prior to the foot leaving the ground), the resistive value (i.e., toe load value) is generally greater than the relaxed state value(s). For a full "step" to be registered by the prosthetic foot system (e.g., incrementing a step count), the prosthetic system generally awaits a heel strike state (low resistance) and a toe load state (high resistance), which states may also occur in the reverse order (i.e., toe load state and heel strike state). **FIG. 2** graphically illustrates a scale of different states (e.g., dead band) in which a measured resistive value may fall.

[0083] The following description provides an example of the above-disclosed method. A user and/or prosthesist defines a relaxed state as having a resistive value of approximately 20 kiloOhms, a heel strike state as having a resistive value of approximately 10 kiloOhms, and a toe load state as having a resistive value of approximately 40 kiloOhms. The "dead zone," therefore, includes the relaxed state value, which is greater than the heel load value, and is less than the toe load value. When a measured value from the resistive strip exceeds the "dead zone" range of values and/or the toe load value, then a TRUE value is assigned for a toe load variable. If the measured value from the resistive strip is less than the "dead zone" range of values and/or the heel load value, then a TRUE value is assigned for the heel strike variable. For each successive programming cycle, if the variables for heel strike and toe load are both TRUE, then a step counting variable is incremented by one and both the toe load and heel load variables are reset to a FALSE value. In another embodiment, only one of the heel strike and toe load variables need be TRUE for the step counting variable to be incremented. This process can continue for each step within a cycle, and the resulting information may be stored in a report and/or observed by a prosthetist for alignment, as discussed below.

[0084] The display portion of the prosthetic foot system may be used to indicate real-time information of the prosthetic foot system, and preferably the foot load. For example, if neither of the LED's of the display portion is lit then the prosthetic foot is presumably in an aligned position. On the other hand, if the prosthetic foot system experiences a force greater than an acceptable value for the toe load or heel load, the display may indicate such an overload to the user or prosthetist. For example, the display may indicate through an LED flashing pattern the type and/or magnitude of force experienced by the prosthetic foot system and/or the type of corrective alignment needed. In one embodiment, for dynamic alignment (e.g., aligning a prosthetic foot system foot based on the (current) gait properties of the user), the prosthetic foot system foot may indicate, through a LED flashing sequence of some kind, after walking that the alignment is too far posterior or anterior.

[0085] A prosthetist may use the information generated by the sensor (e.g., through the LED display or through data transmitted from the sensor) to align the prosthetic foot. For example, anterior/posterior alignment of the prosthetic foot can be performed by adjusting screws on the prosthetic foot. In one embodiment, such alignment comprises adjusting at least one of multiple (e.g., four) screws on the prosthetic foot. In other embodiments, other means of adjusting may be used. For example, the heel height of the prosthetic foot may be adjusted by pressing a button, which, in turn, changes the angle of the prosthetic foot. For example, an embodiment of the invention may include a design described in Applicant's co-pending U.S. application Ser. No. 10/742,455, filed on Dec. 18, 2003, and entitled "PROSTHETIC FOOT WITH ROCKER MEMBER," the entirety of which is hereby incorporated by reference and is to be considered as part of this specification. As the prosthetic foot is tilted downwards (plantarflexion), the toe load increases and the heel load decreases. Likewise, titling the prosthetic foot upwards (dorsiflexion) increases the heel load and decreases the toe load.

[0086] Similar types of alignment may be performed for medial/lateral alignment in a system wherein the sensor measures medial/lateral loads. This alignment may be performed based on a prosthetist's direct and/or real-time observation of the LED's provided on the device or by reviewing a report generated based on the data gathered with respect to the sensor measurements. This alignment information may also be provided to a manufacturer to provide information on how the device was treated and/or performed.

[0087] In one embodiment, a computer program analyzes the alignment information to give recommendations based on the measurements from the device. The computer program may function either in real-time or on a summary basis, and may display a computed result after some predefined walking pattern has been carried out by the user.

[0088] **FIG. 3** depicts a schematic diagram of one embodiment of the prosthetic system described above. In particular, the schematic diagram shows a processor (ATMEL ATtinyl5L) in communication with two resistive strips (RESSTRIP-1 and RESSTRIP-2) and various other components. A corresponding part list to the schematic of **FIG. 4** may be as follows:

Part	Value	Device	Package	Library
IC1	TINYI5LP	TINY15LP	DIL08	atmel
Q1	BC546A	BC546A	TO92-EBC	transistor-npn
R1	16K	R-EU__0204/5	0204/5	rcl
R2	1K	R-EU 0204/5	0204/5	rcl
R3	10K	R-EU__0204/5	0204/5	rcl
R4	68	R-EU 0204/5	0204/5	Rcl
RESSTRIP		53047-02	53047-02	con-molex
SERPORT		53047-02	53047-02	con-molex
U$1		LED3MM	LED3MM	Led
U$2		LED3MM	LED3MM	Led

[0089] **FIG. 4** illustrates a three-dimensional view of a sensor system ready for attachment to a portion of a prosthetic foot. The sensor system includes two bending force sensors **38** (such as variable resistor strips) ready for attachment to form an intelligent prosthetic foot **30**. The prosthetic foot may be any suitable prosthetic foot where there is a portion of the foot that bends under load. For example, the following prosthetic feet available from Ossur of Reykjavik, Iceland: Axia™, Ceterus®, Elation™, LP Ceterus™, Chopart, K2 Sensation™, LP Vari-Flex®t, Modular III™, Re-Flex VSP™, Cheetah®, Flex-Sprint™, Flex-Run™, Talux™, Vari-Flex®, Flex-Foot® Junior, Flex-Symes™, and Sure-Flex®. Further details of certain prosthetics feet are disclosed in the following patents and applications hereby incorporated by reference in their entireties: U.S. patent application Ser. No. 10/642,125; U.S. patent appli-