

vibration circuit 126 may generate an output electrical signal. To detect the motion, system processor 140 processes the electrical signal provided by vibration circuit 126 according to any known means.

[0039] The present invention is not limited to the specific motion detectors 120 discussed above. Further, it will be appreciated that a wireless communication device 100 according to the present invention may include multiple motion detectors 120 to detect motion associated with the wireless communication device 100.

[0040] As discussed above, system processor 140 may execute a desired function based on the general user-generated motion detected by motion detector 120. In addition, system processor 140 may optionally include a motion processor 142 operatively connected to motion detector 120. Motion processor 142 may process the motion detector output to determine one or more characteristics associated with the user-generated motion.

[0041] For example, motion processor 142 may determine that the motion is linear, elliptical, etc. In addition, motion processor 142 may include a direction processor 144 to determine one or more general directions associated with the user-generated motion. The general directions include, but are not limited to, horizontal, vertical, diagonal, in-and-out, clockwise, and counter-clockwise directions. For example, when wireless communication device 100 is moved left to right, as shown in FIG. 4A, direction processor 144 detects a generally horizontal motion. Alternatively, the direction processor 144 in a wireless communication device 100 moving up and down, as shown in FIG. 3A, detects a generally vertical motion, while the direction processor 144 will detect a generally diagonal motion when the wireless communication device 100 is moved back and forth at an angle, as shown in FIG. 5A. In addition, direction processor 144 may determine that an elliptical motion is moving in a clockwise or counter-clockwise direction. As will be appreciated by those skilled in the art, direction processor 144 may detect a single direction or multiple directions of motion. Further, motion processor 142 may distinguish user-generated motion from, for example, motion associated with dropping the phone. As used herein, "user-generated motion" refers to motion deliberately generated by the user of the wireless communication device 100 to implement the desired function.

[0042] By detecting the characteristic(s) of the user-generated motion, a wireless communication device 100 according to one embodiment of the present invention may execute different functions associated with the different characteristic(s) of the user-generated motion. For example, a general shaking motion may be used to play a game, while a clockwise elliptical motion may be used to terminate a call.

[0043] In one embodiment, the wireless provider may pre-program the wireless communication device 100 to associate one or more functions with one or more characteristics of user-generated motion. Alternatively, the user may personalize the motion-induced functionality of the present invention by programming the wireless communication device 100 to associate particular motion characteristic(s) with specific functions. The user may program his/her wireless communication device 100 according to any means known in the art. For example, the user may scroll through a series of menus, as shown in FIGS. 9A-9C, to

associate a particular function, such as a game, with a particular motion, such as a shaking motion or a linear horizontal motion. In an exemplary embodiment, these user-specified preferences are stored in memory 106. Once programmed, the user simply applies the specified motion to the wireless communication device 100 to execute or perform the desired function. It will be appreciated that the number of functions capable of being executed responsive to the user-generated motion are only limited by the sensitivity and/or directionality of the motion detector 120 and the processing capabilities of the motion processor 142.

[0044] The above-described invention comprises a method for automatically executing or performing a function responsive to a user-generated motion. As shown in FIG. 10, a function processor 150 in a wireless communication device 100 waits for a motion detector 120 to detect motion applied to the wireless communication device 100 by the user (block 200). When the system processor 140 includes a motion processor 142 to determine one or more characteristics of the detected motion (block 202), the motion processor 142 determines the characteristic(s) (block 204) and provides the characteristic(s) to the function processor 150. In response, the function processor 150 executes the function associated with the particular characteristics of the motion (block 210). However, when the wireless communication device 100 does not include a motion processor 142, or when there is only one function associated with one motion, the function processor 150 automatically executes the specified function (block 210).

[0045] The above-described wireless communication device 100 has several advantages over conventional wireless communication devices. For example, by associating a specific function with a user-generated motion, the user may apply the appropriate motion to the wireless communication device 100 to implement a desired function or capability without having to fumble with the control buttons or navigating menus. As a result, the user may, for example, terminate a call by simply applying motion to the wireless communication device 100 without ever taking his/her eyes off of the road. In addition, the user may participate in a desired game, such as a Magic 8 Ball® game without navigating one or more menus to access the game.

[0046] The present invention may, of course, be carried out in other ways than those specifically set forth herein without departing from essential characteristics of the invention. The present embodiments are to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

What is claimed is:

1. A method of operating a wireless communication device comprising:

detecting user-generated motion associated with the wireless communication device; and

executing a pre-selected function responsive to detecting the motion.

2. The method of claim 1 further comprising determining one or more characteristics associated with the detected motion.