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(54) **SCALE WITH POSITIVE ID**

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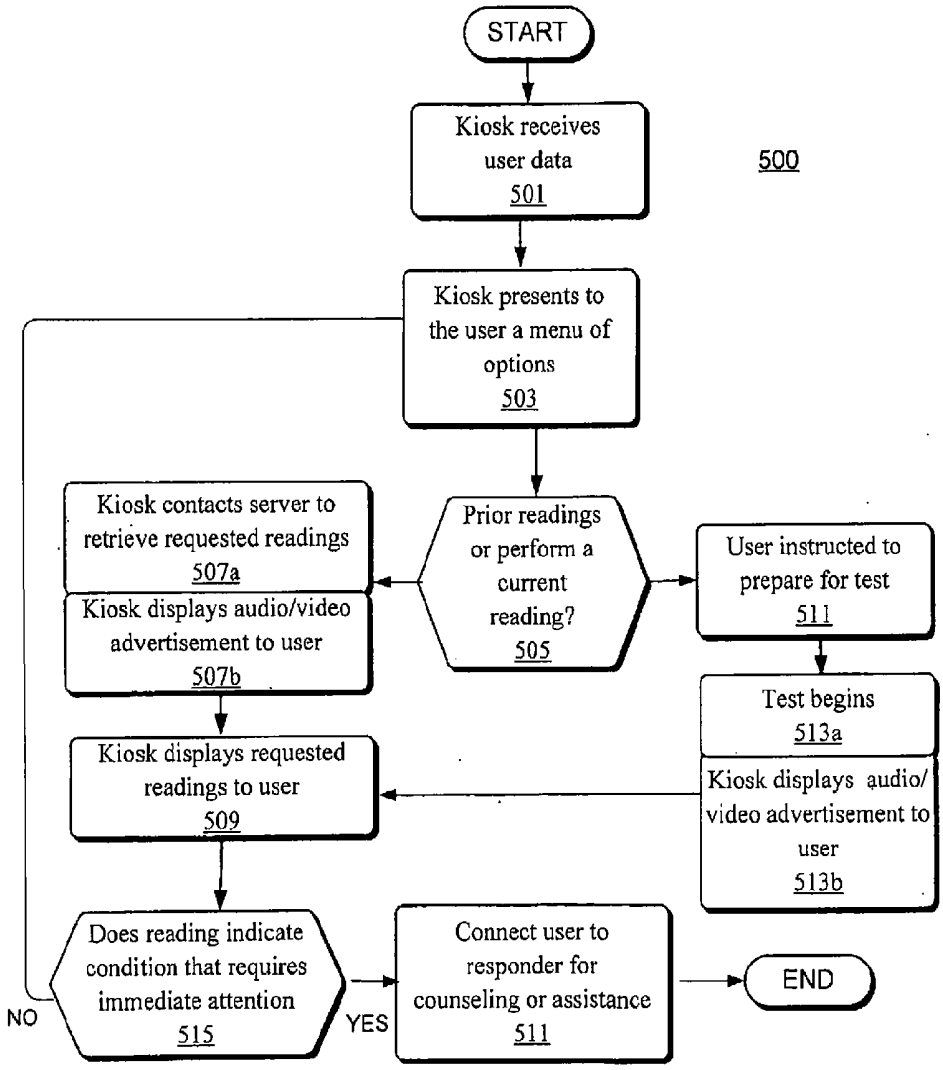
(57) **ABSTRACT**

Embodiments of the invention pertain to a scale for weighing a user wherein the scale includes a built-in positive security/verification system, so as to be able to provide verification of a user's identity.



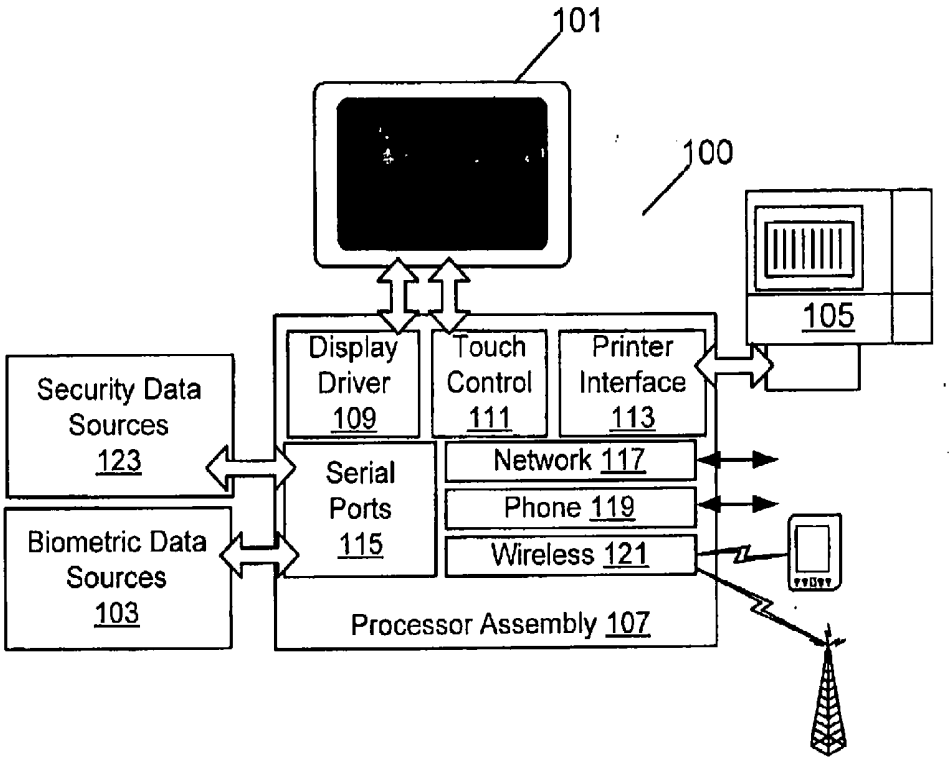

101
100
105
Display Driver 109
Touch Control 111
Printer Interface 113
Security Data Sources 123
Serial Ports 115
Network 117
Phone 119
Wireless 121
Biometric Data Sources 103
Processor Assembly 107

FIGURE 1

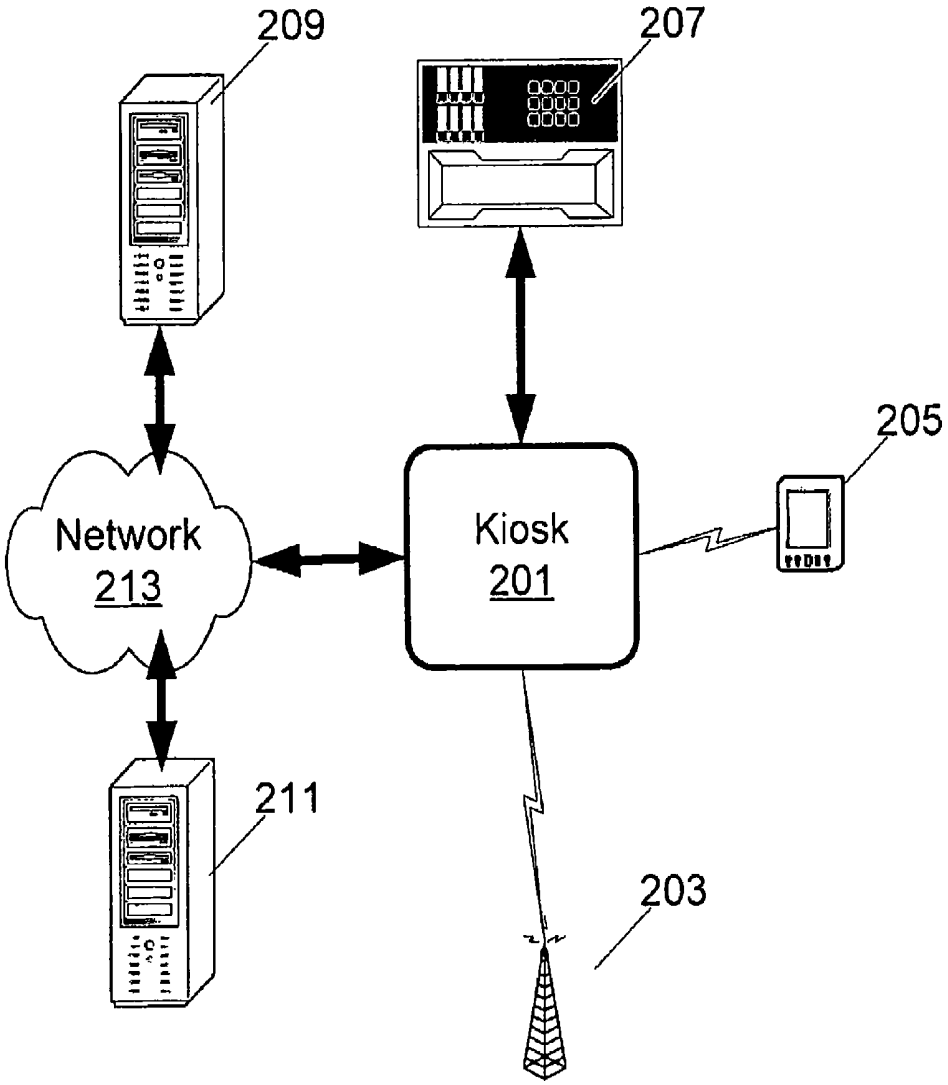


FIGURE 2

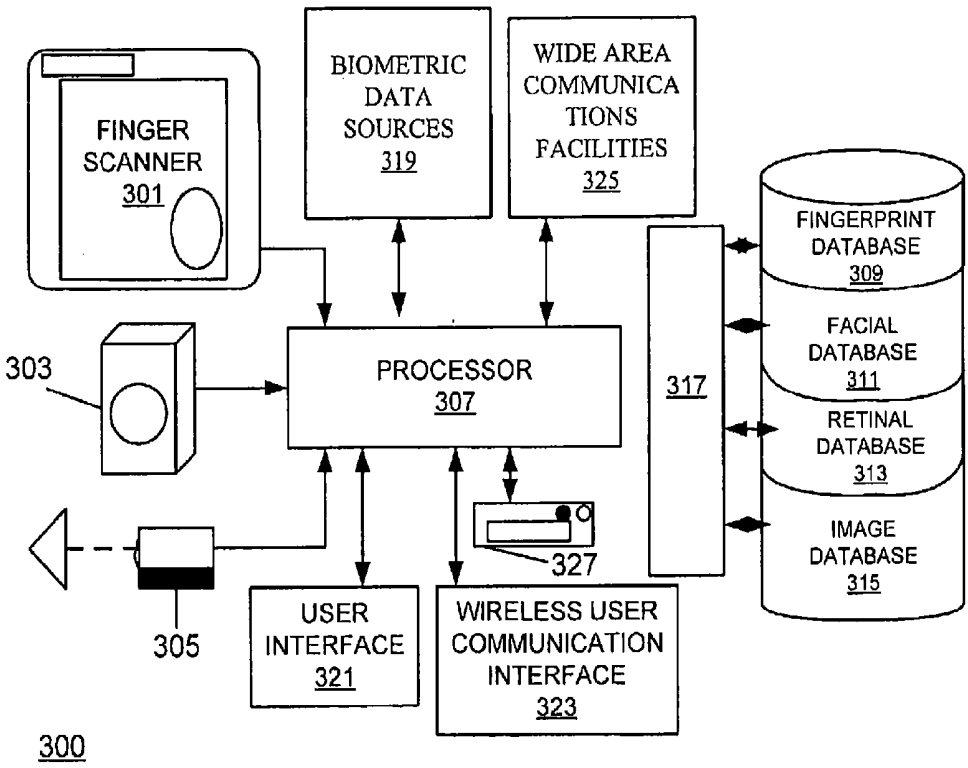

FINGER SCANNER 301
BIOMETRIC DATA SOURCES 319
WIDE AREA COMMUNICATIONS FACILITIES 325
FINGERPRINT DATABASE 309
FACIAL DATABASE 311
RETINAL DATABASE 313
IMAGE DATABASE 315
317
303
PROCESSOR 307
327
305
USER INTERFACE 321
WIRELESS USER COMMUNICATION INTERFACE 323
300

FIGURE 3

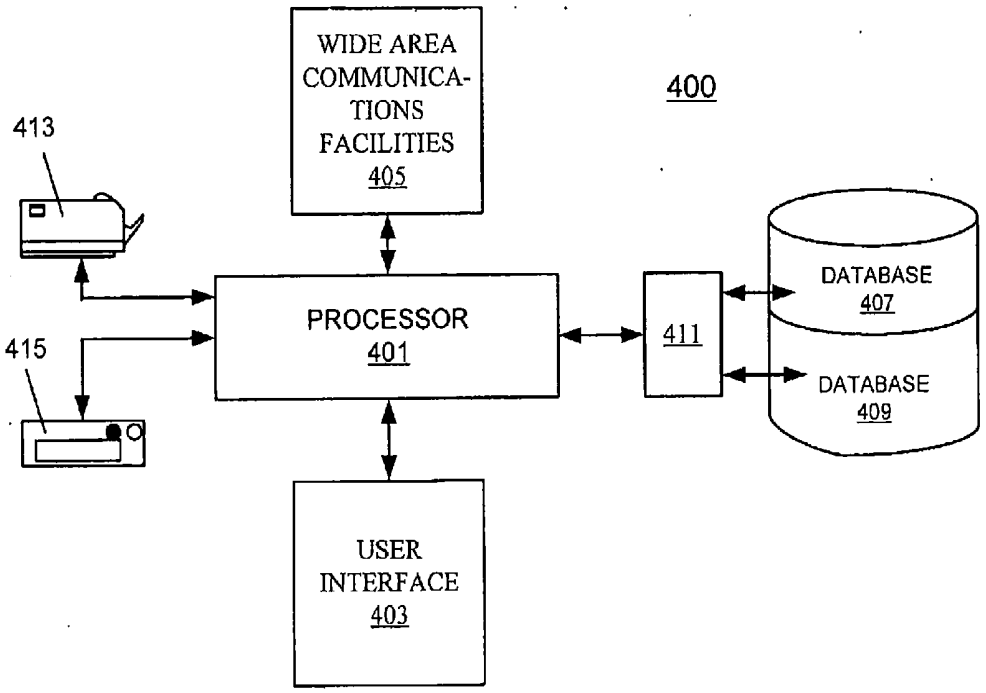

WIDE AREA COMMUNICA-TIONS FACILITIES 405
400
413
415
PROCESSOR 401
411
DATABASE 407
DATABASE 409
USER INTERFACE 403

FIGURE 4

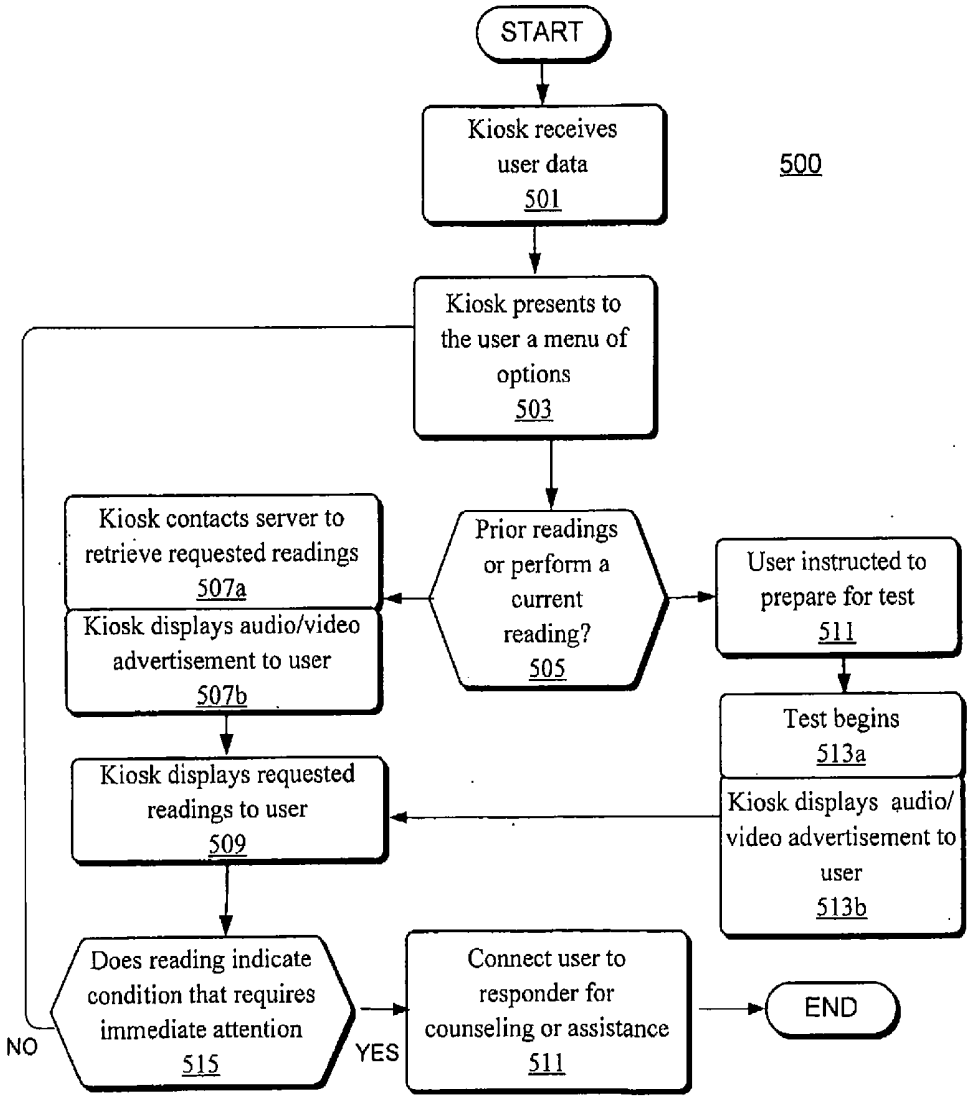

START
Kiosk receives user data 501
500
Kiosk presents to the user a menu of options 503
Prior readings or perform a current reading? 505
Kiosk contacts server to retrieve requested readings 507a
Kiosk displays audio/video advertisement to user 507b
User instructed to prepare for test 511
Test begins 513a
Kiosk displays audio/ video advertisement to user 513b
Kiosk displays requested readings to user 509
Does reading indicate condition that requires immediate attention 515
NO
YES
Connect user to responder for counseling or assistance 511
END

FIGURE 5

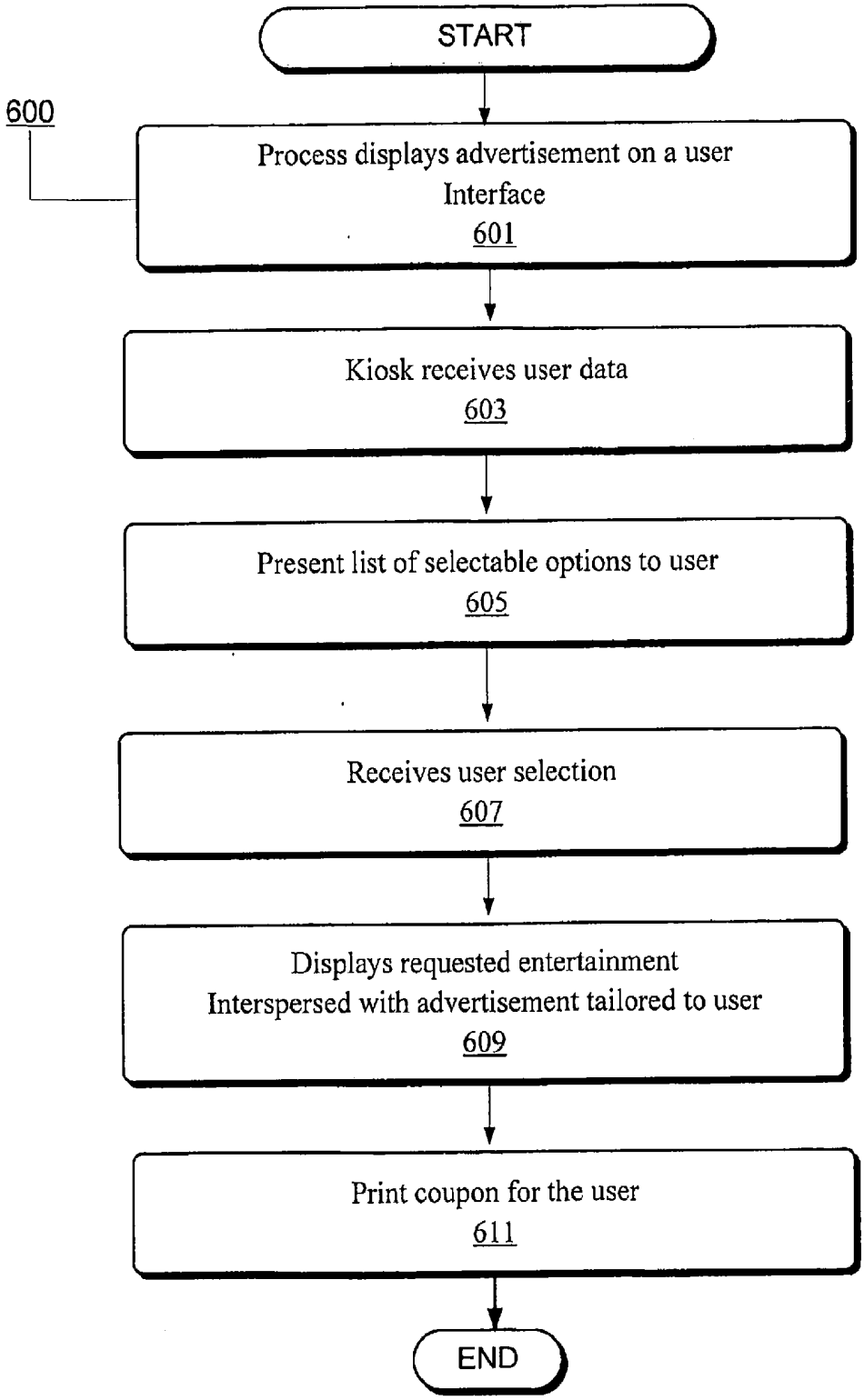

START
600
Process displays advertisement on a user Interface
601
Kiosk receives user data
603
Present list of selectable options to user
605
Receives user selection
607
Displays requested entertainment Interspersed with advertisement tailored to user
609
Print coupon for the user
611
END

FIGURE 6

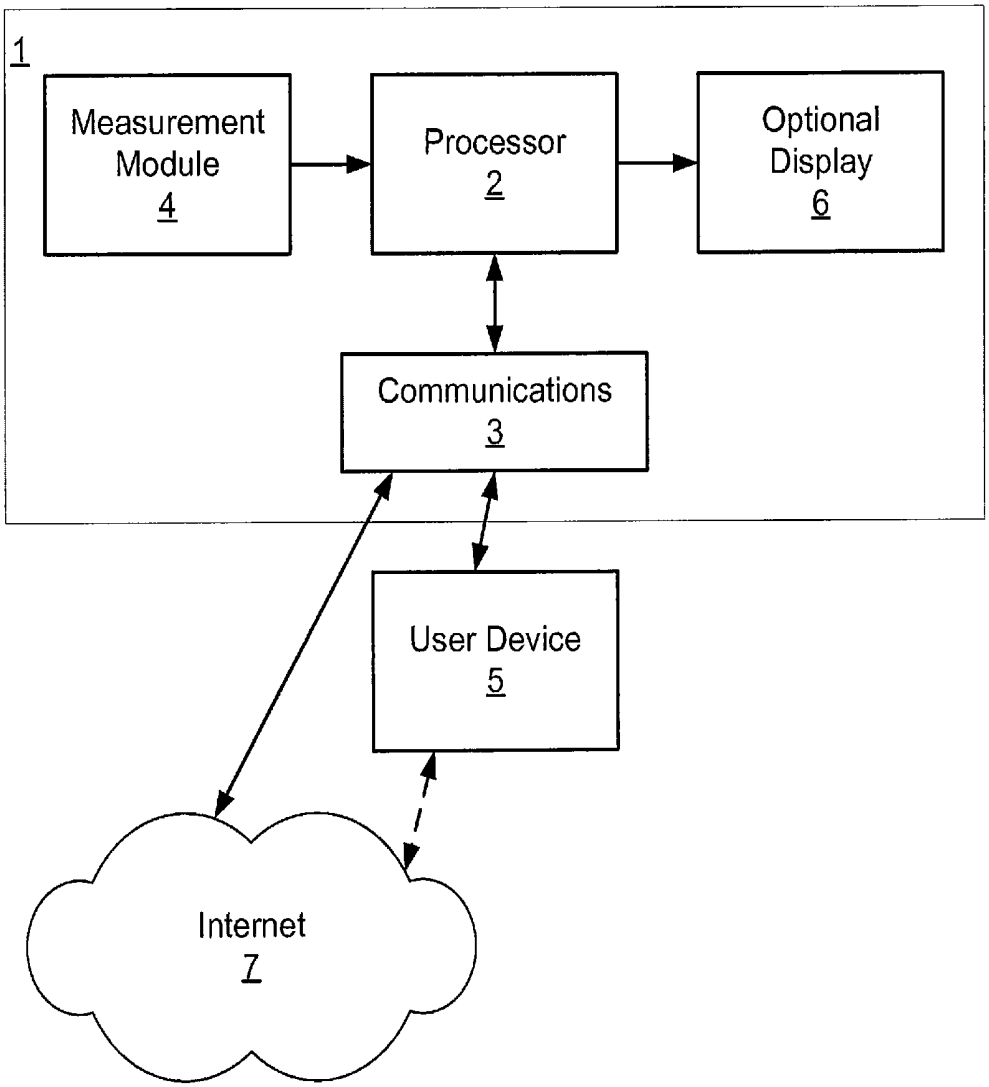

1
Measurement Module 4
Processor 2
Optional Display 6
Communications 3
User Device 5
Internet 7

FIG. 7

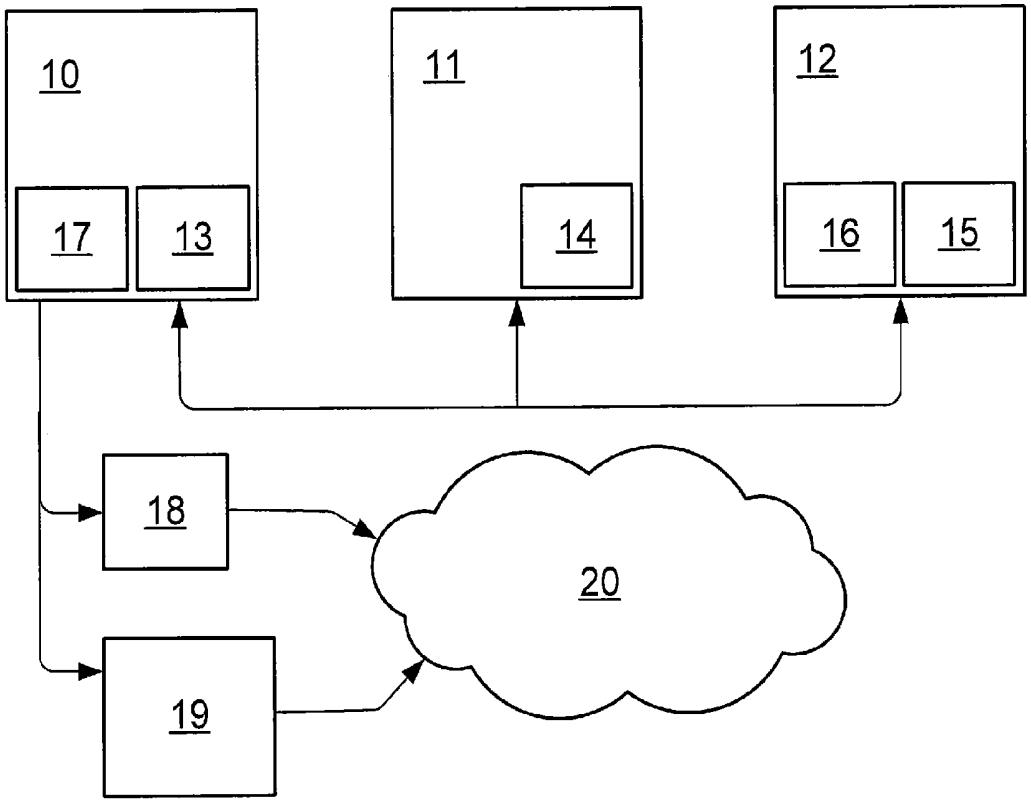


FIG. 8

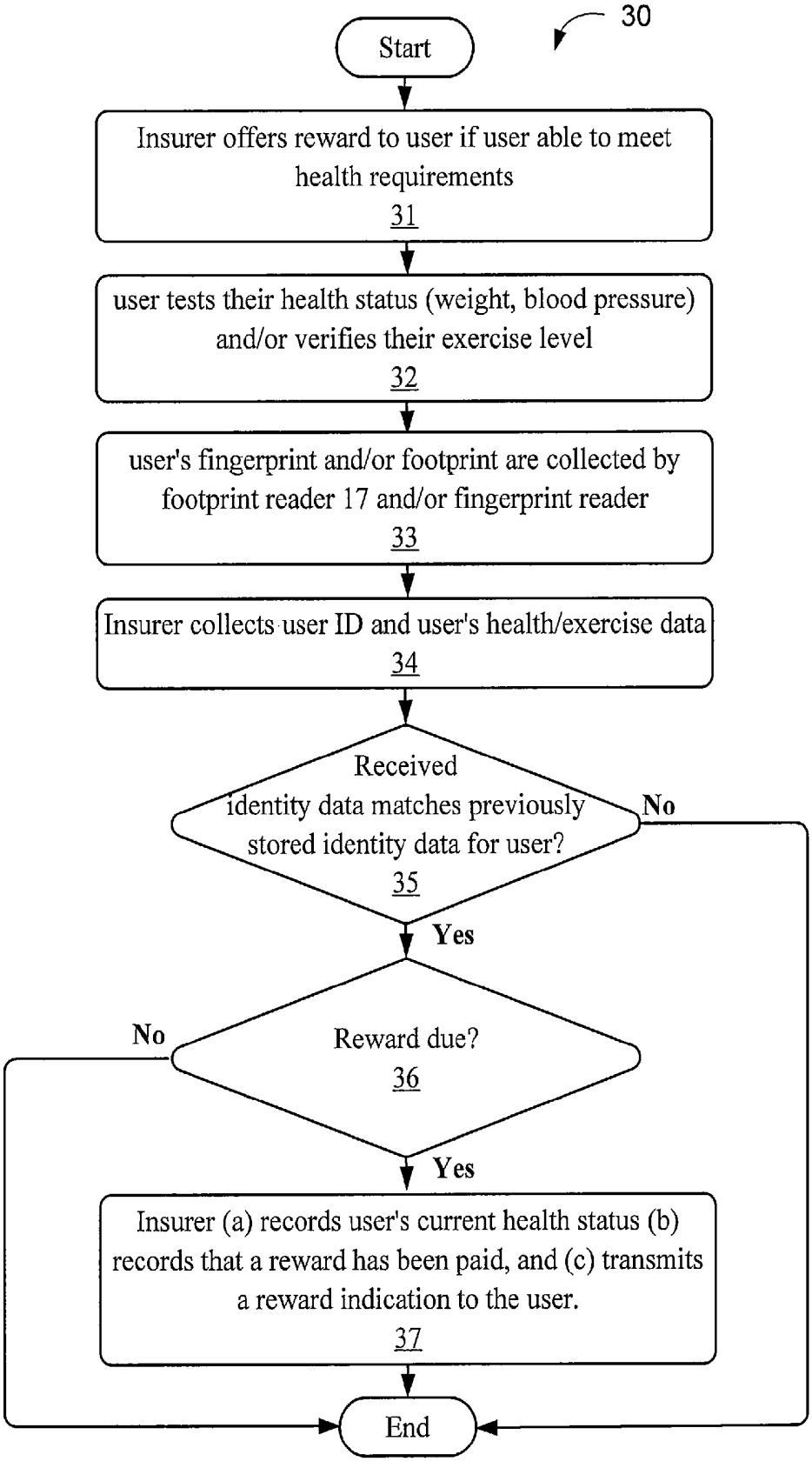

30
Start
Insurer offers reward to user if user able to meet health requirements
31
user tests their health status (weight, blood pressure) and/or verifies their exercise level
32
user's fingerprint and/or footprint are collected by footprint reader 17 and/or fingerprint reader
33
Insurer collects user ID and user's health/exercise data
34
Received identity data matches previously stored identity data for user?
35
No
Yes
Reward due?
36
No
Yes
Insurer (a) records user's current health status (b) records that a reward has been paid, and (c) transmits a reward indication to the user.
37
End

FIG. 9

SCALE WITH POSITIVE ID

RELATED APPLICATIONS

[0001] This application is a Continuation in part of U.S. patent application Ser. No. 14/637,039 filed on Mar. 3, 2015 entitled Biometric Scale With Positive ID, which is a Continuation of Ser. No. 14/149,634, which is a continuation of U.S. patent application Ser. No. 13/114,880, filed on May 24, 2011, which is a continuation of U.S. patent application Ser. No. 11/560,322, filed on Nov. 15, 2006, now U.S. Pat. No. 7,988,628, which is a continuation-in-part of U.S. patent application Ser. No. 11/550,663, filed on Oct. 18, 2006, now U.S. Pat. No. 7,988,627, and which is also a continuation of U.S. provisional patent application No. 61/894,278, filed on Oct. 22, 2013, all of which are herein incorporated by reference for all that they teach without exclusion of any portion thereof.

BACKGROUND

[0002] Human health has become a greater concern, as longer lives have led to a demand for higher quality of life. Moreover, as government entities and insurers bear an ever increasing share of health care costs, the desire for preventative care has increased. Unfortunately, it is both unlikely and cost prohibitive to expect the general population to increase the frequency with which they visit a doctor or physician to receive check-ups, tests, and preventative guidance.

[0003] One possible solution to the lack of preventative check-ups and guidance is the use of home testing equipment. For example, diabetes sufferers often check their blood pressure and blood glucose levels at home, and many people routinely weigh themselves at home in order to check that they are maintaining a healthy weight.

[0004] However, there may be in the near future a need for more users to take responsibility for their health through the use of such home tests. Since most users who wish to take home tests are already doing so, it may be desirable to incentivize the remaining users in some manner to do such testing. One possible method of providing an incentive would be to pay users in some way for positive test results and/or compliance with a prescribed course of exercise.

[0005] While such incentives may indeed serve to motivate users to take increased responsibility for their health, they also present an opportunity for cheating or abuse. For example, a user that stands to receive a significant award for losing a certain amount of weight or exercising a certain amount may be tempted to cheat the system by having a third party who weighs less or exercises more stand in for them. Thus, the inventor has determined that a lack of verifiable user ID may present a hurdle to more widespread adoption of home test systems.

[0006] While the disclosed principles address some or all of the shortcomings described above via various embodiments, it will be appreciated that the solution of any particular problem is not to be taken as a limitation of any of the claims herein unless explicitly stated. Moreover, this background section is provided as an educational aid to the reader, and is not intended to be precisely representative of prior art. Thus, the inventor expressly hereby notes that the mention of any specific feature or aspect in the foregoing is not intended to be an indication that the feature or aspect is representative of actual prior art. While the disclosed principles address some or all of the shortcomings described above via various embodiments, it will be appreciated that the solution of any particular problem is not to be taken as a limitation of any of the claims herein unless explicitly stated. Moreover, this background section is provided as an educational aid to the reader, and is not intended to be precisely representative of prior art. Thus, the inventor expressly hereby notes that the mention of any specific feature or aspect in the foregoing is not intended to be an indication that the feature or aspect is representative of actual prior art.

SUMMARY

[0007] In an embodiment of the disclosed principles, a method is provided for rewarding a test kit user. The method entails gathering health data regarding two or more health parameters of the user via a sensing device in physical contact with the user, gathering user identity data at the sensing device, automatically transmitting the gathered health data and user identity data over a network to a remote entity, determining at the remote entity whether one or more predetermined criteria have been met as evidenced by the gathered health data, verifying the user's identity at the remote entity via the gather user identity data, and providing a reward to the user if the one or more predetermined criteria have been met and the user's identity has been verified.

[0008] The remote entity may be a server or other computer associated with an insurer that insures the user or a server or other computer associated with a governmental entity. The reward provided to the user may be of commercial value when redeemed with a third party and/or may be an insurance premium discount. The health data may include a user blood pressure and a user weight, and may also include a pedometer reading. The health data may include one or more of a blood glucose reading and a bone mass or bone density reading.

[0009] In an embodiment, the user identity data includes a user fingerprint or a user foot print. In an optional embodiment, the user identity data includes both a user foot print and a user foot print. In another embodiment, the user identity data includes a user-provided password or pass code.

[0010] Other features according to various embodiments of the invention will be discussed in the examples below.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0011] While the appended claims set forth the features of the present techniques with particularity, these techniques, together with their objects and advantages, may be best understood from the following detailed description taken in conjunction with the accompanying drawings of which:

[0012] FIG. **1** is a schematic diagram of a kiosk usable within embodiments of the invention;

[0013] FIG. **2** is a schematic diagram of the network operating environment **300** of the kiosk within an embodiment of the invention;

[0014] FIG. **3** is a schematic diagram of a security-enhanced biometric kiosk unit according to an embodiment of the invention;

[0015] FIG. **4** is a schematic diagram of a non-biometric entertainment-enhanced kiosk unit according to an embodiment of the invention;

[0016] FIG. **5** is a flow chart showing a process of user alert and consultation for unusual reading conditions according to an embodiment of the invention;

[0017] FIG. **6** is a flow chart showing a process of providing entertainment and advertising to users via a non-biometric kiosk according to an embodiment of the invention;

[0018] FIG. **7** is a simplified schematic drawing of an exemplary home kit;

[0019] FIG. **8** is a schematic view of a triple test kit in keeping with embodiments of the disclosed principles; and

[0020] FIG. **9** is a flow chart showing a process for providing user rewards in the context of an insurer being the incentivizing entity.

DETAILED DESCRIPTION

[0021] As discussed above, certain embodiments of the invention pertain to biometric measurement devices coupled to a wide area network such as the Internet or other communications infrastructure and/or network. The link to the network may be implemented by way of wired or wireless connections or a combination thereof, and while high speed connections such as DSL are preferred, slower connections may instead be used. The physical structure and features of a biometric kiosk usable within embodiments of the invention was described in detail in the related application referenced above, and that description is incorporated by reference and will thus not be repeated at length herein.

[0022] FIG. **1** is a schematic diagram of a kiosk usable within embodiments of the invention. The kiosk **100** comprises biometric data sources **103** (e.g., blood pressure cuff and associated electronics, scale and associated electronics, etc.), a display **101** and a printer **105**.

[0023] These elements **101**, **103**, **105** are linked, typically by wired connections, to a processor assembly **107**. The display **101** interfaces with the processor assembly **107** via a display driver **109** and a touch control module **111**. The touch control module **111** receives and processes touch screen inputs from the display **101**. The biometric data sources **103** interfaces with the processor assembly **107** via serial ports **115**. Finally, the printer **105** interfaces with the processor assembly **107** via a printer interface **113**.

[0024] The processor assembly **107** also comprises data links to external data sinks/sources. For example, in the illustrated embodiment of the invention, the processor assembly **107** comprises a network communication module **117**, a phone communication module **119**, and a wireless communication module **121**. As will be discussed in greater detail below, the wireless communication module **121** allows connectivity to a cellular network and/or to local wireless devices (e.g., a PDA or cell phone) via a short range protocol such as Bluetooth. The network communication module **117** provides connectivity (wired or wireless) to one or more networks such as a local area network (LAN) and the Internet.

[0025] In addition to the features and elements noted above, the kiosk **100** further comprises a plurality of security data sources **123** linked to kiosk **100** via the serial ports **115** or otherwise as appropriate. The security data sources **123** comprise equipment usable to gather user-identifiable information for purposes of user verification. This is important both to protect sponsors from fraud as well as to protect users from unauthorized access to their biometric or other data. The security data sources **123** may include one or more cameras for retinal scanning, face recognition, and visual record-keeping purposes (e.g., for potential verification of past test results), as well as a fingerprint scanner for additional security and cross-checking for validation.

[0026] FIG. **2** is a schematic diagram of the network operating environment **200** of the kiosk within an embodiment of the invention. As illustrated, the kiosk **201** is communicably linked to a phone system **307**, such as via ordinary phone lines. The kiosk **201** is also linked wirelessly to a cellular network **203** and a local wireless device **205**, e.g., a Bluetooth equipped device. The local wireless link allows the user to use their own phone to communicate to or from the kiosk as well as to place a call through the kiosk to a customer service representative or advisor.

[0027] Finally, the kiosk **201** is linked via a network **213** to a number of networked data sources/sinks, e.g., servers **209**, **211**. In an embodiment of the invention, server **209** is an operator server of the company or other entity responsible for the kiosk. For example, LifeClinic® is the operator of kiosks that are placed in thousands of locations across the country.

[0028] In this embodiment of the invention, the other server **211** is associated with a sponsor or other entity interested in receiving data from the kiosks as will be discussed in greater detail below.

[0029] The data transferred over the network links to/from one or both of servers **209**, **211** to/from the kiosk **100** includes in an embodiment of the invention any or all of the communication indicated herein, including but not requiring: waiver, identity, readings, demographics and other data from the kiosk **100**; instructions, video, communications, prior readings, and advertisements from the server(s) **209**, **211**.

[0030] FIG. **3** is a more detailed schematic diagram of a security-enhanced biometric kiosk unit according to an embodiment of the invention, showing the components and logical units of the system rather than the physical interconnections. Although the illustrated exemplary kiosk architecture includes features for both user verification and user security, it will be appreciated that aspects of the invention may be implemented using either or both sets of features.

[0031] The security-enhanced biometric kiosk **300** comprises at its core a processor **307** linked to various other system components. The processor may be of any suitable type including one or more microprocessors, programmable logic controllers, and so, and may be implemented within a personal computer, workstation, or other computing device, or may be integrated into the kiosk **100** in a customized form. Although the processor **307** is illustrated as being directly linked to individual components, it will be appreciated that the illustrated interconnections are exemplary. Components may be interconnected via other components and may also be interconnected by a common bus architecture.

[0032] As illustrated in FIG. **3**, the processor **307** is linked to a set of verification input devices including, in the illustrate arrangement, a fingerprint scanner **301**, a camera **303**, and a retinal scanner **305**. It will be appreciated that other types of verification devices may be used instead or in addition to those listed. Moreover, although the camera **303** and retinal scanner **305** are illustrated as separate components, they may share one or more components, e.g., optics, etc. As will be appreciated, commercial camera systems,

both built in (e.g., in a lap top computer) and stand alone, exist that are capable of executing face tracking and face recognition tasks.

[0033] The fingerprint scanner **301**, camera **303**, and retinal scanner **305** are communicably linked to the processor **307**. The processor **307** is similarly linked to a series of databases through a database interface **317**. The illustrated databases include a fingerprint database **309**, a facial feature database **311**, a retinal feature database **313**, and an image database **315**. The processor **307** is also linked to other components of the kiosk including a user interface **321**, such as a screen, speaker, keyboard, buttons, etc. Additional components include biometric data sources **319** for kiosks that measure such information. The biometric data gathered by sources **319** can include parameters such as user weight, blood pressure, pulse rate, body fat and blood oxygen, or other parameters as will be appreciated by those of skill in the art.

[0034] The processor **307** is further linked to a wireless communication interface **323**. The wireless communication interface **323** provides a mechanism for wirelessly communicating with nearby electronic devices. For example, the wireless communication interface **323** is adapted in an embodiment of the invention to wirelessly call a user's cell phone and connect the user via wide area communications facilities **325** to a call center or emergency personnel. As will be discussed in greater detail below, this functionality allows a user to be connected to necessary personnel in the event of an abnormal biometric reading, such as an extremely high blood pressure reading. In this way, the user is given counseling and advice to facilitate appropriate treatment or explain any complications. The user may also call a number, e.g., a 1-800 or other toll-free number, to initiate a consultation or get answers to general questions.

[0035] The processor **307** may also be linked to a card reader **327**. A user may apply for and acquire a health information card, e.g., a co-branded magnetic stripe card promoted by the owner/operator and a credit card company or other enterprise. At the time that the user applies for the card, they preferably supply their name and address and may also be asked to respond to other questions that are of significance with respect to marketing. At that time as well, the customer may also be asked to sign a waiver at the information desk whereby they agree that their name and/or other information can be used for promotional and/or advertising purposes by the owner operator, etc. At the time that the user signs for and obtains the card, they may also have their personal security parameters gathered, e.g., face scan, retina scan, fingerprint, and so on. The user is then given a bar coded or magnetic coded loyalty card that encodes or is linked to his or her identification, address, etc. It will be appreciated that the user may instead sign up for the service on-line via the interface and connectivity of the kiosk itself, or from a personal computer or other networked computing device (e.g., personal digital assistant, Internet-enabled cell phone, etc.). In this case, the waiver may either be executed electronically or may be printed, executed, and mailed. The user card may be the user's credit card or other card carrying encoded user-specific identifying information.

[0036] When the user subsequently uses the kiosk, they are asked to scan their bar code by the bar code reader. This allows the kiosk to retrievably store the user's readings and also to access the user's name, address, etc. for promotional purposes. A waiver may appear on the display at this time as well. In addition, the data provided by a gift card or a credit card may also provide a buying history of the user to allow customization of messages and advertising. For example, the kiosk could recommend products similar to those that the user had purchased recently. Additionally, the kiosk may provide customized coupons based on the user's demographic data (race, class, income, age, ethnic origin, language, location, dwelling type, family size/type, gender, occupation, etc.) or buying history.

[0037] The fingerprint scanner **301** operates in a manner familiar to those of skill in the art, either alone or in conjunction with processes executed on processor **307** or other component. The fingerprint scanner **301** obtains an image of a user's finger compares this image to pre-scanned images, e.g., in database **309**, to determine the identity of the user by determining whether the patterns of ridges and valleys in the images match. Although the fingerprint scanner **301** may be of any suitable construction, it will be appreciated that fingerprint scanners generally utilize either optical or capacitive technologies.

[0038] Optical scanners generally employ a charge coupled device (CCD) to capture the print image. Typically, an analog-to-digital converter in the scanner system processes the analog electrical output of the CCD to generate a digital image. The fingerprint scanner may comprise a light source such as an LED array to facilitate image acquisition. Much like optical scanners, capacitive fingerprint scanners also generate an image of a fingerprint. However, rather than using photons, they employ changes in capacitance across the print. One advantage of capacitance type sensors is that they cannot be manipulated via an image of a fingerprint. Additionally, capacitive scanners can be made more compact than optical devices.

[0039] As noted above, the camera **303** can be used for either or both of image storage, i.e., for later verification, and face recognition. For image storage purposes, the camera **303** is linked via the processor **307** to an image database **315**. A photograph of each user is obtained by the camera **303** and stored, e.g., in database **315**, for later verification if needed.

[0040] For purposes of facial recognition, the camera **303** captures an image of the users face and uses this image to verify the user's identity. Human faces have certain distinguishable features or landmarks. For example, there are distinct dips and rises that make up different facial features. Depending upon the algorithm used, as many as 80 landmarks may be identified and used for recognition.

[0041] Examples of landmarks include the distance between a user's eyes, the width of a user's nose, depth of a user's eye sockets, shape or location of a user's cheekbones, shape or location of a user's jaw line, and the shape or location of a user's chin. Features of the landmark points are measured and translated to a unique numerical code or "faceprint" that represents the particular face. Pre-scanned faces, or related representations such as face prints, are stored in database **311** to facilitate later comparison for validation. Registration of a user's faceprint to be used for later verification may occur upon the user's first use of a kiosk system as described herein, or may be obtained elsewhere, e.g., at a registration desk.

[0042] The retinal scanner **305** obtains an image of the user's retina and compares this to prior scans, e.g. scans stored in database **313**, to verify a user's identity. Retinal scanners are commercially available, and operate in a manner similar to that described above, i.e. by matching a retina

of interest, or characteristics thereof, to a validation image of a retina or to characteristics of such an image.

[0043] It will be appreciated that other identity verification techniques may be used additionally or alternatively to verify a user's identity. Other techniques include, but are not limited to, voiceprint recognition, vein pattern recognition, iris recognition, etc.

[0044] While the databases **309**, **311**, **313**, and **315** may be local to the kiosk, it is preferred that alternatively or additionally, there are databases that are accessible by the kiosk in question as well as other kiosks so that a user may access their information at any one of a global network of kiosks. Thus, the databases **309**, **311**, **313**, and **315** are preferably stored or replicated at one or more central servers and may be downloaded periodically or as needed, or may be queried rather than downloaded.

[0045] The aforementioned security and verification features are important not only to prevent unauthorized access to a user's private data, but also to protect sponsors or affiliates from fraud. For example, it is important for kiosk sponsors and affiliates who provide incentives linked to user health to be able to verify that the user is indeed the person that they purport to be. One area where significant incentives may be provided and hence where enhanced security will be important is the area of insurance incentives. In particular, insurers will enroll with a kiosk system host to receive user medical information from such kiosks and to provide targeted advertising and incentives through the kiosks. In particular, a user may use any one of the global network of kiosks to take a measurement of interest, e.g., weight, body fat percentage, or blood pressure, and this information will be transmitted to the enrolled insurer. In an embodiment of the invention, the kiosk displays a list of enrolled insurers to the user, and the user selects the appropriate company name.

[0046] If the user's current and prior measurements show a positive trend (e.g., losing body fat) at an acceptable rate (e.g., 2 pounds per week) or in an acceptable amount (e.g., 10 pounds), then the insurer will provide a reward to the user. Rewards can consist of rebates, gift cards, reduced insurance rates, and so on. Thus, users may be tempted to cheat to obtain the incentives, i.e., by having a friend in better health sit in as the user. To avoid fraud and cheating, it is important that the insurer be able to verify that the subscriber being rewarded has indeed made the appropriate improvements.

[0047] In an embodiment of the invention, the kiosk, whether providing health-related measurements or not, displays information of general interest to the user. For example, the kiosk may display a stock ticker or 5-day weather forecast.

[0048] Kiosks of the type described above can be used for a number of activities and interchanges that provide value to both the community and the sponsor or business supporting the machine. For example, the kiosk, whether or not it includes a biometric measurement facilities, can be used to provide entertainment such as via television or video. The entertainment content may be customized for the sponsor, e.g., a department store, or may be publicly available entertainment. In this embodiment of the invention, the entertainment provides a draw for customers who may not be interested in shopping or may be tired.

[0049] For examples, men accompanying women in a predominantly female-oriented store may prefer to rest at the kiosk. In an embodiment of the invention wherein the user identifies themselves by swiping a loyalty card, credit card, etc., the system can provide customized

[0050] services. For example, if the system is able to access recent purchase history, it will supply appropriate coupons via the attached printer to encourage the user to avail themselves of the goods or services of the sponsor. More generally, a credit card or gift card's magnetic stripe may supply identity information both for customization of services and to track a user's biometric readings.

[0051] In this embodiment of the invention, the user may be presented with menu options to choose an activity. For example, a user may be asked to choose from sports scores, sports highlights, interviews, news, current affairs, exercise tips, etc. In another example of the invention, the kiosk provides one or more maps or informational items related to the store hosting the kiosk. Advertisements are run during these services and can be customized if the customer uses a personalized gift card or credit card.

[0052] A schematic diagram of an exemplary kiosk that omits biometric measurement and information facilities but that provides entertainment information such as via television, video, etc., is illustrated in FIG. **4**. The kiosk **400** is similar in some regards to that of FIG. **3**, and includes a processor **401**, a user interface **403**, wide area communications facilities **405**, and a set of databases **407**, **409**, linked to the processor **401** via a database interface **411**. The kiosk **400** includes a printer **413**, which may also be used in the kiosk **300** of FIG. **3**. The kiosk **400** also includes a card reader **415**. In overview, the non-biometric kiosk **400** as illustrated in FIG. **4** is usable to provide entertainment and advertising to users. The manner of operation according to a specific example will be given below by reference to the flow chart of FIG. **6**.

[0053] Returning now to the system illustrated in FIG. **3**, it was mentioned above that such a biometric measurement equipped kiosk can be used to obtain and provide biometric data of interest to a user and to provide an emergency alert to the user. In particular, certain biometric measurements can convey information sufficient to indicate whether the user may be in or about to enter a dangerous state. For example, blood pressure readings can indicate that a person is having, or is close to having, a stroke. In this case, the kiosk will call the user's cell phone automatically and connect the user to an emergency service, so that a paramedic may further diagnose and advise the user. This is especially useful for older users who may not be able to dial a help number. In particular, very high (or otherwise worrisome) readings cause the kiosk to connect the user's cell phone to the kiosk and then through to a call center representative for counseling. When communicating with the user's cell phone, the kiosk may target devices within a small enough radius to likely include the cell phone, e.g., 2 or 3 feet. The connection between the kiosk and the cell phone may be executed via Bluetooth or other suitable short-range wireless protocol.

[0054] A process of operation according to a specific example will be given below by reference to the flow chart of FIG. **5**. At stage **501** of the process **500**, the kiosk receives user data, such as pursuant to the swipe of a user magnetic stripe card in a card reader. At stage **503**, the kiosk presents to the user a menu of options. In an embodiment of the invention, the options include an option to retrieve prior readings and an option to perform a current reading. If the user does not have a card or swipes a card for which no data is available, or if the user information associated with the

card does not match the user identity derived from identity verification, e.g., via face recognition, the kiosk may so inform the user. For example, the visual user interface of the kiosk may display a message such as: "Customized services are not

[0055] available due to lack of identity information/verification. Please visit [www.abc.com\ the information desk\etc.] to [obtain a Heath Information Card\confirm identity\etc.]."

[0056] At stage **505**, it is determined whether the user wishes to retrieve prior readings or perform a current reading. If the user desires to retrieve prior readings the process flows to stage **507***a*, whereat the kiosk contacts a server over a network or other link to retrieve the requested readings. During this time, at stage **507***b*, the kiosk may display an audio/video advertisement to the user. After the advertisement has played, the kiosk presents the requested readings to the user at stage **509** and returns to stage **503**.

[0057] If at stage **505** it is determined that the user wishes to perform a current reading, the process flows to stage **511**, whereat the user is instructed to prepare for the test, i.e., by placing their arm in the cuff, sitting appropriately on the scale/seat, gripping a handle in a specific location etc. At stage **513***a*, the test begins. Concurrently in stage **513***b*, the kiosk presents an audio/video advertisement to the user. After the advertisement has played, the kiosk presents the requested readings to the user at stage **509**.

[0058]] A stage **515**, the kiosk determines whether the biometric reading given to the user in stage **509** indicates a physical condition that requires immediate attention. For example, as noted above, certain blood pressure readings or pulse rate readings may signal an ongoing or imminent serious physical problem such as a stroke. If it is determined at stage **515** that the biometric reading given to the user does not indicate a physical condition that requires immediate attention, then the process returns to stage **503**. Otherwise, the process flows to stage **517**, whereupon the kiosk connects the user to a responder, such as a call center representative or emergency personnel or doctor on call, and transmits data regarding the reading of concern to the responder. At this point, the responder is able to counsel the user or to summon the necessary aid.

[0059] As noted above, the non-biometric kiosk **400** as illustrated in FIG. **4** is usable to provide entertainment and advertising to users. The manner of operation according to a specific example is now shown by reference to the flow chart of FIG. **6**. At stage **601** of the process **600**, the process displays advertisements on a user interface. Such advertisements may be still or video, and may be interspersed with directions for a user to swipe their card to access entertainment options. At stage **603**, the kiosk receives user data, such as pursuant to the swipe of a user magnetic stripe card in a card reader. The data may either be stored on the card or the data stored on the card may be linked to the user data by the kiosk.

[0060] Upon receipt of the user data, the process flows to stage **605**, whereupon a list of selectable options is presented to the user. Such options may include sports scores, sports highlights, interviews, news, current affairs, exercise tips, etc. At stage **607**, the process receives a user selection of an option and at stage **609** proceeds to display the entertainment requested by the user. At the same time, the process may intersperse within the material advertisements customized to the user based on the user demographic or other data as gathered from the user's co-branded card.

[0061] Prior to ending, the process optionally prints a coupon for the user at stage **611**. The coupon may be specific to a store within which the kiosk is hosted, or may be specific to a product sold in such store, or may simply be specific to the user demographics. Subsequent to stage **611**, the process terminates.

[0062] Although the biometric service-providing kiosks discussed above may provide the measurement data as well as advertising and the other types of data discussed above, the kiosk also optionally provides customized user feedback in a further embodiment of the invention. For example, if the user has lost a certain amount of excess weight compared to a prior visit or visits, the kiosk will inform the user of the loss and will also provide a modified diet or exercise regimen to the user. The updated diet and/or regimen may be tailored to continue an appropriate weight loss, slow an excessive weight loss rate, or accelerate an inadequate weight loss rate.

[0063] To provide or reiterate certain salient features, it is noted that the health measurement kiosk may measure one or more resting health parameters include blood pressure, blood oxygen, cardiac condition, cardiac arrhythmia, blood glucose and body mass index (BMI). With respect to BMI or other weight-based measurements, the kiosk may include a scale configured to determine a user's weight.

[0064] With respect to verifying the identity of the user, the kiosk may include one or more identity functions or modules, such as a retinal scanner, a facial recognition module, a palm print reader, a foot print scanner and a finger print reader. In an embodiment having a scale for user weight, the ID module may be a foot print reader in the surface of the scale, for example.

[0065] Further with respect to measuring BMI, the device (or its processor) may be configured to offer a reward to an obese user who meets a predetermined BMI threshold, e.g., over 30, and who has exhibited weight loss progress. The he reward may include reimbursable counseling, discounts on health insurance, and/or a cash reward.

[0066] The kiosk may store user health information locally or remotely, in an encrypted form available only to the user and third parties designated by the user, e.g., a physician. As noted above, linking of the user's mobile communication device to the remote health service or health care provider employs near field communications between the kiosk and the mobile device. An application may be loaded on the communication device to link the mobile communication

[0067] device of the user to the remote health service or health care provider via streaming video or digital messaging. The application may access user payment information to allow payment from the user to the remote health service or health care provider. In an embodiment, the application is configured to display advertising on the device.

[0068] The remote health service or health care provider may be a call center or a health care practitioner. Further, the kiosk may include a user interface screen, such that the communication session between the user and the remote health service or health care provider is opened by first presenting on the user interface screen a selectable element for opening such a link, and receiving a user selection of the selectable element. The selectable element may be presented, for example, when the measured health parameters indicate a potential health problem.

[0069] The remote health service or health care provider may be compensated by the user or the user's insurance. In an embodiment, the remote health service or health care provider refers the user to a physician for follow up care, and may collect a referral fee based on such referral.

[0070] The communication session between the user and the remote health service or health care provider may be one of voice over IP and a video conference. Further, the kiosk may display an advertisement to the user via the user interface screen or via a user device. The advertisement may include three or more types of stimulus selected from the among the available senses, e.g., visual stimulus, motion stimulus, audio stimulus, and scent stimulus.

[0071] The processor of the kiosk may also be configured to interact with a social media account associated with the user. In an embodiment, a camera may be included on the kiosk as a deterrent to cheating.

[0072] In a further embodiment of the invention, the kiosk optionally modifies displayed advertising according to user health as indicated by the biometric measurements. For example, advertisements for snack foods are not appropriate for overweight users, whereas information on healthy eating programs and so on may be more appropriate.

[0073] As noted above, the kiosk may comprise an attached or integrated printing device. In this regard, the printer can be used to print out detailed customized instructions and programs for the user. For example, the updated diet and/or regimen may be printed out to be taken by the user. Preprinted materials may also be made available instead or in addition to the contemporaneously printed materials.

[0074] As discussed herein, video may comprise downloaded and/or streaming video, animation, etc., and may be accompanied by sound and/or other sensory information.

[0075] In an embodiment, a home health testing kit is provided to allow a user to check relevant health parameters at home. The configuration of such a device can be understood from FIG. **7**, which is a simplified schematic drawing of an exemplary home kit. The kit **1** includes a processor **2** that controls the operation of the kit **1**. To this end, the kit includes a display screen **6** as well as a measurement module **4**. A communications module **3** provides communications between the home kit **1** and the user device **5**, and between the home kit **1** and the internet **7** or other network, e.g., to contact the remote health service or health care provider.

[0076] In an embodiment, the portable health measurement home kit measures, via the measurement module **4**, one or more resting health parameters, e.g., blood pressure, blood oxygen, cardiac condition, cardiac arrhythmia, blood glucose and body mass index. Although it is portable, the home kit includes a scale to determine user weight in an embodiment. The kit may also provide a drug testing capability and/or a cholesterol testing capability.

[0077] The communication session between the user and the remote health service or health care provider may be made by linking the user mobile device to the remote health service or health care provider using near field communications. An application loaded on the communication device of the user may be used to link the mobile communication device of the user to the remote health service or health care provider via streaming video or digital

[0078] messaging. The application may also have access to user payment information to allow payment from the user to the remote health service or health care provider, which may be a call center or a health care practitioner.

[0079] The user interface screen or display screen may be used to present a selectable element for opening a communications link. In an embodiment, the selectable element is presented when the measured health parameters indicate a potential health problem. The communication session may be via voice over IP or via video conference. Further, with respect to payment, the remote health service or health care provider may be compensated by the user or their insurance.

[0080] In an embodiment wherein the remote health service or health care provider refers the user to a physician for follow up care, they may collect a referral fee based on such referral. For purposes of monetization, the device may display on its screen or the user device screen an advertisement to the user via the user interface screen. The portable health measurement home kit may also be configured to interact with a social media account associated with the user. For purposes of user identification, the kit may include at least one of a retinal scanner, a facial recognition module, a palm print reader, a foot print scanner and a finger print reader, such that the processor can verify the user's identity.

[0081] In a related embodiment, a weight measurement station is provided for measuring a weight of a user. The weight measurement station includes a portion configured to support the user in one of a sitting and standing position and to determine the user's weight. A portion configured to determine the user's identity ensures that data privacy is maintained and that any incentives or rewards are properly earned. A communication interface is configured to communicate with a remote entity, such that the station processor may open a communication session between the weight measurement station and the remote entity. In an embodiment, the portion configured to determine the user's identity comprises a footprint reader.

[0082] In a further embodiment, wherein a blood pressure sensor such as a sensor cuff for the user's arm is used, the cuff is communicatively linked to the footprint reader in order to verify the identity of the user for purposes of the blood pressure measurements. This link may be made via Bluetooth or other short-range communications technology, and may be direct or indirect. Alternatively, each of the scale and the cuff may be communicatively linked to a third entity that maintains and processes user readings and/or used identity information.

[0083] In yet another embodiment, the system enables a user to verifiably engage in walking as a rewardable alternative to or supplement to weight loss. In this embodiment, a fingerprint reader is located on, or collocated with, a user-wearable pedometer/pulse clip. In this embodiment, the user's identity is verified at set or random intervals or times by the fingerprint sensor while the user is walking. In this way, he user may earn get healthy rewards credit.

[0084] In a further embodiment of the disclosed principles, a triple test kit with verified user ID is provided. FIG. **8** is a schematic view of a triple test kit in keeping with embodiments of the disclosed principles. In the illustrated embodiment, the system includes three test modules, namely a scale **10** and associated electronics, a blood pressure cuff **11** and associated electronics, and a pedometer **12** and associated electronics. The modules **10**, **11**, **12** may be interconnected permanently or intermittently by wired or wireless connections supported by respective connection

interfaces **13**, **14**, and **15** associated with the scale **10**, blood pressure cuff **11**, pedometer **12** and the associated electronics.

[0085] In a further embodiment, a fingerprint reader **16** is within or associated with the pedometer **12**. For example, the fingerprint reader may be physically located on or in the same housing as the pedometer **12** or may be connected to the pedometer **12** via a cable. Similarly, a footprint reader **17** may be located on the scale **10**. It will be appreciated that both a footprint reader and a fingerprint reader typically comprise a sensing surface as well as components for scanning, packetizing, or otherwise gleaning and processing the sensed data.

[0086] In an embodiment, one or more components may also have an interface to one or both of a user device **18**, such as user device **5** in FIG. **7**, and a personal computer or other computing device **19**. In this way, collected data may be sent via the user device **18** or computing device **19** to an insurer server or other entity located on the internet or other wide area network.

[0087] The operation of the disclosed exemplary system of FIG. **8** may be best appreciated by reference to the process **30** illustrated via the flow chart of FIG. **9**. This process **30** is illustrated in the context of an insurer being the incentivizing entity. At stage **31** of the process **30**, the insurer offers a reward to a user in the event that the user is able to meet certain health requirements that are testable via the scale **10**, blood pressure cuff **11** and pedometer. These requirements may comprise an exercise goal, a weight loss or maintenance goal, etc.

[0088] At stage **32** of the process, the user tests their health status (weight, blood pressure) and/or verifies their exercise level (e.g., via the pedometer). The user's biometric ID data, such as their fingerprint and/or footprint, is collected concurrently at stage **33** of the process **30** by the relevant hardware, e.g., the footprint reader **17** and fingerprint reader **16**. At stage **34**, the insurer collects the user ID and the user's health/exercise data, e.g., via the internet.

[0089] The insurer then processes the received data to verify the user's identity and to determine whether a reward is due to the user. Thus, at stage **35**, the insurer compares the received identity data (footprint, fingerprint) to identity data that is has previously stored for the user. The previous storage of the user identity data may have been at a pharmacy or other authorized provider, for example. If the comparison yields a substantial match (to whatever threshold the insurer deems acceptable), then the process **30** flows to stage **36**. Otherwise, the process **30** exits.

[0090] At stage **36**, the insurer determines whether a reward is to be provided to the user. For example, if the user has met a weight loss or weight maintenance goal, or has met an exercise goal, then a reward may be due. Rewards may consist of cash, discounts, store credits or other suitably desirable medium. Finally, at stage **37**, the insurer records the user's current health status, records that a reward has been paid, and transmits an indication of the reward to the user. The identification may be a discount code, a notification that a premium discount will be applied, etc. In an embodiment, cash/credit card rewards are provided by sponsors and insurance companies.

[0091] Although the disclosed user ID verification techniques are beneficial in many ways, alternative ID verification may nonetheless be provided in an embodiment. For example, in an embodiment, a user is identified by the use of a password or pass code. While this provides a less certain verification of the user's identification, the rewards provided using such verification may be commensurately reduced. Thus, for example, user's whose systems provide a biometric identification may be given the full reward when conditions warrant a reward, whereas user's whose systems provide only password verification may be given a reduced reward in the same circumstances. In addition to the rewards noted above, the rewards may consist of other types of commercially valuable items such as coupons to specific stores, perhaps based on user diet, activity, etc.

[0092] In an embodiment, the system enables a software upgrade that transitions the system from a password enabled system to a biometrically verified system. This is executed in a further embodiment by providing an unlock code or certificate that the user can purchase to unlock functionality already programmed in the device memory. Alternatively, an online download of additional functionality may be enabled, e.g., by purchase.

[0093] In an embodiment, the home test system alternatively or additionally includes a bone density and/or bone mass test or test module. This is especially helpful for older users or users otherwise subject to loss of bone. In a further embodiment, each kit may provide a testing module or interface and equipment for testing blood glucose levels or other levels of importance for diabetes or pre-diabetes care.

[0094] As part of measuring body mass and/or body composition, the user is provided counseling in an embodiment in order to improve user health and may be provided recommended daily caloric intake information and suggested menu changes as weight changes. For example, a user with an excessive BMI may be given instructions, recipes, techniques etc. to reduce fat content, whereas an overly thin user might receive tips on increasing lean mass and eating a more rounded or nutritious diet.

[0095] In a further embodiment the triple test kit is equipped with two cuffs rather than one, or is sold with a selected one of two or more optional cuffs, or in a selected one of two or more kit forms. For example, the kit may be offered with a regular cuff or with a larger cuff for larger users, providing widespread availability.

[0096] As with the kiosks, the home test kit may also be used to support health-based challenges and contests or competitions. Contests may be between schools (K-12, colleges, graduate schools, vocational schools, etc.), institutions (companies, company branches or locations, scouting or other social organizations, churches, synagogues, and so on), pharmacies, cities, or other distinct groups of individuals.

[0097] In an embodiment, a scale is provided for weighing a user, the scale comprising: a weight sensor configured for physical contact with one or both of the user's feet to generate an indication of the user's weight; a hand hold mounted to the scale; a finger print sensor located on the hand hold such that at least one of the user's fingers contacts the print sensor when the user is standing on the scale and holding the hand hold, wherein the print sensor outputs data indicative of a print associated with the at least one of the user's fingers; and a processor configured to receive the indication of the user's weight and generate a weight value, and to receive the print associated with the at least one of the user's fingers, and to associate the print with the user in order to associate the generated weight value with the user.

[0098] In an embodiment, the at least one of the user's fingers comprises two of the user's fingers. In a further embodiment, the at least one of the user's fingers comprises at least one of the user's thumbs. The processor may be further configured to verify via a continuity check that the user on the scale is the same user holding the hand hold.

[0099] The scale may further include a memory, wherein the processor is further configured to store weight readings associated with the user in memory and to retrieve stored readings for display to the user after associating the print with the user. The scale may further include a networking module, wherein the processor is further configured to transmit a user identity and weight readings associated with the user over a network to a remote entity.

[0100] The remote entity may be a server or other computer associated with an insurer that insures the user or a server or other computer associated with one of a governmental entity and a corporate entity. The remote entity may be a server or other computer associated with a contest organizer.

[0101] The processor may be further configured to gather non-weight health data from the user including one or more of blood pressure, heart rate and blood oxygen level, and the non-weight health data further includes a pedometer reading. The non-weight health data may further include one or more of a blood glucose reading and a bone mass or bone density reading.

[0102] In another embodiment, a scale is provided for weighing a user, the scale comprising: a weight sensor configured for physical contact with one or both of the user's feet to generate an indication of the user's weight; a hand hold mounted to the scale; a camera located on the hand hold such that an image of the user's face is captured when the user is standing on the scale; and a processor configured to receive the captured image and generate a weight value, and to associate the captured image with the user in order to associate the generated weight value with the user.

[0103] The scale processor may be further configured to verify via a continuity check that the user on the scale is the same user holding the hand hold. The scale may include a memory, wherein the processor is further configured to store weight readings associated with the user in memory and to retrieve stored readings for display to the user after associating the captured image with the user.

[0104] The scale may also include a networking module, wherein the processor is further configured to transmit a user identity and weight readings associated with the user over a network to a remote entity. The remote entity may be a server or other computer associated with an insurer that insures the user or a server or other computer associated with one of a governmental entity and a corporate entity or a server or other computer associated with a contest organizer.

[0105] The processor may be further configured to gather non-weight health data from the user including one or more of a user blood pressure, a user heart rate and a user blood oxygen level and the non-weight health data may further include a pedometer reading. The non-weight health data may further include one or more of a blood glucose reading and a bone mass or bone density reading.

[0106] The use of the terms "a" and "an" and "the" and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms "comprising," "having," "including," and "containing" are to be construed as open-ended terms (i.e., meaning "including, but not limited to,") unless otherwise noted. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., "such as") provided herein, is intended merely to better illuminate the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

[0107] Preferred embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those preferred embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention to be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by applicable law. Moreover, any combination of the above-described elements in all possible variations thereof is encompassed by the invention unless otherwise indicated herein or otherwise clearly contradicted by context.

We claim:

1. A scale for weighing a user, the scale comprising: a weight sensor configured for physical contact with one or both of the user's feet to generate an indication of the user's weight; a hand hold mounted to the scale; a finger print sensor located on the hand hold such that at least one of the user's fingers contacts the print sensor when the user is standing on the scale and holding the hand hold, wherein the print sensor outputs data indicative of a print associated with the at least one of the user's fingers; and a processor configured to receive the indication of the user's weight and generate a weight value, and to receive the print associated with the at least one of the user's fingers, and to associate the print with the user in order to associate the generated weight value with the user.

2. The scale in accordance with claim **1**, wherein the at least one of the user's fingers comprises two of the user's fingers.

3. The scale in accordance with claim **1**, wherein the at least one of the user's fingers comprises at least one of the user's thumbs.

4. The scale in accordance with claim **1**, wherein the processor is further configured to verify via a continuity check that the user on the scale is the same user holding the hand hold.

5. The scale in accordance with claim **1**, further comprising a memory, wherein the processor is further configured to store weight readings associated with the user in memory and to retrieve stored readings for display to the user after associating the print with the user.

6. The scale in accordance with claim **1**, further comprising a networking module, and wherein the processor is

further configured to transmit a user identity and weight readings associated with the user over a network to a remote entity.

7. The scale in accordance with claim **1**, wherein the remote entity is a server or other computer associated with an insurer that insures the user or a server or other computer associated with one of a governmental entity and a corporate entity.

8. The scale in accordance with claim **1**, wherein the remote entity is a server or other computer associated with a contest organizer.

9. The scale in accordance with claim **1**, wherein the processor is further configured to gather non-weight health data from the user including one or more of blood pressure, heart rate and blood oxygen level.

10. The scale in accordance with claim **6**, wherein the non-weight health data further includes a pedometer reading.

11. The scale in accordance with claim **6**, wherein the non-weight health data further includes one or more of a blood glucose reading and a bone mass or bone density reading.

12. A scale for weighing a user, the scale comprising: a weight sensor configured for physical contact with one or both of the user's feet to generate an indication of the user's weight; a hand hold mounted to the scale; a camera located on the hand hold such that an image of the user's face is captured when the user is standing on the scale; and a processor configured to receive the captured image and generate a weight value, and to associate the captured image with the user in order to associate the generated weight value with the user.

13. The scale in accordance with claim **12**, wherein the processor is further configured to verify via a continuity check that the user on the scale is the same user holding the hand hold.

14. The scale in accordance with claim **12**, further comprising a memory, wherein the processor is further configured to store weight readings associated with the user in memory and to retrieve stored readings for display to the user after associating the captured image with the user.

15. The scale in accordance with claim **12**, further comprising a networking module, and wherein the processor is further configured to transmit a user identity and weight readings associated with the user over a network to a remote entity.

16. The scale in accordance with claim **15**, wherein the remote entity is a server or other computer associated with an insurer that insures the user.

17. The scale in accordance with claim **15**, wherein the remote entity is a server or other computer associated with one of a governmental entity and a corporate entity or a server or other computer associated with a contest organizer.

18. The scale in accordance with claim **12**, wherein the processor is further configured to gather non-weight health data from the user including one or more of a user blood pressure, a user heart rate and a user blood oxygen level.

19. The scale in accordance with claim **18**, wherein the non-weight health data further includes a pedometer reading.

20. The scale in accordance with claim **18**, wherein the non-weight health data further includes one or more of a blood glucose reading and a bone mass or bone density reading.

* * * * *

专利名称(译)	使用正ID进行缩放		
公开(公告)号	US20160378924A1	公开(公告)日	2016-12-29
申请号	US15/252202	申请日	2016-08-30
[标]申请(专利权)人(译)	蒲甘KENNETHĴ		
申请(专利权)人(译)	蒲甘，KENNETH J.		
当前申请(专利权)人(译)	蒲甘，KENNETH J.		
[标]发明人	BAGAN KENNETH J		
发明人	BAGAN, KENNETH J.		
IPC分类号	G06F19/00 A61B5/0205 A61B5/1174 A61B5/00 A61B5/1172 A61B5/103 A61B5/145		
CPC分类号	G06F19/322 G06F19/328 A61B5/1036 A61B5/0205 A61B5/14542 A61B5/14532 A61B5/024 A61B5/0059 A61B5/0022 A61B5/1172 A61B5/1174 A61B5/021 A61B5/4509 A61B5/0002 A61B5/6824 G01G19/4142 G01G19/44 G06K9/00885 G06K9/00892 G06Q30/0207 G06Q40/08 G16H10/60 G16H40/63 G16H40/67 G01G19/50 G06K9/00362		
外部链接	Espacenet USPTO		

摘要(译)

本发明的实施例涉及用于称重用户的秤，其中秤包括内置的肯定安全/验证系统，以便能够提供用户身份的验证。