

example, in various embodiments, the inputs include a keypad (or keyboard), a mouse, a pen, a touch screen, a touchpad, a trackball, a joystick, a fingertip joystick, directional keys, selector buttons, toggle switches, rotating dials, video game controllers, and/or any other type of input device or peripheral. In such embodiments, the mode of operation of any number of these inputs can be changed based on the physical configuration of the device in steps S14 and S20. For example, besides changing the characters of the keys of the keypad, the orientation of an input device such as a fixed trackball can be changed. Similarly, changing the mode of operation of the inputs also encompasses changing which input device or devices are used for input. For example, in one physical configuration the keypad could be the input device, whereas in another physical configuration, a pen and touch-screen display could be the input device. Preferably, the processor uses one or more flags to cause the input devices to operate in either portrait or landscape configuration.

[0053] Further, in the exemplary embodiment of FIG. 6, the mode of operation of the inputs, display, and active software application are all changed in response to a change in the physical configuration of the device (e.g., a repositioning of the flip cover). However, in further embodiments, different combinations of the inputs, display, and active software application change their mode of operation in response to a change in the physical configuration of the device. For example, in one embodiment, only the inputs (e.g., characters of the keypad) and display in response to a change in the physical configuration of the device. In another embodiment, only the display and the active software application changes in response to a change in the physical configuration of the device. In further embodiments, features other than the inputs, display, and active software application are also be changed.

[0054] Accordingly, preferred embodiments of the present invention offer significant advantages. The present invention enables the functionality of multiple independent portable electronic devices to be integrated into a single unit. This eliminates the need for a consumer to purchase, maintain, and carry multiple devices (as well as associated peripherals and batteries). Thus, the multi-configuration portable electronic device of the present invention is cost-effective. Additionally, carrying a single, multi-functional device is significantly more convenient and less cumbersome than carrying multiple devices with different functions. Furthermore, the likelihood of losing or damaging a single portable electronic device is less than when the consumer has to keep track of multiple devices.

[0055] The present invention can be realized in hardware (such as by using logic circuits, registers, and state machines), software, or a combination of hardware and software (e.g., on a wireless device). Any kind of information processing system-or other apparatus adapted for carrying out the methods described herein-is suited. A typical combination of hardware and software could be a general-purpose processor with a computer program that, when being loaded and executed, controls the processor such that it carries out the methods described herein.

[0056] An embodiment of the present invention can also be embedded in a computer program product that includes all the features enabling the implementation of the methods

described herein, and which, when loaded in a device, is able to carry out these methods. Computer program means or computer program as used in the present invention indicates any expression, in any language, code or notation, of a set of instructions intended to cause a system having an information processing capability to perform a particular function either directly or after either or both of the following a) conversion to another language, code or, notation; and b) reproduction in a different material form.

[0057] A device may include, inter alia, one or more processors and at least a machine-readable or computer-readable medium. The terms "computer program medium," "computer-usable medium," "machine-readable medium" and "computer-readable medium" are used to generally refer to media such as main memory and secondary memory, a removable storage drive, a hard disk installed in hard disk drive, and signals. These computer program products are means for providing software to the device and its processor or processors. The computer-readable medium allows the device to read data, instructions, messages or message packets, and other computer-readable information from the computer-readable medium. The computer-readable medium, for example, may include non-volatile memory, such as Floppy, ROM, Flash memory, Disk drive memory, CD-ROM, and other permanent storage. Additionally, a machine-readable or computer-readable medium may include, for example, volatile storage such as RAM, buffers, cache memory, and network circuits. Furthermore, the machine-readable or computer-readable medium may include information in a transitory state medium such as a network link and/or a network interface, including a wired network or a wireless network, that allow a computer system to read such computer-readable information.

[0058] Although specific embodiments of the invention have been disclosed, those having ordinary skill in the art will understand that changes can be made to the specific embodiments without departing from the spirit and scope of the invention. The scope of the invention is not to be restricted, therefore, to the specific embodiments. Furthermore, it is intended that the appended claims cover any and all such applications, modifications, and embodiments within the scope of the present invention.

What is claimed is:

1. A multi-configuration portable electronic device comprising:

at least one processor;

a first body element including at least one input device; and

a second body element including a display, the second body element being pivotally coupled to the first body element such that the portable electronic device can be positioned into a plurality of physical configurations,

wherein at least two of a mode of operation of the input device, a mode of operation of the display, and an active software application being executed by the processor are changed in response to a change in the physical configuration of the portable electronic device.

2. The portable electronic device of claim 1, wherein in response to a change in the physical configuration of the portable electronic device, the mode of operation of the display changes between portrait view and landscape view.