applications incorporated by reference above. In a further embodiment, multiple sensors measure the bending characteristics and/or load characteristics of a prosthetic foot. For example, one resistive strip sensor may be placed on each side of the prosthetic foot.

[0031] One embodiment of the invention includes a system for measuring prosthetic or orthotic performance. In one embodiment, the system includes a prosthetic foot and a sensor, such as, for example, a resistive strip, secured to the prosthetic foot. In another embodiment, the system includes a prosthetic foot and a sensor secured to the prosthetic foot configured to measure a bending characteristic of the foot over a designated step cycle. In yet another embodiment, the system includes a prosthetic foot, a sensor secured to the prosthetic foot; and a display secured to the prosthetic foot to indicate performance based on the measurements taken by the sensor.

[0032] Furthermore, each of the sensors may be laminated into the prosthetic foot, such as, for example, being laminated between layers of fibers.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] **FIG. 1** illustrates a side view of an intelligent prosthetic foot with a single sensor.

[0034] **FIG. 2** illustrates certain predetermined ranges of measured resistance of a bending sensor.

[0035] **FIG. 3** illustrates a schematic diagram of certain electronic components of an intelligent device.

[0036] **FIG. 4** illustrates a three-dimensional view of a sensor system ready for attachment to a portion of a prosthetic foot.

[0037] **FIG. 5** illustrates a sensor system with two bending force sensors.

[0038] **FIG. 6** illustrates a simple intelligent foot with a clip on connector for communicating data gathered from the bending sensors.

[0039] **FIG. 7** illustrates an intelligent prosthetic foot with a built-in component for processing and displaying the data gathered from the bending sensors.

[0040] **FIG. 8** illustrates an intelligent prosthetic foot with detachable component for processing data gathered from the bending sensors.

[0041] **FIG. 9** illustrates an intelligent prosthetic foot with a wireless unit for communicating data gathered from the bending sensors.

[0042] **FIG. 10** illustrates an intelligent foot with a snap-on connector for connecting a computing device that processes and displays the data gathered from the bending sensors.

[0043] **FIG. 11** illustrates a watch interface that may be used to display data gathered from the sensors of an intelligent device.

[0044] **FIG. 12** illustrates a personal computing device that may be used to display data gathered from the sensors of an intelligent device.

[0045] **FIG. 13** illustrates a laptop that may be used to display the data gathered from the sensors of an intelligent device.

[0046] **FIG. 14** illustrates a set of headphones that may be used to hear the data gathered from the sensors of an intelligent device.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0047] Without limitation to the scope of the invention, certain inventive embodiments are described below. Various aspects and features of the invention will become more fully apparent from the following description and appended claims taken in conjunction with the foregoing drawings. In the drawings, like reference numerals indicate identical or functionally similar elements. The drawings, associated descriptions, and specific implementation are provided to illustrate the embodiments of the invention and not to limit the scope of the disclosure.

[0048] The terms "prosthetic" and "prosthesis" as used herein are broad terms and are used in their ordinary sense and refer to, without limitation, any system, device or apparatus that may be used as an artificial substitute or support for a body part.

[0049] The term "orthotic" and "orthosis" as used herein are broad terms and are used in their ordinary sense and refer to, without limitation, any system, device or apparatus that may be used to support, align, prevent, protect, correct deformities of, immobilize, or improve the function of parts of the body, such as joints and/or limbs.

[0050] The term "auditorily" as used herein means, without limitation, relating to or experienced through hearing. For instance, outputting to an individual information auditorily might mean transmitting sound waves to a pair of headphones via wired or wireless communication.

[0051] The phrase "transmitting information through sound" comprises any means of communicating information through sound waves perceptible to the human ear.

[0052] The term "alignment" as used herein means, without limitation, configuring the movable portions of a device so that the device functions properly or optimally. For instance, a trained prosthetist might use an intelligent device to adjust the alignment of, for instance, a prosthetic foot to a user. The alignment might be part of the initial fitting of the prosthetic or a later adjustment. Alignment may be as simple as tightening, or otherwise adjusting, screws, bolts, etc. By defining alignment as configuring movable parts, there is no intention to limit alignment to the adjustment of rotating, sliding, or other adjustments that require repositioning. The tightening of a bolt, for instance, should be construed as the configuration of a movable part. Alignment may include any configurable axis of device. For instance, a prosthetic foot may be aligned by adjusting the heel height. Alternatively, a prosthetic foot may be adjusted by aligning the lateral position of the foot to the user's stump. Alternatively, alignment may include the movement of a prosthetic foot in the heel-to-toe axis or forward and backward axis. Alignment may refer to either static or dynamic alignment. When the term "alignment" is used without either of the adjectives, it should be understood that the alignment refers to static and/or dynamic alignment. Static alignment, generally,