

MOTION-BASED USER INPUT FOR A WIRELESS COMMUNICATION DEVICE

BACKGROUND OF THE INVENTION

[0001] The present invention relates generally to interfacing with a wireless communication device, and more particularly to a motion-based user interface.

[0002] Conventional cellular telephones include many different input means, such as a keypad, joystick, control buttons, etc., to enable users to interface with the cellular telephone. For example, a user may press a button to power up the cellular telephone. Further, a user may press a "Send" or "Talk" button to initiate a call with a specified recipient, to terminate a call, or to answer an incoming call. Further still, a user may use the input means to navigate menus and enter commands to execute selected functions associated with the cellular telephone.

[0003] However, conventional input means are often cumbersome and/or inconvenient. For example, a user playing a game on a cellular telephone often has to navigate a series of menus to start the game or to reset the game. Further, conventional input means may pose a safety hazard when used under certain circumstances. For example, in order for a driver traveling on a highway to answer an incoming call, the driver typically has to take his/her eyes off of the road to locate the appropriate control button to answer the call.

SUMMARY OF THE INVENTION

[0004] The present invention comprises a method and apparatus that executes or performs a pre-defined function responsive to detecting a user-generated motion. In one exemplary embodiment, a wireless communication device executes a user-assigned function responsive to detecting the motion. In another exemplary embodiment, the wireless communication device may determine one or more characteristics of the detected motion, select a pre-defined function based on the determined characteristics, and perform the selected function.

[0005] According to the present invention, the pre-defined function comprises at least one of a communication function, a wireless communication device function, or a game function. For example, when the function comprises a communication function, the wireless communication device may initiate a call to a user-specified recipient, answer a call, or terminate a call responsive to detecting the motion. Alternatively, when the function comprises a game function, the wireless communication device may randomly select an outcome from a set of possible outcomes responsive to detecting the motion. The selected outcome may then be displayed on a display associated with the wireless communication device.

[0006] An exemplary wireless communication device of the present invention comprises a motion sensor and a function processor. According to one exemplary embodiment, the function processor comprises a game processor that randomly selects an outcome from a set of possible outcomes responsive to the detected motion. A display associated with the wireless communication device displays the selected outcome. According to still another exemplary embodiment, the function processor comprises a communication processor that initiates a call to a user-specified

recipient, answers an incoming call, or terminates a call responsive to the detected motion.

[0007] According to the present invention, the motion sensor detects user-generated motion associated with the wireless communication device. Responsive to the detected motion, the function processor executes the pre-defined function. In another exemplary embodiment, the wireless communication device also includes a motion processor to determine one or more characteristics of the detected motion. Based on the characteristics, the function processor performs a pre-defined function.

[0008] According to one exemplary embodiment, the motion processor may comprise a vibration circuit and a processor. The vibration circuit generates an output electrical signal, such as an output current or voltage, responsive to motion applied to the wireless communication device. Based on the output electrical signal, the processor detects the motion.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 illustrates a block diagram of one exemplary embodiment of a wireless communication device according to the present invention.

[0010] FIG. 2 illustrates a flow chart for one exemplary method of implementing the present invention.

[0011] FIGS. 3A-3B illustrate one exemplary game according to the present invention.

[0012] FIG. 4A-4B illustrate another exemplary game according to the present invention.

[0013] FIGS. 5A-5B illustrate another exemplary game according to the present invention.

[0014] FIGS. 6A-6B illustrate another exemplary game according to the present invention.

[0015] FIG. 7 illustrates a block diagram for one exemplary function processor according to the present invention.

[0016] FIG. 8 illustrates a block diagram for one exemplary motion sensor according to the present invention.

[0017] FIGS. 9A-9C illustrate menu options for user defined functions and motion according to one embodiment of the present invention.

[0018] FIG. 10 illustrates a flow chart for one exemplary method of implementing the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0019] The present invention describes a wireless communication device and a corresponding method for automatically executing or performing a function responsive to a user-generated motion. As used herein, the term "wireless communication device" may include a cellular radiotelephone with or without a multi-line display; a Personal Communication System (PCS) terminal that may combine a cellular radiotelephone with data processing, facsimile, and data communication capabilities; a Personal Digital Assistant (PDA) that can include a radiotelephone, pager, Internet/intranet access, web browser, organizer, calendar, and/or a global positioning system (GPS) receiver; a conventional