

GESTURE BASED USER INTERFACE SUPPORTING PREEXISTING SYMBOLS

TECHNICAL FIELD

[0001] The present invention relates generally to portable devices and, more particularly, to portable devices with a motion interface.

BACKGROUND

[0002] The use of computing devices, such as cellular phones and personal digital assistants (PDAs) has grown rapidly. Such devices provide many different functions to users through different types of interfaces, such as keypads and displays. Some computing devices utilize motion as an interface by detecting tilt of the device by a user. Some implementations of a motion interface involve tethering a computing device with fishing lines or carrying large magnetic tracking units that require large amounts of power.

SUMMARY

[0003] In accordance with the present invention, a handheld device with motion a motion interface is provided.

[0004] In accordance with a particular embodiment, a motion controlled handheld device includes a display having a viewable surface and operable to generate an image and a gesture database maintaining a plurality of gestures. Each gesture is defined by a motion of the device with respect to a first position of the device. The gestures comprise symbol gestures each corresponding to a character from a preexisting character set. The device includes an application database maintaining at least one application and a gesture mapping database comprising a gesture input map for the application. The gesture input map comprises mappings of the symbol gestures to corresponding inputs for the application. The device includes a motion detection module operable to detect motion of the handheld device within three dimensions and to identify components of the motion in relation to the viewable surface. The device also includes a control module operable to load the application, to track movement of the handheld device using the motion detection module, to compare the tracked movement against the symbol gestures to identify a matching symbol gesture, to identify, using the gesture input map, the corresponding input mapped to the matching symbol gesture, and to provide the corresponding input to the application.

[0005] In accordance with another embodiment, a method for controlling a handheld device includes generating an image on a viewable surface of the handheld device and maintaining a gesture database comprising a plurality of gestures. Each gesture is defined by a motion of the device with respect to a first position of the device. The gestures comprise symbol gestures each corresponding to a character from a preexisting character set. The method includes maintaining an application database comprising at least one application and maintaining a gesture mapping database comprising a gesture input map for the application. The gesture input map comprises mappings of the symbol gestures to corresponding inputs for the application. The method also includes loading the application, tracking movement of the handheld device in relation to the viewable surface, comparing the tracked movement against the symbol gestures to identify a matching symbol gesture, identi-

fying, using the gesture input map, the corresponding input mapped to the matching symbol gesture, and providing the corresponding input to the application.

[0006] Technical advantages of particular embodiments include the ability of a handheld device to receive preexisting symbols as motion input gestures to perform functions and operations of the device. The use of such preexisting symbols as gestures may facilitate the learning process for users with respect to gesture motion interfaces.

[0007] Other technical advantages will be readily apparent to one skilled in the art from the following figures, descriptions and claims. Moreover, while specific advantages have been enumerated above, various embodiments may include all, some or none of the enumerated advantages.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] For a more complete understanding of particular embodiments of the invention and their advantages, reference is now made to the following descriptions, taken in conjunction with the accompanying drawings, in which:

[0009] FIG. 1 illustrates a handheld device with motion interface capability, in accordance with a particular embodiment;

[0010] FIG. 2 illustrates a motion detector of the handheld device of FIG. 1, in accordance with a particular embodiment;

[0011] FIG. 3 illustrates the use of motion detector components of the handheld device of FIG. 1, in accordance with a particular embodiment;

[0012] FIG. 4 illustrates an example handheld device with motion detection capability, in accordance with a particular embodiment;

[0013] FIG. 5 illustrates an example of selection and amplification of a dominant motion of a handheld device, in accordance with a particular embodiment;

[0014] FIG. 6 is a flowchart illustrating preferred motion selection, in accordance with a particular embodiment;

[0015] FIG. 7 is a flowchart illustrating the setting of a zero-point for a handheld device, in accordance with a particular embodiment;

[0016] FIG. 8 illustrates an example of scrubbing functionality with a handheld device for virtual desktop navigation, in accordance with a particular embodiment;

[0017] FIG. 9 is a flowchart illustrating the scrubbing process of FIG. 8, in accordance with a particular embodiment;

[0018] FIG. 10A illustrates an example of menu navigation using gesture input, in accordance with a particular embodiment;

[0019] FIG. 10B illustrates example gestures which may be used to perform various functions at a handheld device, in accordance with a particular embodiment;

[0020] FIG. 11 illustrates an example of map navigation using motion input, in accordance with a particular embodiment;