

FLIP-STYLE USER INTERFACE

RELATED U.S. APPLICATION

[0001] This application claims priority to the copending provisional patent application, Serial No. 60/228,905, Attorney Docket Number PALM3520.PRO, entitled "Flip Interface for Hand-held Device," with filing date Aug. 29, 2000, and assigned to the assignee of the present application.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to the field of computer systems and other intelligent devices having a display capability. Specifically, the present invention relates to a user interface for controlling the display device used by such devices.

[0004] 2. Related Art

[0005] As the components required to build a computer system are reduced in size, many types of portable computer systems are growing in popularity. One type of computer system commonly used is the "laptop" or "notebook" computer system. Such computer systems are typically as small as, or even smaller than, a standard notebook. Their relatively light weight and their portability allow them to be conveniently carried about in a briefcase.

[0006] Another more recent type of computer systems is the "palmtop" computer system, also referred to as a personal digital assistant (PDA) or as a hand-held. A palmtop computer system is a computer that is small enough to be held in the hand of a user and is thus "palm-sized." As a result, palmtops are readily carried about in a briefcase or purse, and some palmtops are compact enough to fit into a person's pocket. By virtue of their size, palmtop computer systems are also exceptionally portable, lightweight and convenient.

[0007] There are many other similar types of intelligent devices (having a processor and a memory, for example) that are sized in the range of laptops and palmtops, but have different capabilities and applications. Video game systems, cell phones, pagers and other such devices are examples of other types of portable or hand-held systems and devices in common use.

[0008] These systems, and others like them, have in common some type of screen for displaying images as part of a user interface. Many different kinds of screens can be used, such as liquid crystal displays, cathode ray tubes, and field emission displays.

[0009] These systems also have in common some type of user interface allowing a user to input commands and information and to navigate either within an application or from one application to another. In the case of laptops and some of the other hand-held devices, an optional alphanumeric input device including alphanumeric and function keys (e.g., a keyboard) can be provided. The keyboard can also be used to control a cursor on the display screen, or an optional cursor control device (e.g., a mouse, trackball, joystick, or touchpad) can be used. It is well known how a cursor can be used to select various functions, commands and applications, and how a cursor can be used to navigate within applications. For example, in the prior art, a cursor

controlled by a mouse is commonly used in conjunction with a scroll bar to move to different pages within a word-processing document.

[0010] In the case of palmtops and other such devices, the display screen is typically a touch screen (touchpad) able to register contact between the screen and the tip of a stylus element. The user can input commands and move between applications by touching the stylus to various parts of the screen or to virtual buttons rendered on the screen. Many palmtops are also equipped with a handwriting recognition pad (e.g., a graffiti area, digitizer or digitizer tablet) that can recognize characters traced on the pad by a user. Palmtops and many other hand-held devices also have built-in dedicated or programmable buttons that can be used to implement various functions and to navigate among and within different applications.

[0011] Thus, there are various well-known mechanisms that are used in the prior art to provide a user interface for hand-held and/or portable computer systems and the like, including laptops and palmtops. These mechanisms tend to work well with the different types of display screens currently in use.

[0012] However, the paradigm of applying conventional user interface mechanisms to hand-held, portable devices does not take full advantage of the user's capability to control and manipulate such devices with a single hand. Thus, it is desirable to provide a user-friendly interface that more fully utilizes the advantages afforded by the portability of hand-held devices. An improved interface can facilitate the user's experience and thus provide an advantage over other devices that employ conventional user interfaces.

[0013] A new display technology is being developed and will likely be introduced into display devices used by computer systems and other suitable devices. The new display technology is sometimes referred to as electronic paper or electronic ink. In one implementation, a thin layer of a predominantly white liquid-like substance is enclosed between two layers of material. Floating in the white substance, but not mixing with it, is black ink. An electrical charge applied to one of the surfaces of the enclosing material causes the black ink to be attracted to that surface in the shape of characters (e.g., text) that are visible to the user. An electrical charge can be applied to both surfaces of the enclosing material, so that a two-sided display is possible. This new type of display technology has the appearance of paper with printed text.

[0014] Electronic paper and electronic ink introduce a number of new features that can enhance the display presented to a user. It is desirable to take advantage of these features and extend them in order to enhance the user interface in devices using this type of technology.

SUMMARY OF THE INVENTION

[0015] Accordingly, what is needed is a system and/or method that can provide a user interface to control the on-screen display in computer systems and other like devices that use a technology such as electronic paper and ink. What is also needed is a system and/or method that can accomplish the above and that can also be used to enhance the user interface with existing display technologies. Furthermore, what is needed is a system and/or method that can