[0023] **FIG. 13** is a flowchart illustrating a process for utilizing feedback in response to motion input, in accordance with a particular embodiment;

[0024] **FIG. 14** illustrates an example system utilizing spatial signatures with a handheld device, in accordance with a particular embodiment;

[0025] **FIG. 15** illustrates an example system in which motion input of a handheld device controls multiple other devices, in accordance with a particular embodiment;

[0026] **FIG. 16** is a flowchart illustrating an environmental modeling process of a handheld device, in accordance with a particular embodiment;

[0027] **FIG. 17** illustrates example gestures which may be mapped to different functions of a handheld device, in accordance with a particular embodiment;

[0028] **FIG. 18** is a flowchart illustrating the utilization of a preexisting symbol gesture, in accordance with a particular embodiment;

[0029] **FIG. 19** is a flowchart illustrating the use of context-based gesture mapping, in accordance with a particular embodiment;

[0030] **FIG. 20** is a flowchart illustrating the use of user-based gesture mapping, in accordance with a particular embodiment;

[0031] **FIG. 21** is a flowchart illustrating the assignment process for user-created gestures, in accordance with a particular embodiment;

[0032] **FIG. 22** illustrates three gestures input using a handheld device with varying levels of precision, in accordance with a particular embodiment; and

[0033] **FIG. 23** is a flowchart illustrating a gesture recognition process utilizing a number of features, in accordance with a particular embodiment.

## DETAILED DESCRIPTION

[0034] **FIG. 1** illustrates a handheld device **10** with motion interface capability, in accordance with a particular embodiment of the present invention. Handheld device **10** can recognize movement of the device and can perform various functions corresponding to such movement. Thus, movement of the device operates as a form of input for the device. Such movement input may directly alter what is being displayed on a device display or may perform other functions. Handheld device **10** may comprise a mobile phone, personal digital assistant (PDA), still camera, video camera, pocket calculator, portable radio or other music or video player, digital thermometer, game device, portable electronic device, watch or any other device capable of being held or worn by a user. As indicated in the examples listed above, handheld device **10** may include wearable portable devices such as watches as well. A watch may include any computing device worn around a user's wrist.

[0035] Handheld device **10** includes a display **12**, input **14**, processor **16**, memory **18**, communications interface **20** and motion detector **22**. Display **12** presents visual output of the device and may comprise a liquid crystal display (LCD), a light emitting diode (LED) or any other type of display for communicating output to a user. Input **14** provides an interface for a user to communicate input to the device. Input **14** may comprise a keyboard, keypad, track wheel, knob, touchpad, stencil or any other component through which a user may communicate an input to device **10**. In particular embodiments, display **12** and input **14** may be combined into the same component, such as a touchscreen.

[0036] Processor **16** may be a microprocessor, controller or any other suitable computing device or resource. Processor **16** is adapted to execute various types of computer instructions in various computer languages for implementing functions available within system handheld device **10**. Processor **16** may include any suitable controllers for controlling the management and operation of handheld device **10**.

[0037] Memory **18** may be any form of volatile or non-volatile memory including, without limitation, magnetic media, optical media, random access memory (RAM), read only memory (ROM), removable media or any other suitable local or remote memory component. Memory **18** includes components, logic modules or software executable by processor **16**. Memory **18** may include various applications **19** with user interfaces utilizing motion input, such as mapping, calendar and file management applications, as further discussed below. Memory **18** may also include various databases, such as gesture databases and function or gesture mapping databases, as further discussed below. Components of memory **18** may be combined and/or divided for processing according to particular needs or desires within the scope of the present invention. Communications interface **20** supports wireless or wireline communication of data and information with other devices, such as other handheld devices, or components.

[0038] Motion detector **22** tracks movement of handheld device **10** which may be used as a form of input to perform certain functions. Such input movement may result from a user moving the device in a desired fashion to perform desired tasks, as further discussed below.

[0039] It should be understood that handheld device **10** in accordance with particular embodiments may include any suitable processing and/or memory modules for performing the functions as described herein, such as a control module, a motion tracking module, a video analysis module, a motion response module, a display control module and a signature detection module.

[0040] In particular embodiments, input movement may be in the form of translation and/or gestures. Translation-based input focuses on a beginning point and endpoint of a motion and differences between such beginning points and endpoints. Gesture-based input focuses on an actual path traveled by the device and is a holistic view of a set of points traversed. As an example, when navigating a map using translation-based input, motion in the form of an "O" may change the display during the movement but may ultimately yield no change between the information displayed prior to the movement and the information displayed at the end of the movement since the device presumably will be in the same point as it started when the motion ends. However, in a gesture input mode the device will recognize that it has traveled in the form of an "O" because in gesture-based input the device focuses on the path traveled during the motion or movement between a beginning point and an endpoint of the gesture (e.g., even though the beginning and