also includes a disk rotatably coupled to the body about an axis, and having a surface for facilitating movements thereof. The surface is positioned substantially orthogonal to the axis. The computer mouse further includes an encoder for measuring the rotation of the disk.

DESCRIPTION OF THE DRAWINGS

[0012] The invention will be readily understood by the following detailed description in conjunction with the accompanying drawings, wherein like reference numerals designate like structural elements, and in which:

[0013] FIG. 1 is a perspective diagram of an exemplary mouse.