AO 120 (Rev. 08/10)

TO:	Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Northern District of Illinois on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
17-cv-01009	2/7/2017	Northern District of Illinois

PLAINTIFF	DEFENDANT
Sportbrain Holdings LLC	Apple Inc.

PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 7454002		
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
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5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
Thomas G. Bruton	/s/ Jessica J. Ramos	2/8/2017

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
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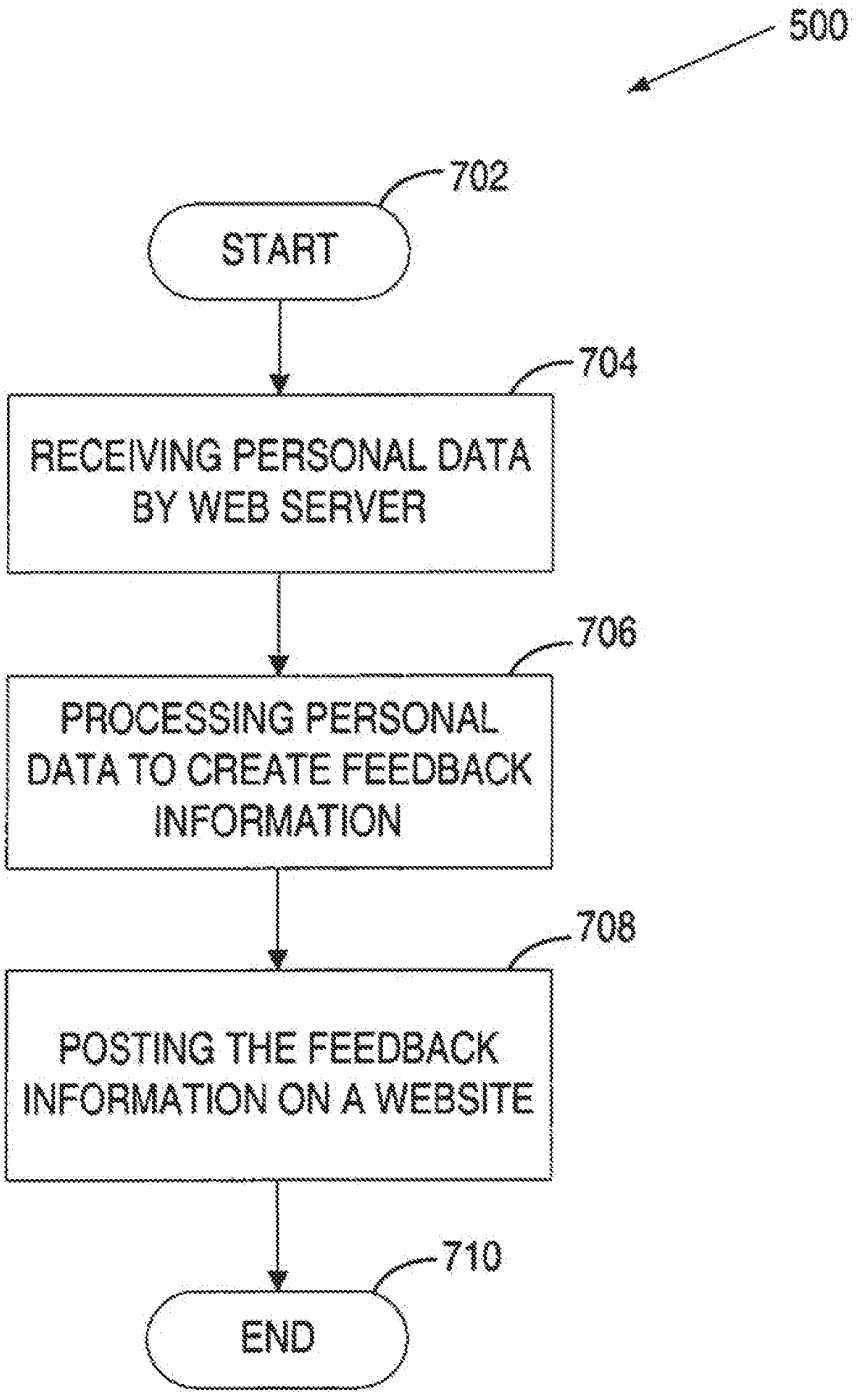
500
702
START
704
RECEIVING PERSONAL DATA BY WEB SERVER
706
PROCESSING PERSONAL DATA TO CREATE FEEDBACK INFORMATION
708
POSTING THE FEEDBACK INFORMATION ON A WEBSITE
710
END

FIG. 5

INTEGRATING PERSONAL DATA CAPTURING FUNCTIONALITY INTO A PORTABLE COMPUTING DEVICE AND A WIRELESS COMMUNICATION DEVICE

This application is a continuation-in-part of application Ser. No. 09/476,142, filed Jan. 3, 2000 now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to personal data capturing systems. More particularly, the present invention relates to integrating personal data capturing functionality into portable computing devices and wireless communication devices.

2. Background Information

Physical fitness is known to benefit people in many different areas, including improved flexibility and range of motion, increased muscular strength and cardiovascular fitness, body fat loss and increased stamina. Physical exercise helps maintain good health, increases energy, reduces stress and improves physical appearance. However, in order to gain the benefits of regular physical exercise, the users need to be able to conveniently access information concerning their exercise level and receive a feedback concerning their fitness activity.

Conventional devices are known for providing such information to the users. For example, U.S. Pat. No. 5,810,722 describes a device for measuring heartbeat rate. An athlete or a person engaged in fitness training may wear the device on the breast or the wrist. The device measures the heartbeat rate based on skin contact and allows the user to read the result from a display provided in the casing of the device. U.S. Pat. No. 5,891,042 describes a fitness monitoring device which includes an electronic pedometer integrated together with a wireless heart rate monitor. The device may be secured to the user's belt or waist band. The device receives electrical signals from a telemetric transmitter unit arranged on the user's skin adjacent to his heart and calculates the heart rate. The device is also configured to detect the user's body motion at each step for performing step counting. The user can read the results from a display provided in the casing of the device. The display includes an alpha/numeric display portion and a heart rate monitoring icon. These prior art devices, however, merely allow the users to see the physiological information concerning their exercise level. They do not provide any processed feedback to the users. In addition, these devices can be cumbersome to wear and they force the users to monitor their own activity, thereby interfering with their focus on physical exercise.

Therefore, what is required is a portable device which will provide the users with convenient access to information concerning their exercise level and will effectively assist the users in their fitness activity.

SUMMARY OF THE INVENTION

The present invention relates to various aspects for integrating personal data capturing functionality into a wireless communication device and a portable computing device. According to one aspect of the present invention, an exemplary wireless communication device comprises one or more personal parameter receivers to receive personal data of a user, a microprocessor coupled to the personal parameter receivers, and a memory coupled to the microprocessor to store the personal data. The microprocessor is configured to transmit the personal data from the memory to a network server via a wireless network. In one embodiment, an exemplary portable computing device includes similar components, thereby integrating personal data capturing functionality into the portable computing device.

According to another aspect of the present invention, personal data capturing functionality is integrated into a wireless communication device by attaching a personal data capture device to the wireless communication device. The personal data capture device is configured to receive personal data of a user and transmit the personal data to the wireless communication device, which is capable of transmitting the personal data to a network server over a wireless network. In one embodiment, personal data capturing functionality is integrated into a portable computing device by attaching a personal data capture device to the portable computing device. The personal data capture device is configured to receive personal data of a user and transmit the personal data to the portable computing device, which is capable of transmitting the personal data to a network server over a wireless network.

Other features of the present invention will be apparent from the accompanying drawings and from the detailed description that follows.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is illustrated by way of example and may be better understood by referring to the following description in conjunction with the accompanying drawings, in which like references indicate similar elements and in which:

FIG. 1A is a block diagram of one embodiment for a network architecture;

FIGS. 1B and 1C are block diagrams of two alternative embodiments of a system for integrating personal data capturing functionality into a portable computing device and a wireless communication device;

FIG. 2 is a block diagram of one embodiment for a personal data capture device;

FIG. 3 is a flow diagram of a method for integrating personal data capturing functionality into a wireless communication device, according to one embodiment of the present invention;

FIG. 4 is a flow diagram of a method for integrating personal data capturing functionality into a portable computing device, according to one embodiment of the present invention; and

FIG. 5 is a flow diagram of one embodiment for posting personal data of a user on a web site.

DETAILED DESCRIPTION OF AN EMBODIMENT OF THE PRESENT INVENTION

The present invention relates to various aspects for integrating personal data capturing functionality into a wireless communication device and a portable computing device. In the following detailed description of the present invention, numerous specific details are set forth in order to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that the present invention may be practiced without these specific details. In some instances, well-known structures and devices are shown in block diagram form, rather than in detail, in order to avoid obscuring the present invention.

Some portions of the detailed descriptions that follow are presented in terms of algorithms and symbolic representations of operations on data bits within a computer memory. These algorithmic descriptions and representations are the means used by those skilled in the data processing arts to most

effectively convey the substance of their work to others skilled in the art. An algorithm is here, and generally, conceived to be a self-consistent sequence of processing blocks leading to a desired result. The processing blocks are those requiring physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated. It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers, or the like.

It should be borne in mind, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities. Unless specifically stated otherwise as apparent from the following discussion, it is appreciated that throughout the description, discussions utilizing terms such as "processing" or "computing" or "calculating" or "determining" or "displaying" or the like, refer to the action and processes of a computer system, or similar electronic computing device, that manipulates and transforms data represented as physical (electronic) quantities within the computer system's registers and memories into other data similarly represented as physical quantities within the computer system memories or registers or other such information storage, transmission or display devices.

The present invention also relates to apparatus for performing the operations herein. This apparatus may be specially constructed for the required purposes, or it may comprise a general purpose computer selectively activated or reconfigured by a computer program stored in the computer. Such a computer program may be stored in a computer readable storage medium, such as, but is not limited to, any type of disk including floppy disks, optical disks, CD-ROMs, and magnetic-optical disks, read-only memories (ROMs), random access memories (RAMs), EPROMs, EEPROMs, magnetic or optical cards, or any type of media suitable for storing electronic instructions, and each coupled to a computer system bus.

The algorithms and displays presented herein are not inherently related to any particular computer or other apparatus. Various general purpose systems may be used with programs in accordance with the teachings herein, or it may prove convenient to construct more specialized apparatus to perform the required method steps. The required structure for a variety of these systems will appear from the description below. In addition, the present invention is not described with reference to any particular programming language. It will be appreciated that a variety of programming languages may be used to implement the teachings of the invention as described herein.

Referring now to FIG. 1A, a block diagram of one embodiment for a network architecture is illustrated. In this embodiment, portable sports appliance (PSA) **10** is coupled to cradle **12**. PSA **110** may be used to monitor and store physical and biometrical parameters of its user. In this embodiment, PSA **10** is a portable device. However, it will be recognized by one of ordinary skill in the art that a stationary device or a device included in some other device or equipment may be used with this invention without loss of generality. PSA **10** may be used by any person. For example, PSA **10** may be used by a person engaged in fitness activity, a professional athlete during exercise, or an employee wishing to know how his stress level changes during the day. The operation of PSA **10** and its functions will be described in more details below.

Cradle **12** is used to upload data from personal data capture device **10** to network **15**. In one embodiment, cradle **12** may resemble a support element for a telephone receiver or handset. Cradle **12** may include a modem to transmit data over telephone lines and may be configured to provide two-way connection to wide area network **15**. In one embodiment, placing personal data capture device **10** in cradle **12** may trigger an automatic dialing of a telephone number of server **16**. When the telephone line is free, data from personal data capture device **10** may then be transmitted to server **16** through wide area network **15**.

Alternatively, the data may be transmitted from personal data capture device to server **16** using a wireless transmitter. That is, cradle **12** is not used, and the data is transmitted over a wireless carrier. It should be understood by one of ordinary skill in the art that various ways of transmitting data from PSA **10** to server **16**, other than those described above, may be used with this invention without loss of generality.

Cradle **12** may be used with more than one PSA **10**. For example, if each family member has his or her own PSA **10**, cradle **12** may be shared by all family members. Personal data of each family member is then uploaded to server **16** at various points of time. Server **16** may receive personal data from numerous PSA users. This personal data may then be processed by third parties that may provide feedback information to those PSA users who subscribe for this service.

In one embodiment, server **16** is coupled to wide area network **15**. Wide area network **15** may include, for example, the Internet, America On-Line™, CompuServe™, Microsoft Network™, or Prodigy™. In addition, wide area network **15** may include, for example, conventional network backbones, long-haul telephone lines, Internet service providers, or various levels of network routers. Using conventional network protocols, server **16** may communicate through wide area network **15** to a plurality of clients.

In one embodiment, server communicates to clients **13** and **17**. Clients **13** and **17** represent any device that may enable user's access to data. For simplicity, FIG. **1A** shows only two clients, client **13** and client **17**, that can communicate to server **16**. However, it will be recognized by one of ordinary skill in the art that server **16** may communicate to a various number of clients and that a wide variety of client devices may be used with this invention without loss of generality. Such devices may include, for example, a conventional computer system, a network computer or thin client device (e.g., WebTV Networks™ Internet terminal or Oracle™ NC), a laptop or palmtop computing device (e.g., Palm Pilot™), a digital consumer device (e.g., a digital TV, a digital camcorder, or a "kitchen" computer"), etc. In one embodiment, clients **13** and **17** may have a Graphical User Interface (GUI) to allow users to access data. A GUI is a graphics-based user interface that incorporates icons, pull-down menus and a mouse. GUIs may include, for example, Microsoft Windows, Apple Macintosh, UNIX Motif, or UNIX OPENLOOK.

Clients **13** and **17** may be connected to server **16** in various ways. In one embodiment, clients **13** and **17** may be connected to server **16** through wide area network **15**. Client **17** may represent client devices of third parties, e.g., health and fitness specialists, who access personal data of subscribers on server **16** via wide area network **15** to generate feedback information to subscribers. Client **13** may represent client devices of subscribers who access the generated feedback information via wide area network **15**. In this embodiment, client **13** is connected to cradle **12** which provides two-way connection with wide area network **15**. However, it will be understood by one of ordinary skill in the art that client **13** does not need to be connected to cradle **12**. Instead, client **13** may use the same connection means as client **17**.

In an alternate embodiment (not shown in FIG. 1A), a client, such as client **13** or client **17**, may be directly connected to server **16** or through a modem in a conventional way. When connected to wide area network **15**, clients **13** and **17** may be connected directly to wide-area network **15** through direct or dial up telephone or other network transmission line. Alternatively, clients **13** and **17** may be connected to wide-area network **15** using a modem pool. A conventional modem pool may allow a plurality of clients to connect with a smaller set of modems in modem pool for connection to wide-area network **15**. In yet another network typology, wide-area network **15** may be connected to a gateway computer, which may be used to route data to clients through a local area network. In this manner, clients can communicate with each other through a local area network (LAN) or with server **16** through a gateway and wide-area network **15**. Alternatively, LAN may be directly connected to server **16** and clients may be connected through LAN. For example, subscribers' personal data may be processed by a company employing fitness instructors, athletic trainers, physicians and other heath and fitness specialists. Such a company may use LAN topology for providing internal communication between its employees. LAN may then be connected to server **16** through wide area network **15** for allowing communication between subscribers and health and fitness specialists.

Using one of a variety of network connection means, server computer **16** may communicate with clients **15** using conventional means. In one embodiment, a server computer **16** may operate as a web server if the World-Wide Web (WWW) portion of the Internet is used for wide area network **15**. Using the HTTP protocol and the HTML coding language across a network, web server **16** may communicate across the World-Wide Web with clients **13** and **17**. In this configuration, clients **13** and **17** may use a client application program known as a web browser such as the Netscape™ Navigator™ published by Netscape Corporation of Mountain View, Calif., the Internet Explorer™ published by Microsoft Corporation of Redmond, Wash., the user interface of America On-Line™, or the web browser or HTML translator of any other conventional supplier. Using such conventional browsers and the World-Wide Web, clients **13** and **17** may access graphical and textual data or video, audio, or tactile data provided by web server **16**. Conventional means exist by which clients **13** and **17** may supply information to web server **16** through the World-Wide Web **15** and the web server **16** may return processed data to clients **13** and **17**.

FIGS. **1B** and **1C** are block diagrams of two alternative embodiments of a system for integrating personal data capturing functionality into a portable computing device and a wireless computing device. Referring to FIG. **1B**, a system **100** provides personal data capturing functionality using a personal data capture device **102**. The personal data capture device **102** is attachable to a device **104**. In one embodiment, the device **104** is a wireless communication device such as, for example, a radiotelephone, a cellular phone, a pager, etc. In another embodiment, the device **104** is a portable computing device such as, for example, a personal digital assistant (PDA), a palmtop computer, etc. In yet another embodiment, the device **104** is a combination of a wireless communication device and a portable computing device (e.g., a combination of a PDA and a cellular phone).

In one embodiment, an expansion slot in the device **104** may be used to attach the personal data capture device **102** to the device **104**. For instance, some PDAs (e.g., a Handspring Visor™) are designed with expansion slots for adding software and hardware modules. Alternatively, any other means known in the art may be used to attach the personal data capture device **102** to the device **104**. When attached, the personal data capture device **102** can communicate with the device **104** using an interface such as, for example, a bus **118**. The bus **118** can be an inter-integrated circuit (I2C) bus or any other conventional bus suitable for transferring data between electronic devices.

An exemplary personal data capture device will now be described in greater detail. FIG. **2** is a block diagram of one embodiment for a personal data capture device **102**. The personal data capture device **102** includes a global positioning system (GPS) signal receiver **230** which receives GPS signals **210**. GPS signals **210** may include three-dimensional positional information and velocity of the user when the user is walking or running, or is engaged in some other relevant activity. The personal data capture device **102** may also include a motion sensor **250** which may improve the accuracy of the above information or substitute it when a GPS signal **210** is interrupted. In addition, the personal data capture device **202** may include a heart rate receiver **240** which receives heart beat rate from a wireless heart rate transmitter **220**. Various other sources may provide signals to the personal data capture device **102**. A personal parameter transmitter **205** represents a wide variety of signals that may be received by various personal parameter receivers **225** included in the personal data capture device **102**. For example, a blood pressure meter, a glucose meter, exercise equipment such as treadmills and stationary bikes, or any other device or equipment can transmit data to the personal data capture device **102** which will receive it using a corresponding personal parameter receiver **225**. In one embodiment, the heart rate receiver **240**, the GPS receiver **230**, the motion sensor **250**, and the personal parameter receiver **225** are included in one receiver, e.g., a personal parameter receiver **225**. It will be understood by one of ordinary skill in the art that all of the receivers described above or any combination of them may be included in the personal data capture device **102** without loss of generality.

The personal data capture device **102** further includes a microprocessor **260** which is coupled to a memory **280**, a software program **282**, and electronics **284**. Upon receiving a signal, any of the receivers **225** through **250** outputs data to the microprocessor **260**. The microprocessor **260** stores this data in the memory **280**. Software **282** is stored in a machine-readable medium that is capable of storing or encoding a sequence of instructions for execution by the microprocessor **260** and that causes the microprocessor **260** to perform any one of the methodologies of the present invention. Software **282** may also reside, completely or at least partially, within the memory **280** and/or within the microprocessor **260**, or in a machine-readable medium of any device coupled to personal data capture device **200**, such as the device **104** or a network server **122**. The term "machine-readable medium" shall accordingly be taken to include, but not be limited to, solid-state memories, optical and magnetic disks, and carrier wave signals.

In one embodiment, the personal data capture device **102** may include an electronic beeper **270** for providing audio signals related to the personal data. For example, the electronic beeper **270** can be set to signal low and high heart rate target limits, low and high pace limits, low and high weight limits, etc. In addition to the electronic beeper **270**, the personal data capture device **102** may include a digital audio **272** to provide more detailed feedback. The digital audio **272** may be configured to provide various real time information (e.g., a distance or average speed) related to personal parameters transmitted to the personal data capture device **102**. The per-

sonal data capture device **102** may also include a digital audio player such as an MP3 player **274** to play digital recordings. In one embodiment, the real time information generated by the digital audio **272** and/or digital recordings played by the MP3 player **274** may be communicated to the user by an earphone **276** coupled to the digital audio **272** and/or the MP3 player **274**. It will be understood by one of ordinary skill in the art that any combination of the personal data receivers **225** through **250** and the audio signal generators **270** through **276** may be used with the personal data capture device **102** without loss of generality.

In one embodiment, a panic button is coupled to microprocessor **260**. In this embodiment, software **282** analyzes personal data in memory **280**. If the personal data includes a parameter that is below or exceeds a certain panic parameter (e.g., heart rate is too low or too high), software **282** may cause microprocessor **260** to invoke the panic button. The panic button may then produce a panic signal to a satellite page service or a cellular service. In one embodiment, the panic parameters may be set or updated from the user's web site and transferred to memory **280** over the wide area network. In alternate embodiments, the panic parameters may be set or updated by health or fitness specialists in network server **122** or programmed during the manufacture of personal data capture device **102**.

When the personal data capture device **102** is attached to the device **104**, the microprocessor **260** transmits portions or all of the personal data stored in the memory **280** to the device **104** via the bus **118**. In one embodiment, the microprocessor **260** transmits the personal data to the device **104** periodically. Alternatively, the personal data capture device **102** may transmit the personal data upon receiving a request for information from the device **104**.

Returning to FIG. **1B**, the device **104** (i.e., a wireless communication device, a portable computing device, or a combination of a wireless communication device and a portable computing device) includes a microprocessor **110** which receives the personal data from the personal data capture device **102**, stores the personal data in memory **116**, and transmits any portion of the personal data from the memory **116** to a network server **122** over a wireless network **120**. The wireless network **120** may be a fixed wireless network, a mobile wireless network (e.g., a cellular phone network), a wireless local area network (WLAN), an infrared (IR) wireless network, etc. In one embodiment, the microprocessor **110** transmits the personal data to the network server **122** periodically. Alternatively, the microprocessor **110** may be coupled to an input device **112** which allows the user to request transmission of the personal data to the network server **122**. In one embodiment, the microprocessor **110** is also coupled to a display **114** which presents various information related to the user's personal data. For instance, a cellular phone display may display the user's heart rate, the number of steps counted during the user's fitness activity, the amount of calories burned by the user during the user's fitness activity, etc. In one embodiment, the device **104** requests the information to be displayed from the personal data capture device **102**. Alternatively, the device **104** processes the personal data stored in its memory **116** to generate the information to be displayed. In one embodiment, the display **114** may be used to view any Internet information using a wireless application protocol (WAP) and a microbrowser.

In one embodiment, the network server **122** is a web server providing services to users (also referred to herein as subscribers). The services may include, for example, providing feedback related to the user's health and fitness activities from various specialists, such as fitness instructors, athletic trainers, diet or nutrition specialists, physicians, or any other fitness or health specialists. This feedback and other information related to the personal data (e.g., various graphs, tables, map overlays, progressive charts, and comparisons with data of other users) are displayed to the user on a user's personal web site. The user's web site may be accessed by the user from any client device (e.g., a personal computer) or the display **114** of the device **104**.

FIG. **1C** is a block diagram of an alternative embodiment of a system for integrating personal data capturing functionality into a portable computing device and a wireless computing device. In this embodiment, the personal data capturing functionality is provided by incorporating components of the personal data capture device into a device **150** which may be a wireless communication device, a portable computing device, or a multi-purpose device combining a wireless communication device and a portable computing device. Specifically, the device **150** may include a GPS signal receiver **230**, a motion sensor **250**, and a heart rate receiver **240**. In addition, the device **150** may include a personal parameter receiver **225** receiving personal data from various other sources as described above. In one embodiment, the heart rate receiver **240**, the GPS receiver **230**, the motion sensor **250**, and the personal parameter receiver **225** are included in one receiver, e.g., a personal parameter receiver **225**. It will be understood by one of ordinary skill in the art that all of the receivers described above or any combination of them may be included in the device **150** without loss of generality.

The device **150** further includes a microprocessor **110** which is coupled to a memory **116** and a software program **282**. Upon receiving a signal, any of the receivers **225** through **250** outputs data to the microprocessor **110**. The microprocessor **110** stores this data in the memory **116**. Software **282** is stored in a machine-readable medium that is capable of storing or encoding a sequence of instructions for execution by the microprocessor **110** and that causes the microprocessor **110** to perform any one of the methodologies of the present invention. Software **282** may also reside, completely, or at least partially, within the memory **116** and/or within the microprocessor **110**, or in a machine-readable medium of any device coupled to the device **150**, such as network server **122**.

The microprocessor **110** is configured to transmit the personal data from the memory **116** to the network server **122** over the wireless network **120** in the same manner as described above in conjunction with FIG. **1B**. In one embodiment, the device **150** includes an input device **112** coupled to the microprocessor **110** for receiving input information from the user. For instance, the user may use the input device **112** to request transmission of the personal data to the network server **122**.

In one embodiment, the device **150** further includes a display **114** for displaying various information pertaining to the user's personal data, e.g., the user's heart rate, the number of steps counted during the user's fitness activity or during the day, the amount of calories burned by the user during the user's fitness activity or during the day, etc. In one embodiment, the display **114** can be also used to view any Internet information including feedback information generated by the network server **122** as described in greater detail above in conjunction with FIG. **1A**.

It should be noted that various other components including other components of the personal data capture device **102** may be incorporated into the device **150**. For instance, the device **150** may include the electronic beeper **270**, the digital audio **272**, etc.

FIG. **3** is a flow diagram of a method for integrating personal data capturing functionality into a wireless communi-

cation device, according to one embodiment of the present invention. At processing block **304**, user's personal data is received by one or more personal parameter receivers. In one embodiment, the personal parameter receivers are contained in a separate personal data capture device which is attachable to a wireless communication device. Alternatively, the personal parameter receivers are a part of the wireless communication device. The wireless communication device may be, for example, a radiotelephone, a cellular phone, a pager, etc. In one embodiment, the wireless communication device is combined with a portable computing device (e.g., a combination of a PDA and a cellular phone). In one embodiment, the personal data includes physical data and biometrical parameters of the user.

At processing block **306**, the personal data collected by the personal parameter receivers is captured in the wireless communication device. In one embodiment, in which the personal parameter receivers are a part of the wireless communication device, the personal parameter receivers directly output the personal data to a microprocessor which then stores it in memory. In an alternate embodiment, in which the personal parameter receivers are contained within a separate personal data capture device, the personal data is transferred from the personal data capture device to a microprocessor of the wireless communication device using an interface (e.g., an I2C bus) when the personal data capture device is attached to the wireless communication device. The microprocessor then stores the personal data in the memory.

At processing block **308**, the personal data is transmitted from the wireless communication device to a network server over a wireless network. In one embodiment, the personal data is transmitted to the network server periodically. Alternatively, the personal data is transmitted upon receiving a user request.

At processing block **310**, feedback information pertaining to the personal data is generated. As described above, the feedback information relates to the user's health and fitness activities and presents the user's personal data in the form of graphs, tables, map overlays, progressive charts, and comparisons with data of other users. In addition, the feedback information may include instructions provided by various specialists, such as fitness instructors, athletic trainers, diet or nutrition specialists, physicians, or any other fitness or health specialists.

At processing block **312**, the feedback information is displayed to the user. In one embodiment, the feedback information is displayed on the user's web site which can be accessed from any client device (e.g., a personal computer). Alternatively, a display of the wireless communication device (e.g., a cellular phone display) is used to access the feedback information. In one embodiment, the display of the wireless communication device is also used to display specific portions of the user's personal data, e.g., the number of steps counted during the user's fitness activity or during the day, the distance walked by the user during the day, the amount of calories burned by the user during the day, etc.

FIG. **4** is a flow diagram of a method for integrating personal data capturing functionality into a portable computing device, according to one embodiment of the present invention. At processing block **404**, user's personal data is received by one or more personal parameter receivers. In one embodiment, the personal parameter receivers are contained in a separate personal data capture device which is attachable to a portable computing device. Alternatively, the personal parameter receivers are a part of the portable computing device. The portable computing device may be, for example, a PDA, a palmtop computer, or any other hand-held computing device. In one embodiment, the portable computing device is combined with a wireless communication device (e.g., a combination of a PDA and a cellular phone).

At processing block **406**, the personal data collected by the personal parameter receivers is captured in the portable computing device. In one embodiment, in which the personal parameter receivers are a part of the portable computing device, the personal data is captured in the portable computing device by directly sending the personal data to a microprocessor which then stores it in memory. Alternatively, the personal data is transferred from the personal data capture device to a microprocessor of the portable computing device using an interface (e.g., an I2C bus) when the personal data capture device is attached to the portable computing device.

At processing block **408**, the personal data is transmitted from the portable computing device to a network server over a wireless network either periodically or upon receiving a user request. Further, feedback information pertaining to the personal data is generated (processing block **410**) and then displayed to the user (processing block **412**). In one embodiment, the feedback information is displayed on the user's web site which can be accessed from any client device (e.g., a personal computer). Alternatively, a display of the portable computing device (e.g., a PDA display) can be used to access the feedback information. In one embodiment, the display of the portable computing device can also display specific portions of the user's personal data, e.g., the number of steps counted during the user's fitness activity or during the day, the distance walked by the user during the day, the amount of calories burned by the user during the day, etc.

FIG. **5** is a flow diagram of one embodiment for posting personal data of a user (also referred to herein as a subscriber) on a web site. Referring to FIG. **5**, at processing block **704**, network server **122** receives personal data of subscribers. In one embodiment, the personal data may be received from a plurality of personal data capture devices. The personal data may comprise physical data and biometrical parameters of each subscriber. The personal data may be stored in a repository of personal data which resides either directly on network server **122** or on a separate computer accessible by network server **122**.

In one embodiment, the personal data of the subscriber is stored in the repository of personal data only if the subscriber maintains an account registered with network server **122**. The account may be registered at any time before or simultaneously with first transmission of subscriber's personal data. At the time of creating the account, the subscriber may be required to provide a password or a code to prevent access to the personal data by anyone other than the subscriber. In one embodiment, the account information may be stored together with the personal data in the repository of the personal data. Alternatively, the account information may be stored in a separate database or file.

At processing block **706**, the personal data is processed to create feedback information. Depending on the services selected by the subscriber, various feedback information may be created in response to the subscriber's personal data. In one embodiment, a fitness instructor, an athletic trainer, a diet or nutrition specialist, a physician, or any other fitness or health specialist may be able to access the subscriber's personal data. One or more fitness or health specialists may analyze the personal data and create the feedback information. In alternate embodiments, the personal data or its portion may be analyzed by a software program which may either create the feedback information entirely or assist fitness or health specialists in creating the feedback information. The feedback information may be stored either in the repository of

personal data or in a separate database residing on network server **122** or on a different computer accessible by network server **122**.

At processing block **708**, the feedback information is posted on a web site. As described above, the web site may be a personal web site of the subscriber or a company web site that can be accessed by all subscribers. In one embodiment, the personal data may be posted on the web site in various forms such as graphs, tables and map overlays. In addition, the subscriber's personal data may be compared with personal data of other subscribers or with this subscriber's history data. In one embodiment, when the personal web site is used, the web site may be specifically created as a part of services provided to the subscriber. Alternatively, the subscriber's existing web site may be used for posting the feedback information and the personal data of the subscriber. In yet another embodiment, the feedback information and personal data may be posted on a company web site known to all subscribers. In either embodiment, access to the feedback information and personal data is protected either by a password or other means for maintaining confidentiality of personal information.

Several variations in the implementation of the methods and systems for integrating personal data capturing functionality into a wireless communication device and a portable computing device have been described. The specific arrangements and methods described herein are illustrative of the principles of this invention. Numerous modifications in form and detail may be made by those skilled in the art without departing from the true spirit and scope of the invention. Although this invention has been shown in relation to particular embodiments, it should not be considered so limited. Rather it is limited only by the appended claims.

What is claimed is:

1. A method for integrating personal data capturing functionality into a wireless communication device and for analyzing and supplying feedback information to a user, the method comprising:

receiving personal data of said user by at least one personal parameter receiver, the personal data comprising step data corresponding to a number of steps counted during an activity of said user;

capturing the personal data in the wireless communication device;

periodically transmitting the personal data from the wireless communication device to a network server over a wireless network;

at the network server, storing in a repository of personal data maintained by, or accessible from, the network server, the personal data from said user;

at the network server, analyzing the personal data to generate feedback information for said user;

at the network server, posting the feedback information to a web site that is accessible to said user;

wherein said receiving, capturing, periodically transmitting, storing, analyzing and posting are performed with respect to personal data for each of a plurality of users received from their corresponding wireless communication devices, and wherein said analyzing further comprises comparing personal data for said user with personal data for at least one other different user from the received personal data from said plurality of users, and wherein posting comprises posting comparisons between the personal data of said user and personal data for said at least one other different user.

2. The method of claim **1** wherein the at least one personal parameter receiver is contained in a personal data capture device attachable to the wireless communication device.

3. The method of claim **1** wherein the at least one personal parameter receiver is contained in the wireless communication device.

4. The method of claim **1** wherein analyzing comprises analyzing the personal data according to health and/or fitness of said user such that the feedback information comprises information pertaining to health or fitness of said user.

5. The method of claim **1** wherein posting comprises posting the feedback information and the personal data in a form comprising one or more of: graphs, charts, tables and map overlays.

6. The method of claim **1** wherein analyzing further comprises generating for presentation to said user in the feedback information instructions from one or more of: a fitness instructor, physician, athletic trainer, nutritionist.

7. The method of claim **1** wherein posting comprises posting the feedback information to a web site that is accessible by said plurality of users.

8. The method of claim **1** wherein posting comprises posting the feedback information and the personal data of said user to a personal web site of said user.

9. A method for integrating personal data capturing functionality into a portable computing device and for analyzing and supplying feedback information to a user, the method comprising:

receiving personal data of said user by at least one personal parameter receiver, the personal data comprising step data corresponding to a number of steps counted during an activity of said user;

capturing the personal data in the portable computing device;

periodically transmitting the personal data from the portable computing device to a network server over a wireless network;

at the network server, storing in a repository of personal data maintained by, or accessible from, the network server, personal data from said user;

at the network server, analyzing the personal data to generate feedback information for said user; and

at the network server, posting the feedback information to a web site that is accessible to said user;

wherein said receiving, capturing, periodically transmitting, storing, analyzing and posting are performed with respect to personal data for each of a plurality of users received from their corresponding wireless communication devices, and wherein said analyzing further comprises comparing personal data for said user with personal data for at least one other different user from the received personal data from said plurality of users, and wherein posting comprises posting comparisons between the personal data of said user and personal data for said at least one other different user.

10. The method of claim **9** wherein the at least one personal parameter receiver is contained in a personal data capture device attachable to the portable computing device.

11. The method of claim **9** wherein the at least one personal parameter receiver is contained in the portable computing device.

12. The method of claim **9** wherein analyzing comprises analyzing the personal data according to health and/or fitness of said user such that the feedback information contains information pertaining to health or fitness of said user.

13. The method of claim 9 wherein posting comprises posting the feedback information and the personal data in a form comprising one or more of: graphs, charts, tables and map overlays.

14. The method of claim 9 wherein analyzing further comprises generating for presentation to said user in the feedback information instructions from one or more of: a fitness instructor, physician, athletic trainer and nutritionist.

15. The method of claim 9 wherein posting comprises posting the feedback information to a web site that is accessible by said plurality of users.

16. The method of claim 9, wherein posting comprises posting the feedback information and the personal data of said user to a personal web site of said user.

* * * * *

US007454002B1

(12) **United States Patent**
Gardner et al.

(10) **Patent No.: US 7,454,002 B1**
(45) **Date of Patent: Nov. 18, 2008**

(54) **INTEGRATING PERSONAL DATA CAPTURING FUNCTIONALITY INTO A PORTABLE COMPUTING DEVICE AND A WIRELESS COMMUNICATION DEVICE**

(75) Inventors: **Deane Gardner**, Cupertino, CA (US); **Mitz Kurobe**, Tokyo (JP)

(73) Assignee: **SportBrain, Inc.**, Sunnyvale, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 26 days.

(21) Appl. No.: **09/757,241**

(22) Filed: **Jan. 8, 2001**

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/476,142, filed on Jan. 3, 2000, now abandoned.

(51) **Int. Cl.**
H04M 3/42 (2006.01)
H04B 1/034 (2006.01)
G01B 5/02 (2006.01)

(52) **U.S. Cl.** **379/201.05**; 455/100; 702/160

(58) **Field of Classification Search** 600/300; 455/414.1, 403, 404.1, 412.2, 95, 91, 557, 455/556.2, 556.1, 100; 379/201.05
See application file for complete search history.

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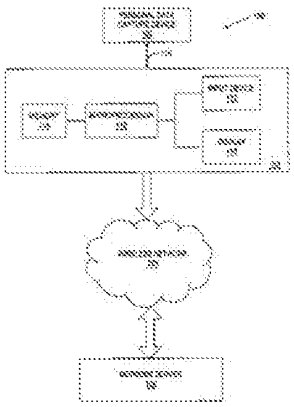
Primary Examiner—Curtis Kuntz
Assistant Examiner—Joseph T Phan
(74) *Attorney, Agent, or Firm*—Edell, Shapiro & Finnan, LLC

(57) **ABSTRACT**

In one embodiment, personal data capturing functionality is integrated into a wireless communication device or a portable computing device by incorporating one or more personal parameter receivers into the wireless communication device or the portable computing device. In another embodiment, personal data capturing functionality is integrated into a wireless communication device or a portable computing device by attaching a personal data capture device to the wireless communication device or the portable computing device. The personal data capture device is configured to receive personal data of a user and transmit the personal data to the wireless communication device or the portable computing device, either of which is capable of transmitting the personal data to a network server over a wireless network.

16 Claims, 7 Drawing Sheets



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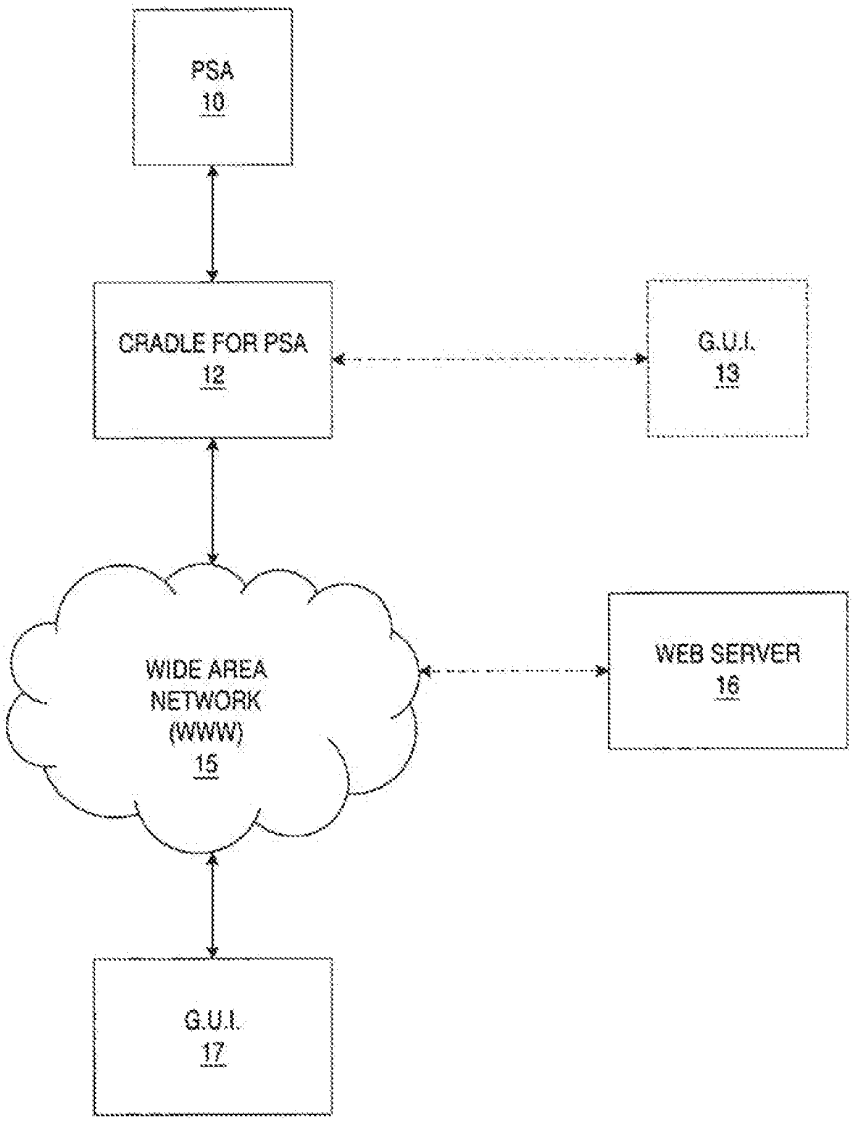
PSA
10
CRADLE FOR PSA
12
G.U.I.
13
WIDE AREA
NETWORK
(WWW)
15
WEB SERVER
16
G.U.I.
17

FIG. 1 A

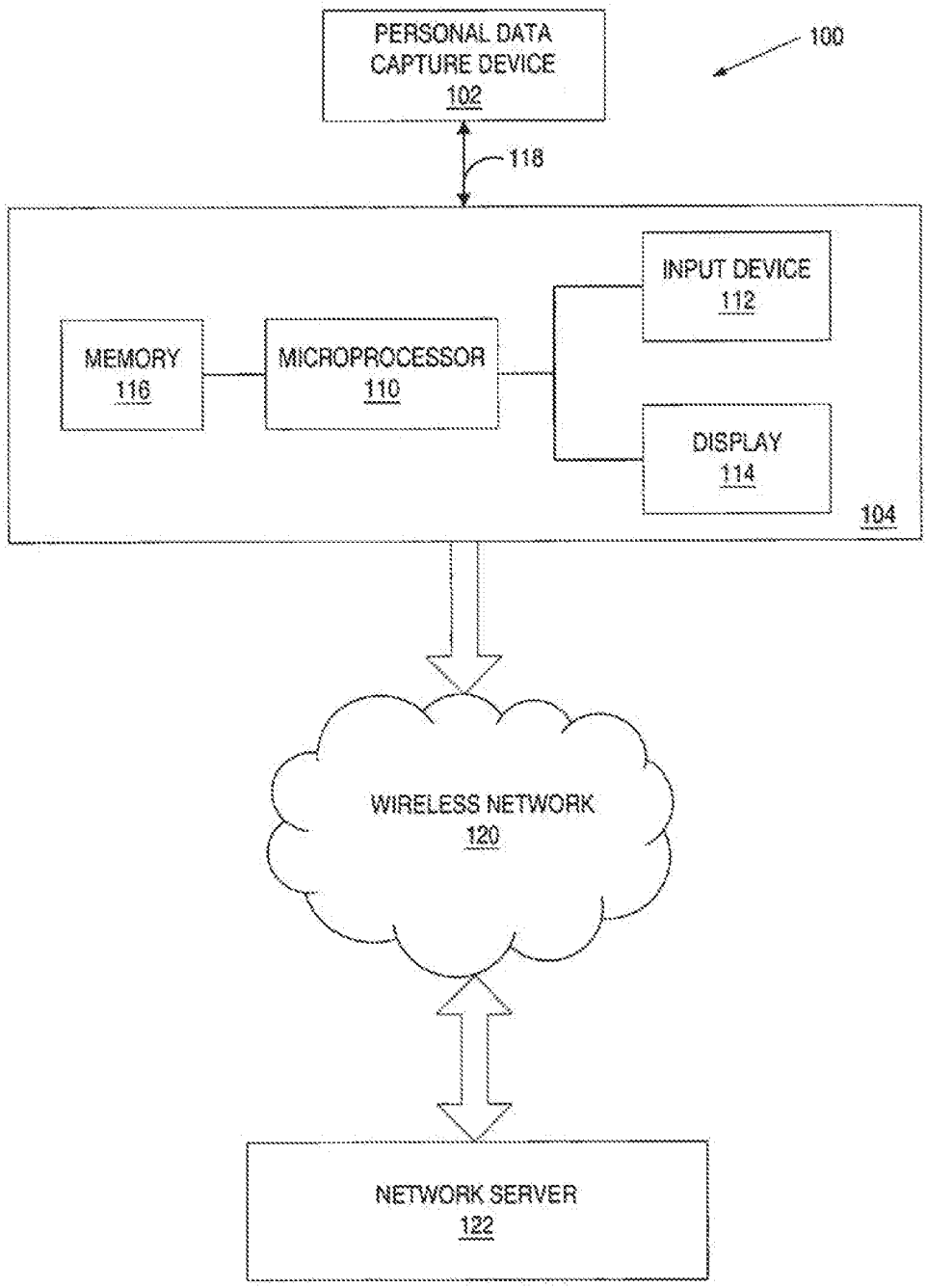
PERSONAL DATA CAPTURE DEVICE 102
100
118
INPUT DEVICE 112
MEMORY 116
MICROPROCESSOR 110
DISPLAY 114
104
WIRELESS NETWORK 120
NETWORK SERVER 122

FIG 1B

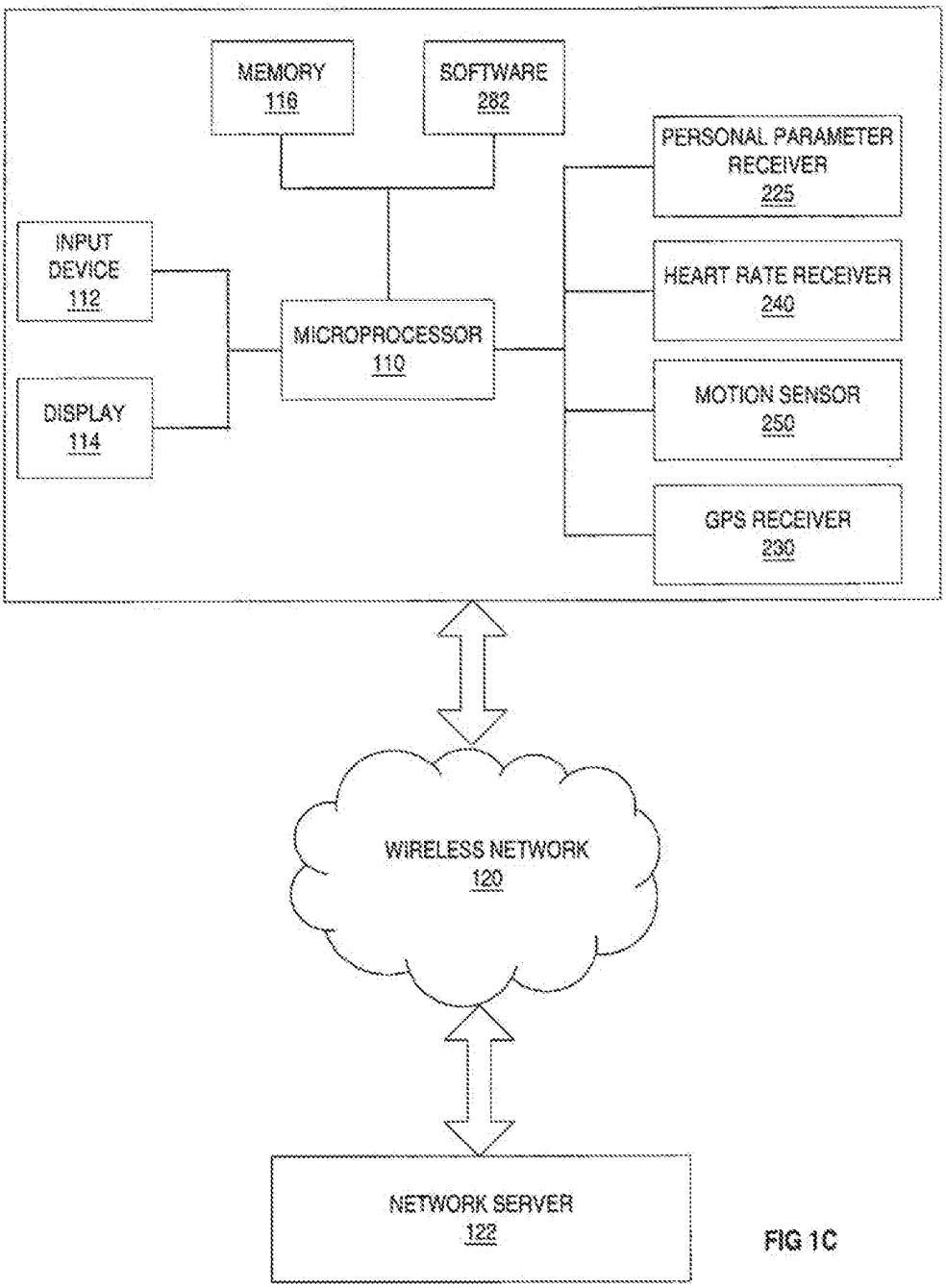
MEMORY
110
SOFTWARE
282
PERSONAL PARAMETER RECEIVER
225
INPUT DEVICE
112
HEART RATE RECEIVER
240
MICROPROCESSOR
110
DISPLAY
114
MOTION SENSOR
250
GPS RECEIVER
230
WIRELESS NETWORK
120
NETWORK SERVER
122

FIG 1C

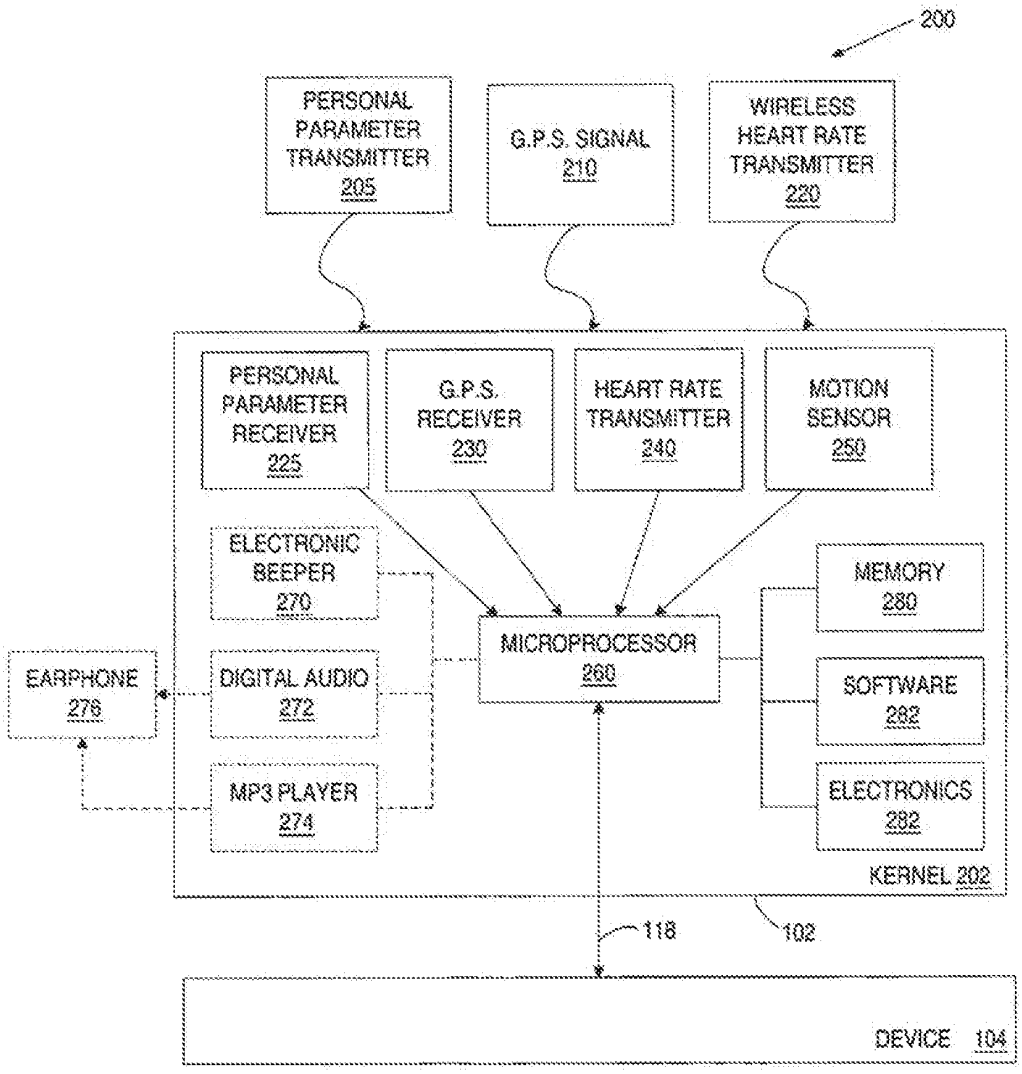
200
PERSONAL PARAMETER TRANSMITTER 205
G.P.S. SIGNAL 210
WIRELESS HEART RATE TRANSMITTER 220
PERSONAL PARAMETER RECEIVER 225
G.P.S. RECEIVER 230
HEART RATE TRANSMITTER 240
MOTION SENSOR 250
ELECTRONIC BEEPER 270
MEMORY 280
MICROPROCESSOR 260
EARPHONE 276
DIGITAL AUDIO 272
SOFTWARE 282
MP3 PLAYER 274
ELECTRONICS 282
KERNEL 202
118
102
DEVICE 104

FIG. 2

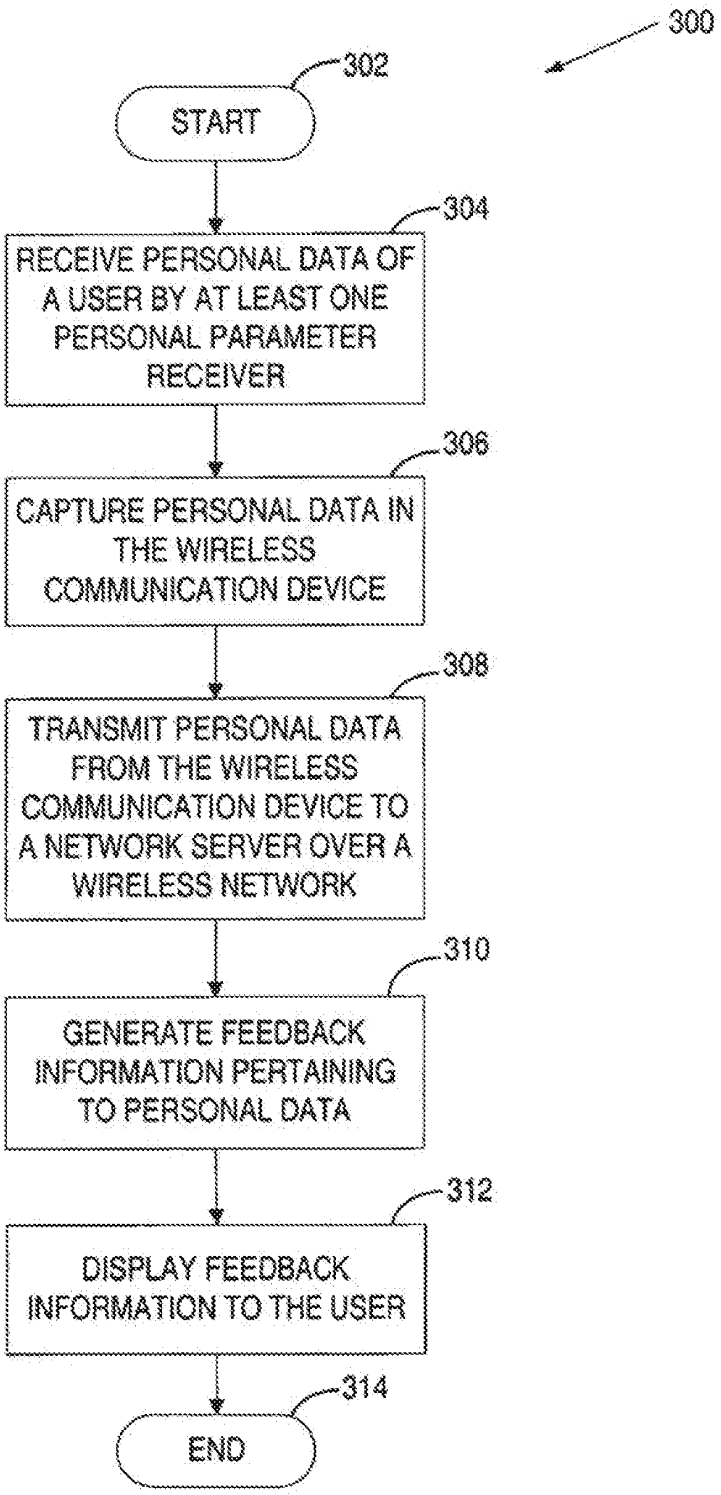
300
302
START
304
RECEIVE PERSONAL DATA OF A USER BY AT LEAST ONE PERSONAL PARAMETER RECEIVER
306
CAPTURE PERSONAL DATA IN THE WIRELESS COMMUNICATION DEVICE
308
TRANSMIT PERSONAL DATA FROM THE WIRELESS COMMUNICATION DEVICE TO A NETWORK SERVER OVER A WIRELESS NETWORK
310
GENERATE FEEDBACK INFORMATION PERTAINING TO PERSONAL DATA
312
DISPLAY FEEDBACK INFORMATION TO THE USER
314
END

FIG. 3

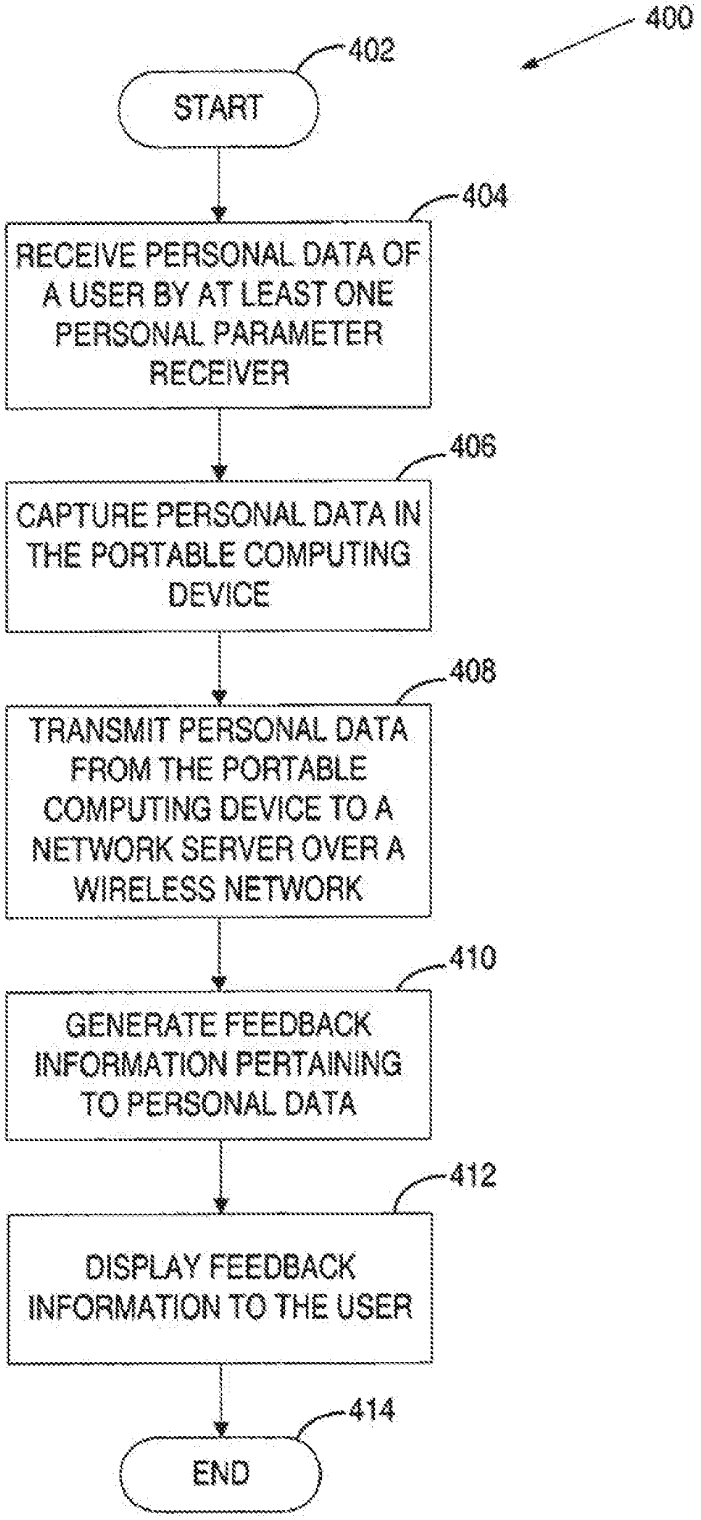
400
402
START
404
RECEIVE PERSONAL DATA OF A USER BY AT LEAST ONE PERSONAL PARAMETER RECEIVER
406
CAPTURE PERSONAL DATA IN THE PORTABLE COMPUTING DEVICE
408
TRANSMIT PERSONAL DATA FROM THE PORTABLE COMPUTING DEVICE TO A NETWORK SERVER OVER A WIRELESS NETWORK
410
GENERATE FEEDBACK INFORMATION PERTAINING TO PERSONAL DATA
412
DISPLAY FEEDBACK INFORMATION TO THE USER
414
END

FIG. 4