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ELLIS et al.

(54) **SYSTEM AND METHOD OF MONITORING USERS DURING AN INTERACTIVE ACTIVITY**

(75) Inventors: **Jason ELLIS**, San Diego, CA (US); **Clint McClellan**, Del Mar, CA (US)

Correspondence Address:
QUALCOMM INCORPORATED
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121 (US)

(73) Assignee: **QUALCOMM Incorporated**, San Diego, CA (US)

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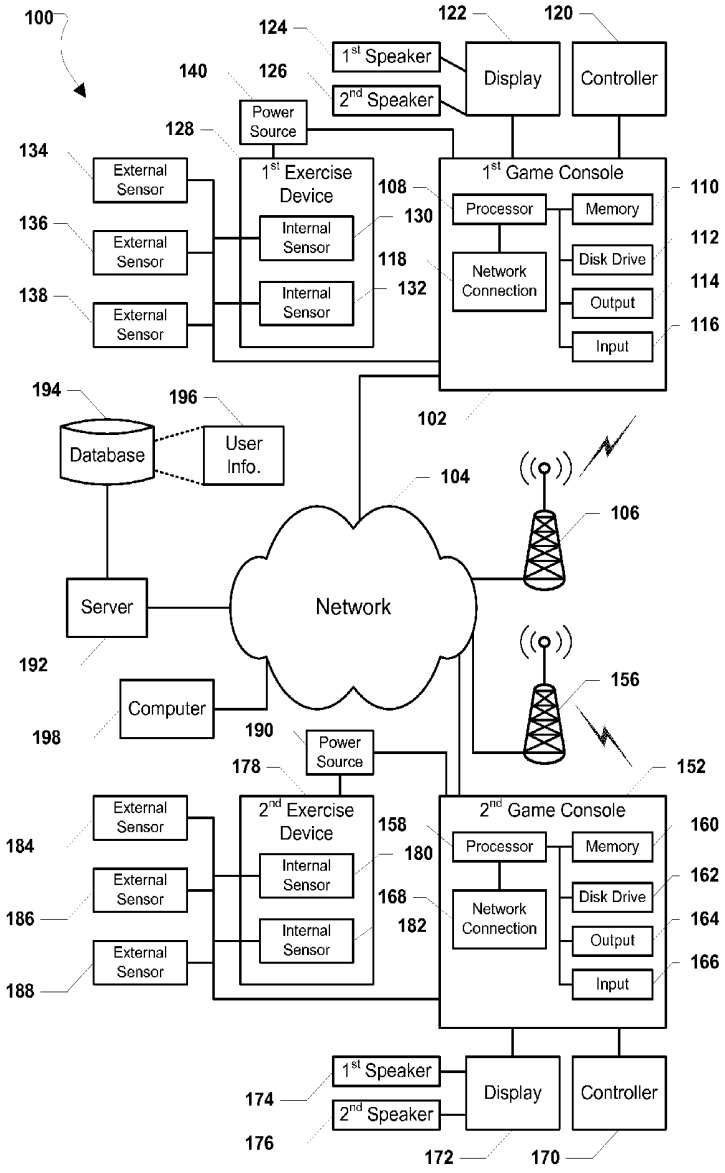
(57) **ABSTRACT**

A game system is disclosed and may include an exercise device and at least one sensor that may be configured to be worn by a user of the exercise device during an activity. The system may further include a game console that may be connected to the exercise device and at least one sensor. The game console may include a processor that is operable to monitor one or more vital signs associated with a player during an activity via at least one sensor and to provide feedback to the player at least partially based on the vital signs.



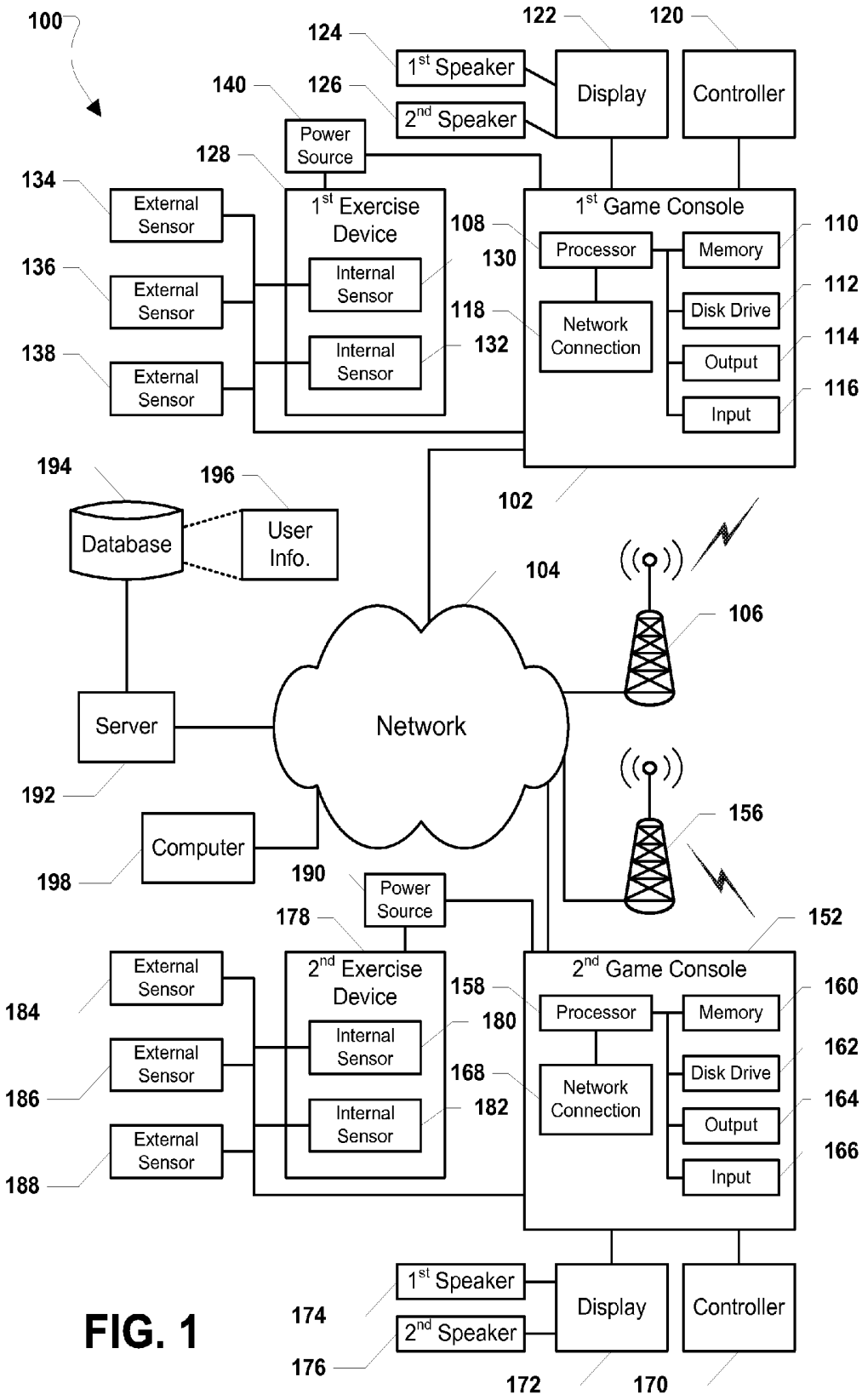

100
124
122
120
1st Speaker
Display
Controller
140
126
2nd Speaker
Power Source
128
134
External Sensor
1st Exercise Device
108
1st Game Console
110
Processor
Memory
130
136
External Sensor
Internal Sensor
112
118
Network Connection
Disk Drive
138
External Sensor
Internal Sensor
132
114
Output
116
Input
194
196
102
Database
User Info.
104
106
Network
Server
192
Computer
198
190
156
Power Source
178
152
External Sensor
2nd Exercise Device
2nd Game Console
158
160
184
Processor
Memory
180
External Sensor
Internal Sensor
162
186
168
Network Connection
Disk Drive
External Sensor
Internal Sensor
182
164
Output
188
166
Input
1st Speaker
Display
Controller
174
2nd Speaker
176
172
170

FIG. 1

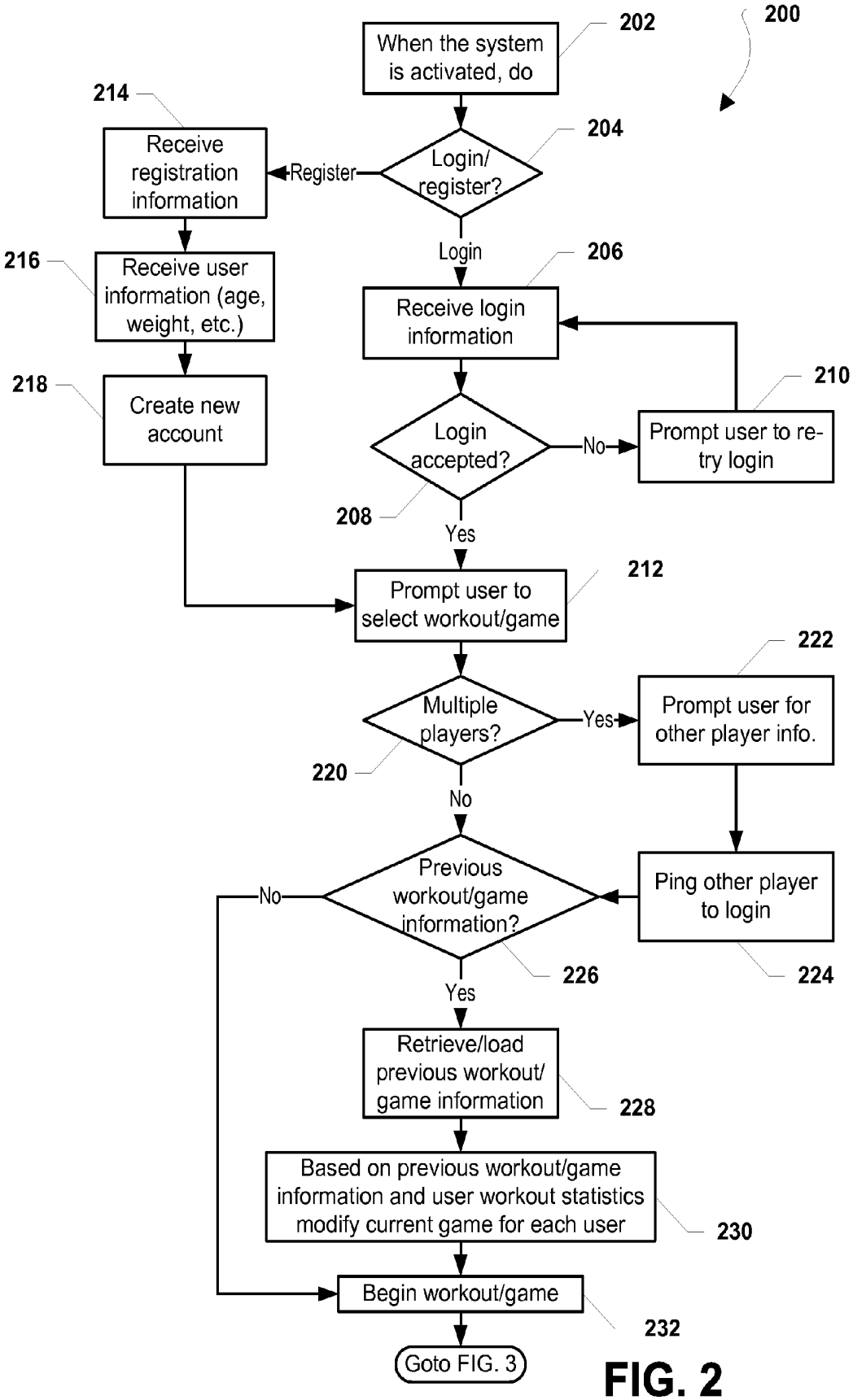

200
When the system is activated, do
202
Login/ register?
204
Register
Receive registration information
214
Login
Receive login information
206
Receive user information (age, weight, etc.)
216
Create new account
218
Login accepted?
No
Prompt user to re-try login
210
208
Yes
Prompt user to select workout/game
212
Multiple players?
Yes
Prompt user for other player info.
222
220
No
Previous workout/game information?
No
Ping other player to login
224
226
Yes
Retrieve/load previous workout/ game information
228
Based on previous workout/game information and user workout statistics modify current game for each user
230
Begin workout/game
232
Goto FIG. 3

FIG. 2

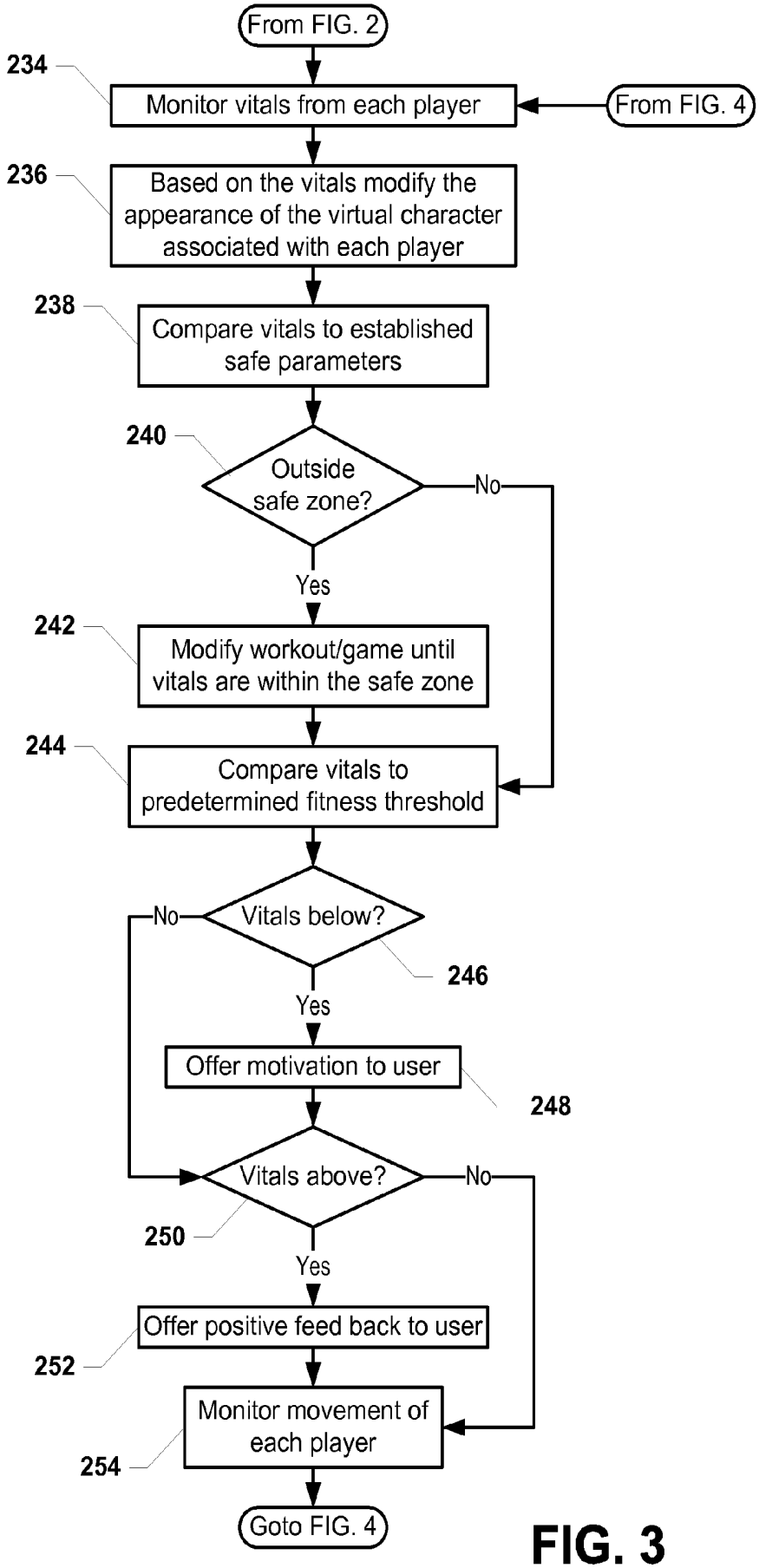

From FIG. 2
234
Monitor vitals from each player
From FIG. 4
236
Based on the vitals modify the appearance of the virtual character associated with each player
238
Compare vitals to established safe parameters
240
Outside safe zone?
No
Yes
242
Modify workout/game until vitals are within the safe zone
244
Compare vitals to predetermined fitness threshold
No
Vitals below?
246
Yes
Offer motivation to user
248
Vitals above?
No
250
Yes
Offer positive feed back to user
252
Monitor movement of each player
254
Goto FIG. 4

FIG. 3

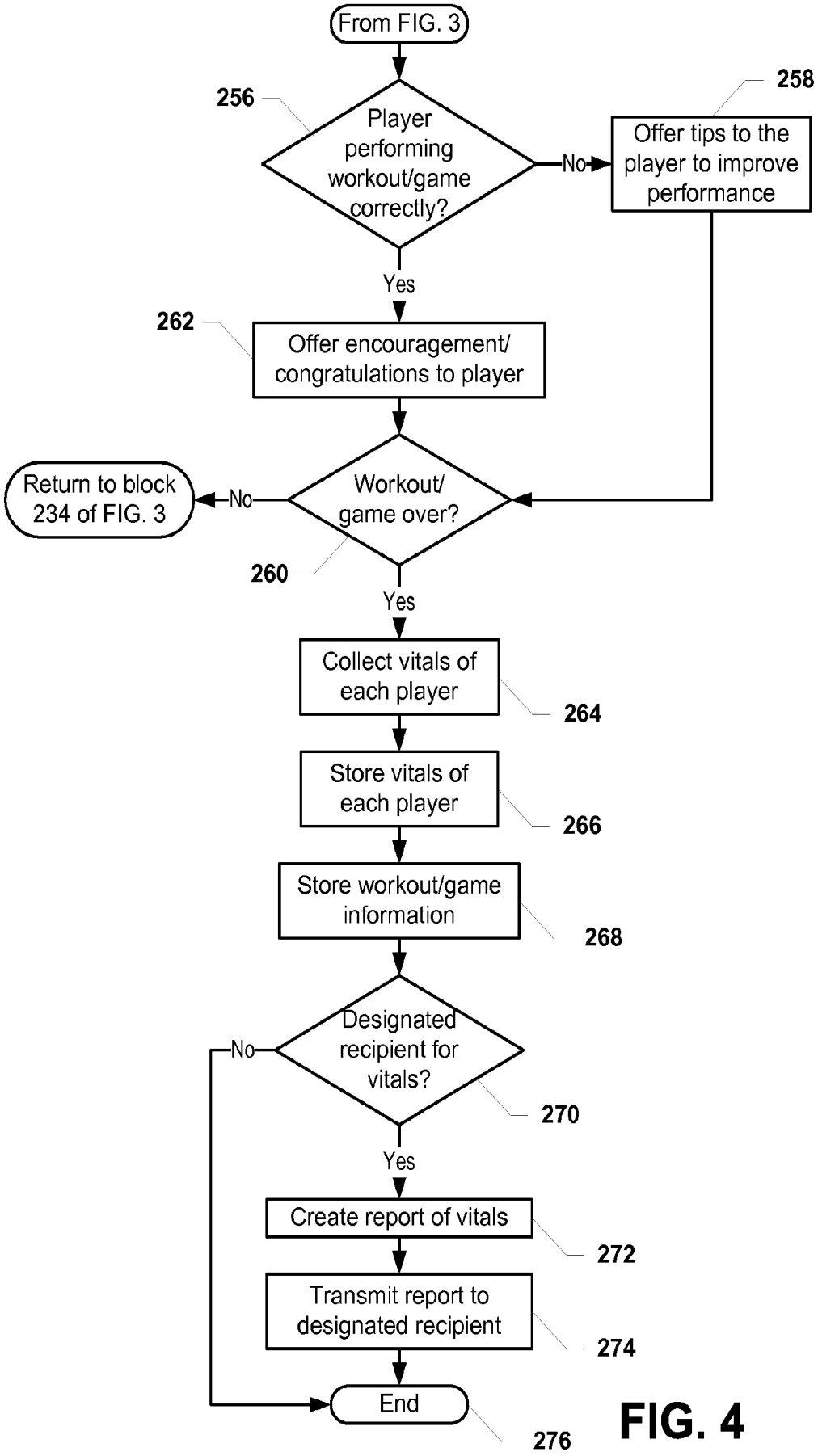

From FIG. 3
256
Player performing workout/game correctly?
No
258
Offer tips to the player to improve performance
Yes
262
Offer encouragement/ congratulations to player
Return to block 234 of FIG. 3
No
Workout/ game over?
260
Yes
Collect vitals of each player
264
Store vitals of each player
266
Store workout/game information
268
No
Designated recipient for vitals?
270
Yes
Create report of vitals
272
Transmit report to designated recipient
274
End
276

FIG. 4

SYSTEM AND METHOD OF MONITORING USERS DURING AN INTERACTIVE ACTIVITY

FIELD

[0001] The present invention generally relates to the game systems, and more particularly, to systems and methods for monitoring users during a workout, a game, or a combination thereof.

DESCRIPTION OF THE RELATED ART

[0002] There is a growing concern in many countries regarding the general health of people. Many people lead very unhealthy lifestyles and do not exercise on a regular basis. Further, many people purchase gym memberships or home exercise devices and do not regularly utilize their memberships or the exercise devices. It is well understood that motivation and distraction are the two main techniques that may be used to get people to use, and continue to use, fitness equipment. Gyms include instructors and trainers. Further, a gym may provide a conducive environment for friendly peer pressure that may give someone more reasons to engage in a workout. Also, at a gym someone is more likely to find a workout partner to motivate and inspire them to workout. At home, people do not have the luxury of an instructor or a trainer to provide the much needed motivation and distraction.

[0003] Accordingly, there exists a need for a system and method for addressing these deficiencies.

SUMMARY OF THE DISCLOSURE

[0004] A method of providing an interactive activity is disclosed and may include monitoring one or more vital signs associated with a player during an activity and at least partially based on the vital signs, providing feedback to the player.

[0005] The one or more vitals may include at least one of the following: a heart rate, a body temperature, a perspiration rate, a respiration rate, a blood glucose level, a body mass index, or any combination thereof. Further, the feedback may be provided by a virtual trainer presented via a display device. In this aspect, the vital signs may be monitored using one or more sensors worn by the player. The sensors may include at least one of the following: a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index sensor, or a combination thereof.

[0006] In this aspect, the method may further include comparing the vital signs to established safe parameters associated with the player, determining whether the vital signs are within a safe zone, and modifying the activity until the vital signs return to the safe zone when the vital signs are outside of the safe zone. Further, the method may include stopping the activity when the vital signs do not return to the safe zone within a time period.

[0007] The method may also include modifying an appearance of a virtual player associated with the player at least partially based on the vital signs of the player. Moreover, the method may include comparing the vital signs to a fitness threshold associated with the player; and determining whether the vital signs are above or below the fitness threshold. When the vital signs are below the fitness threshold, the method may include offering motivation to the player until the vital signs move above the fitness threshold. The motivation may be offered to the player by a virtual trainer presented via a display device. Also, when the vital signs are above the fitness threshold, the method may include offering positive feedback to the user. The positive feedback may be offered to the player by a virtual trainer presented via a display device.

[0008] In this aspect, the method may also include monitoring the movement of the player and determining whether the player is performing the activity correctly. When the player is performing the activity correctly, the method may include offering congratulations to the player. The congratulations may be offered to the player by a virtual trainer presented via a display device. When the player is not performing the activity correctly, the method may include offering one or more tips to the player to improve performance. The tips may be offered to the player by a virtual trainer presented via a display device. Further, the movement of the player may be monitored using one or more sensors worn by the player during the activity. The sensors may include at least one of the following: an accelerometer, a gyroscope, a pressure sensor, a weight sensor, a speedometer, a tachometer, a magnetometer, a pedometer, or any combination thereof.

[0009] In this aspect, the method may further include collecting the vital signs of the player, storing the vital signs of the player, determining whether a designated recipient for the vital signs is associated with the player, creating a report with the vital signs, and transmitting the report to the designated recipient associated with the player.

[0010] Further, the method may include retrieving previous activity information, and at least partially based on the previous activity information, the method may include varying an intensity of the activity. For example, the method may include increasing the intensity of the activity or decreasing the intensity of the activity.

[0011] In another aspect, a game server is disclosed and may include means for monitoring one or more vital signs associated with a player during an activity and means for providing feedback to the player at least partially based on the vital signs.

[0012] The one or more vitals may include at least one of the following: a heart rate, a body temperature, a perspiration rate, a respiration rate, a blood glucose level, a body mass index, or any combination thereof. Moreover, the feedback may be provided by a virtual trainer presented via a display device. Also, the vital signs may be monitored using one or more sensors worn by the player. The sensors may include at least one of the following: a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index sensor, or a combination thereof.

[0013] The game server may further include means for comparing the vital signs to established safe parameters associated with the player, means for determining whether the vital signs are within a safe zone, and means for modifying the activity until the vital signs return to the safe zone when the vital signs are outside of the safe zone. Also, the game server may include means for stopping the activity when the vital signs do not return to the safe zone within a time period and means for modifying an appearance of a virtual player associated with the player at least partially based on the vital signs of the player. The game server may also include means for comparing the vital signs to a fitness threshold associated with the player and means for determining whether the vital signs are above or below the fitness threshold. Further, the

game server may include means for offering motivation to the player until the vital signs move above the fitness threshold when the vital signs are below the fitness threshold. The motivation may be offered to the player by a virtual trainer presented via a presented display device.

[0014] The game server may also include means for offering positive feedback to the user when the vital signs are above the fitness threshold. The positive feedback may be offered to the player by a virtual trainer presented via a display device.

[0015] In this aspect, the game server may also include means for monitoring the movement of the player and means for determining whether the player is performing the activity correctly. Additionally, the game server may include means for offering congratulations to the player when the player is performing the activity correctly. The congratulations may be offered to the player by a virtual trainer presented via a display device. The game server may also include means for offering one or more tips to the player to improve performance when the player is not performing the activity correctly. The tips may be offered to the player by a virtual trainer presented via a display device. The movement of the player may be monitored using one or more sensors worn by the player during the activity. The sensors may include at least one of the following: an accelerometer, a gyroscope, a pressure sensor, a weight sensor, a speedometer, a tachometer, a magnetometer, a pedometer, or any combination thereof.

[0016] In this aspect, the game server may also include means for collecting the vital signs of the player, means for storing the vital signs of the player, means for determining whether a designated recipient for the vital signs is associated with the player, means for creating a report with the vital signs, and means for transmitting the report to the designated recipient associated with the player. Also, the game server may include means for retrieving previous activity information and means for varying an intensity of the activity at least partially based on the previous activity information. For example, the game server may include means for increasing the intensity of the activity at least partially based on the previous activity information or means for decreasing the intensity of the activity at least partially based on the previous activity information.

[0017] In yet another aspect, a game server is disclosed and may include a processor that is operable to monitor one or more vital signs associated with a player during an activity and to provide feedback to the player at least partially based on the vital signs.

[0018] The one or more vitals may include at least one of the following: a heart rate, a body temperature, a perspiration rate, a respiration rate, a blood glucose level, a body mass index, or any combination thereof. Moreover, the feedback may be provided by a virtual trainer presented via a display device. Also, the vital signs may be monitored using one or more sensors worn by the player. The sensors may include at least one of the following: a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index sensor, or a combination thereof.

[0019] The processor may also be operable to compare the vital signs to established safe parameters associated with the player, to determine whether the vital signs are within a safe zone, and to modify the activity until the vital signs return to the safe zone when the vital signs are outside of the safe zone. Also, the processor within the game server may be operable to stop the activity when the vital signs do not return to the safe zone within a time period and to modify an appearance of a virtual player associated with the player at least partially based on the vital signs of the player. The processor may also be operable to compare the vital signs to a fitness threshold associated with the player and to determine whether the vital signs are above or below the fitness threshold. Further, the processor within the game server may be operable to offer motivation to the player until the vital signs move above the fitness threshold when the vital signs are below the fitness threshold. The motivation may be offered to the player by a virtual trainer presented via a presented display device.

[0020] In this aspect, the processor may also be operable to offer positive feedback to the user when the vital signs are above the fitness threshold. The positive feedback may be offered to the player by a virtual trainer presented via a display device. The processor within the game server may also operable to monitor the movement of the player and to determine whether the player is performing the activity correctly. Additionally, the processor may be operable to offer congratulations to the player when the player is performing the activity correctly. The congratulations may be offered to the player by a virtual trainer presented via a display device. Further, the processor within the game server may be operable to offer one or more tips to the player to improve performance when the player is not performing the activity correctly. The tips may be offered to the player by a virtual trainer presented via a display device. The movement of the player may be monitored using one or more sensors worn by the player during the activity. The sensors may include at least one of the following: an accelerometer, a gyroscope, a pressure sensor, a weight sensor, a speedometer, a tachometer, a magnetometer, a pedometer, or any combination thereof.

[0021] In this aspect, the processor within the game server may be operable to collect the vital signs of the player, to store the vital signs of the player, to determine whether a designated recipient for the vital signs is associated with the player, to create a report with the vital signs, and to transmit the report to the designated recipient associated with the player. Also, the processor may be operable to retrieve previous activity information and to vary an intensity of the activity at least partially based on the previous activity information. For example, the processor may be operable to increase the intensity of the activity at least partially based on the previous activity information or to decrease the intensity of the activity at least partially based on the previous activity information.

[0022] In still another aspect, a computer program product is disclosed and may include a computer-readable medium. The computer-readable medium may include at least one instruction for monitoring one or more vital signs associated with a player during an activity and at least one instruction for providing feedback to the player at least partially based on the vital signs.

[0023] The one or more vitals may include at least one of the following: a heart rate, a body temperature, a perspiration rate, a respiration rate, a blood glucose level, a body mass index, or any combination thereof. Moreover, the feedback may be provided by a virtual trainer presented via a display device. Also, the vital signs may be monitored using one or more sensors worn by the player. The sensors may include at least one of the following: a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index sensor, or a combination thereof.

[0024] The computer-readable medium may further include at least one instruction for comparing the vital signs to established safe parameters associated with the player, at least one instruction for determining whether the vital signs are within a safe zone, and at least one instruction for modifying the activity until the vital signs return to the safe zone when the vital signs are outside of the safe zone. Also, the computer-readable medium may include at least one instruction for stopping the activity when the vital signs do not return to the safe zone within a time period and at least one instruction for modifying an appearance of a virtual player associated with the player at least partially based on the vital signs of the player. The computer-readable medium may also include at least one instruction for comparing the vital signs to a fitness threshold associated with the player and at least one instruction for determining whether the vital signs are above or below the fitness threshold. Further, the computer-readable medium may include at least one instruction for offering motivation to the player until the vital signs move above the fitness threshold when the vital signs are below the fitness threshold. The motivation may be offered to the player by a virtual trainer presented via a presented display device.

[0025] The computer-readable medium may also include at least one instruction for offering positive feedback to the user when the vital signs are above the fitness threshold. The positive feedback may be offered to the player by a virtual trainer presented via a display device.

[0026] In this aspect, the computer-readable medium may also include at least one instruction for monitoring the movement of the player and at least one instruction for determining whether the player is performing the activity correctly. Additionally, the computer-readable medium may include at least one instruction for offering congratulations to the player when the player is performing the activity correctly. The congratulations may be offered to the player by a virtual trainer presented via a display device. The computer-readable medium may also include at least one instruction for offering one or more tips to the player to improve performance when the player is not performing the activity correctly. The tips may be offered to the player by a virtual trainer presented via a display device. The movement of the player may be monitored using one or more sensors worn by the player during the activity. The sensors may include at least one of the following: an accelerometer, a gyroscope, a pressure sensor, a weight sensor, a speedometer, a tachometer, a magnetometer, a pedometer, or any combination thereof.

[0027] In this aspect, the computer-readable medium may also include at least one instruction for collecting the vital signs of the player, at least one instruction for storing the vital signs of the player, at least one instruction for determining whether a designated recipient for the vital signs is associated with the player, at least one instruction for creating a report with the vital signs, and at least one instruction for transmitting the report to the designated recipient associated with the player. Also, the computer-readable medium may include at least one instruction for retrieving previous activity information and at least one instruction for varying an intensity of the activity at least partially based on the previous activity information. For example, the computer-readable medium may include at least one instruction for increasing the intensity of the activity at least partially based on the previous activity information or at least one instruction for decreasing the intensity of the activity at least partially based on the previous activity information.

[0028] In another aspect, a game system is disclosed and may include an exercise device and at least one sensor that may be configured to be worn by a user of the exercise device during an activity. The system may further include a game console that may be connected to the exercise device and the at least one sensor. The game console may include a processor that is operable to monitor one or more vital signs associated with a player during an activity via the at least one sensor and to provide feedback to the player at least partially based on the vital signs.

[0029] In this aspect, the one or more vitals may include at least one of the following: a heart rate, a body temperature, a perspiration rate, a respiration rate, a blood glucose level, a body mass index, or any combination thereof. Further, the feedback may be provided by a virtual trainer via a display device coupled to the game console. The at least one sensor may include at least one of the following: a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index sensor, or a combination thereof.

[0030] In this aspect of a game system, the processor may also be operable to compare the vital signs to established safe parameters associated with the player, to determine whether the vital signs are within a safe zone, and to modify the activity until the vital signs return to the safe zone when the vital signs are outside of the safe zone. The processor may further be operable to stop the activity when the vital signs do not return to the safe zone within a time period.

[0031] Further, in this aspect, the processor may be operable to modify an appearance of a virtual player associated with the player at least partially based on the vital signs of the player. Also, the processor may be operable to compare the vital signs to a fitness threshold associated with the player, and to determine whether the vital signs are above or below the fitness threshold. The processor may also be operable to offer motivation to the player until the vital signs move above the fitness threshold when the vital signs are below the fitness threshold. The motivation may be offered to the player by a virtual trainer via a display device. The processor may also be operable to offer positive feedback to the user when the vital signs are above the fitness threshold. The positive feedback may be offered to the player by a virtual trainer via a display device.

[0032] In this aspect, the processor may be operable to monitor the movement of the player using the at least one sensor and to determine whether the player is performing the activity correctly. Also, the processor may further be operable to offer congratulations to the player when the player is performing the activity correctly. The congratulations may be offered to the player by a virtual trainer presented via a display device. Moreover, the processor may be operable to offer one or more tips to the player to improve performance when the player is not performing the activity correctly. The tips may be offered to the player by a virtual trainer via a display device. In this aspect, the sensor may include at least one of the following: an accelerometer, a gyroscope, a pressure sensor, a weight sensor, a speedometer, a tachometer, a magnetometer, a pedometer, or any combination thereof.

[0033] In this aspect of a game system, the processor may also be operable to collect the vital signs of the player, to store the vital signs of the player, to determine whether a designated recipient for the vital signs is associated with the player, to create a report with the vital signs and to transmit the report to the designated recipient associated with the player. Further,

the processor may be operable to retrieve previous activity information and to vary an intensity of the activity at least partially based on the previous activity information. For example, the processor may be operable to increase the intensity of the activity at least partially based on the previous activity information or to decrease the intensity of the activity at least partially based on the previous activity information.

[0034] In this aspect of the game system, the exercise device may be selected from the group comprising: a treadmill, an elliptical trainer, an elliptical cross-trainer, a stationary bike, an upright stationary bike, a recumbent stationary bike, and a rowing machine. Further, the exercise device may be selected from the group comprising: a lateral pull down device, a low row device, a biceps curl device, a triceps extension device, a leg press device, a leg extension device, a leg curl device, a squat device, a calf-raise device, a peck deck device, a flat chest press device, an incline chest press device, a decline chest press device, a shoulder press device, a cable crossover device, and a universal device.

[0035] Further aspects will be apparent in the foregoing description and equivalents thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

[0036] In the figures, like reference numerals refer to like parts throughout the various views unless otherwise indicated.

[0037] FIG. **1** is a block diagram representing an activity system; and

[0038] FIG. **2** is a first portion of a flowchart illustrating a method of providing an interactive activity;

[0039] FIG. **3** is a second portion of a flowchart illustrating a method of providing an interactive activity; and

[0040] FIG. **4** is third portion of a flowchart illustrating a method of providing an interactive activity.

DETAILED DESCRIPTION

[0041] The word "exemplary" is used herein to mean "serving as an example, instance, or illustration." Any aspect described herein as "exemplary" is not necessarily to be construed as preferred or advantageous over other aspects.

[0042] In this description, the term "application" may also include files having executable content, such as: object code, scripts, byte code, markup language files, and patches. In addition, an "application" referred to herein, may also include files that are not executable in nature, such as documents that may need to be opened or other data files that need to be accessed.

[0043] The term "content" may also include files having executable content, such as: object code, scripts, byte code, markup language files, and patches. In addition, an "content" referred to herein, may also include files that are not executable in nature, such as documents that may need to be opened or other data files that need to be accessed.

[0044] In this description, the terms "communication device," "wireless device," "wireless telephone," "wireless communications device," and "wireless handset" are used interchangeably. With the advent of third generation ("3G") wireless technology, more bandwidth availability has enabled more electronic devices with wireless capabilities. Therefore, a wireless device could be a cellular telephone, a pager, a PDA, a smartphone, a navigation device, or a computer with a wireless connection. The wireless connection may be a short range wireless connection, a mid-range wireless connection, a long range wireless connection, or a combination thereof. For example, the wireless connection may be a Bluetooth connection, a Wi-Fi connection, an impulse radio connection, a cellular connection, or a combination thereof.

[0045] Referring initially to FIG. **1**, an activity system is shown and is generally designated **100**. In particular aspect, the activity system may be used to monitor one or more users, or players, during an activity, e.g., a workout, a game, some other activity, or a combination thereof. As illustrated the system **100** may include a first game console **102** connected to a network **104** via the associated communication channels. The network **104** may be any type of network. For example, the network **104** may be a wired network, a wireless network, a private network, a public network, or any combination thereof. Moreover, the associated communication channels may be any type of wired communication channel, wireless communication channel, or a combination thereof.

[0046] In a particular aspect, the first game console **102** may connect to the network **104** via a network device such as a cable modem, a dial-up modem, a digital subscriber line ("DSL") modem, or some other network device well know in the art. In another aspect, the first game console **102** may connect to the network **104** via an over-the-air interface, e.g., a cellular tower **106**, that is connected to a base station (not shown). In such a case, the first game console **102** may connect to the cellular tower via a cellular network card.

[0047] In a particular aspect, the first game console **102** may include a cradle (not shown) in which a user's wireless device (not shown), e.g., a cellular telephone, a portable digital assistant, etc., may be installed or otherwise engaged. The user's wireless device may be used to access the network **104**. Further, engaging the user's wireless device may activate the system **100**, as described herein, and the user's wireless device may serve as an identifier.

[0048] FIG. **1** shows that the first game console **102** may include a processor **108** therein. Further, a memory **110**, i.e., a computer-readable medium, may be connected to the processor **108**. By way of example, and not limitation, the memory may be a random access memory ("RAM"), a read-only memory ("ROM"), an electrically erasable programmable read only memory ("EEPROM"), a compact disc-read only memory ("CD-ROM") or other optical disc storage, magnetic disc storage or other magnetic storage devices, or any other medium that may be used to carry or store desired program code in the form of instructions or data structures and that may be accessed by a computer. The processor **108** and the memory **110** may serve as a means for executing one or more of the method steps described herein and as a means for storing activity information, either locally or remotely. In such a case, the method steps may be stored as instructions within the memory **110** and these instructions may be executed by the processor **108**.

[0049] As illustrated in FIG. **1**, a disc drive **112** may also be connected to the processor **108**. The disc drive **112** may be a compact disc ("CD') drive, a digital video disc ("DVD") drive, a DVD-ROM drive, a DVD-RAM drive, a DVD-read/write ("DVD-RW") disc drive, or any other DVD drive well known in the art.

[0050] Further, an input **114** and an output **116** may be connected to the processor **108**. The input **114** may be an input for a controller, a video input, an audio input, a sensor input, or any other type of input well know in the art. Further, the output **116** may be output for a controller, a video output, an audio output, a sensor output, or any other type of output

well know in the art. The first game console **102** may also include a network device **118** installed therein. The network device **118** may be a cable modem, a dial-up modem, a digital subscriber line ("DSL") modem, a cellular network device, or some other network device well know in the art.

[0051] As depicted in FIG. **1**, the activity system **100** may further include a controller **120** connected to the first game console **108**. The controller **120** may be a multi-button game controller that may allow a user to interact with the first game console **102** using his or her fingers and thumbs. The user may interact with the first game console **102** before an activity, during an activity, after an activity, or any combination thereof. FIG. **1** also shows a display **122** connected to the first game console **102**. The display **122** may be a television, a computer monitor, or some other display device well known in the art. A first speaker **124** and a second speaker **126** may be connected to the display **122**. In lieu of speakers **124**, **126**, the user may connect a pair of headphones to the display **122** or the first game console **102**.

[0052] FIG. **1** also shows that the system **100** may include a first exercise device **128** connected to the first game console **102**. In a particular aspect, the first exercise device **128** may be a treadmill, an elliptical trainer, an elliptical cross-trainer, a stationary bike, an upright stationary bike, a recumbent stationary bike, a rowing machine, or any combination thereof.

[0053] Further, the first exercise device **128** may be a weighted exercise device that includes a cable or belt to transfer a force to the user from a weight plate. The weighted exercise device may be a plate loaded device that does not include a cable or belt in which the load of the weight is directly transmitted to the user by one or more mechanical links. For example, the first exercise device **128** may be a lateral pull down device, a low row device, a biceps curl device, a triceps extension device, a leg press device, a leg extension device, a leg curl device, a squat device, a calf-raise device, a peck deck device, a flat chest press device, an incline chest press device, a decline chest press device, a shoulder press device, a cable crossover device, or a combination thereof (i.e., a universal device).

[0054] Additionally, the first exercise device **128** may include free weights, i.e., dumbbells, barbells, or a combination thereof. Further, the first exercise device **128** may include a racket, e.g., a tennis racket, a badminton rack, a racket ball racket, or any other racket. The first exercise device **128** may also include boxing gloves and a heavy bag, a speed bag, a double-ended bag, etc. Moreover, the first exercise device **128** may include a golf club, a baseball bat, or some other club associated with a sport. In yet another aspect, the first exercise device **128** may simply be the exercise itself in which no physical device is required, e.g., yoga, karate, etc. In such a case, the user may wear sensors that may be used as described herein to track the user's movements and the user's vital signs.

[0055] As shown, the first exercise device **128** may include a first internal sensor **130** and a second internal sensor **132**. Each of the internal sensors **130**, **132** may include: an accelerometer, a gyroscope, a pressure sensor, a weight sensor, a speedometer, a tachometer, a magnetometer, a pedometer, radar, a global positioning system ("GPS") sensor, or any combination thereof. The internal sensors **130**, **132** may be used to track and monitor linear movement, angular movement, linear velocity, angular velocity, linear acceleration, angular acceleration, etc. of the first exercise device **128** relative to the user, relative to the first game console **102**, or a combination thereof. Further, the internal sensors **130**, **132** may be used to track and monitor linear movement, angular movement, linear velocity, angular velocity, linear acceleration, angular acceleration, etc. of elements of the first exercise device **128** relative to each other, relative to the first game console **102**, or a combination thereof.

[0056] The internal sensors **130**, **132** may be connected to the first game console **102** via a wired connection, a wireless connection, or a combination thereof. The wired connection may include an IEEE 1394 cable ("Firewire"), a universal serial bus ("USB") cable, an Ethernet cable, a twisted pair cable, a coaxial cable, or any other wired connection well known in the art. The wireless connection may be an 802.11/a/b/n ("Wi-Fi") connection, a Bluetooth connection, a personal area network ultra-low-power technology ("PeANUT") connection, an impulse radio connection, a communication link, a radar link, any combination thereof, or any other wireless connection well known in the art. Further, the wireless connection can be implemented using code division multiplexed access ("CDMA"), time division multiplexed access ("TDMA"), frequency division multiplexed access ("FDMA"), orthogonal frequency division multiplexed access ("OFDMA"), global system for mobile communications ("GSM"), Analog Advanced Mobile Phone System ("AMPS"), Universal Mobile Telecommunications System ("UMTS"), World Interoperability for Microwave Access ("WiMAX"), Bluetooth, some other wireless communication technology, or a combination thereof.

[0057] The PeANUT connection may provide a relatively low power, short range connection, i.e., ten meters (10 m) or less. Further, the PeANUT connection may provide a data rate as low as a few kilobits per second ("kbps") per channel and as many as one megabit per second ("Mbps") per channel with multiple channels (up to 8 Mbps). The PeANUT connection uses relatively little power, i.e., in a range of 0.005 milliWatts ("mW") to three milliWatts (3 mW). Additionally, the PeANUT connection is relatively easily scalable and may be used to establish an ad-hoc peer-to-peer network of sensors. The PeANUT connection may operate in the globally unlicensed ultra-wideband ("UWB") spectrum of 7.0 GHz to 8.5 GHz. Further, the PeANUT connection may transmit bits of data as series of impulses. It may be appreciated that impulse-based UWB transmission may allow for duty cycling between impulses and immunity to multipath issues. The PeANUT connection may provide strong ranging capability with accuracy of approximately one centimeter. Additionally, the PeANUT connection does not require a master-slave architecture. Any PeANUT node may send or receive data packets to or from any other PeANUT node. Further, multiple nodes may transmit and receive data simultaneously.

[0058] In a particular aspect, the internal sensors **130**, **132** may track relative movement between various parts of the first exercise device **128** with respect to each other and with respect to the first game console **102** using distance ranging. In other words, by transmitting signals between the internals sensors **130**, **132** and the first game console **102** and measuring the transmission time between the sensors **130**, **132** or between the sensors **130**, **132** and the first game console **102**, the relative movement of the sensors **130**, **132** may be determine with respect to each other and the first game console **102**.

[0059] As shown in FIG. **1**, the first exercise device **128** may include a first external sensor **134**, a second external sensor **136**, and a third external sensor **138**. Each of the

external sensors **134**, **136**, **138** may include: an accelerometer, a gyroscope, a pressure sensor, a weight sensor, a speedometer, a tachometer, a magnetometer, a pedometer, radar, a global positioning system ("GPS") sensor, or any combination thereof. The external sensors **134**, **136**, **138** may be worn by the user, e.g., on the wrists, the ankles, around the knees, around the waist, around the head, around the chest, etc. As such, the external sensors **134**, **136**, **138** may be used to track and monitor linear movement, angular movement, linear velocity, angular velocity, linear acceleration, angular acceleration, etc. of the user relative to the first exercise device **102**, relative to the first game console **102**, or a combination thereof. Further, the external sensors **134**, **136**, **138** may be used to track and monitor linear movement, angular movement, linear velocity, angular velocity, linear acceleration, angular acceleration, etc. of the appendages of the user relative to the first exercise device **128**, relative to each other, relative to the first game console **102**, or a combination thereof. As such, the external sensors **134**, **136**, **138** may capture the motion of the user's appendages, e.g., arm movements, leg movements, or a combination thereof.

[0060] Each of the external sensors **134**, **136**, **138** may also include a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index ("BMI") sensor, a pulse rate sensor, a pulse oximetry sensor, a lung capacity sensor, or a combination thereof. Accordingly, the external sensors **134**, **136**, **138** may be used to sense and monitor the vital signs of the user (i.e., the "vitals"). The vitals may include a heart rate, a body temperature, a perspiration rate, a respiration rate, a blood glucose level, a BMI, a pulse rate, a hemoglobin oxygenation level, a carbon dioxide level, a lung capacity, a peak flow, or any combination thereof.

[0061] The external sensors **134**, **136**, **138** may be connected to the first game console **102** and the first exercise device **102** via a wired connection, a wireless connection, or a combination thereof. The wired connection may include an IEEE 1394 cable ("Firewire"), a universal serial bus ("USB") cable, an Ethernet cable, a twisted pair cable, a coaxial cable, or any other wired connection well known in the art. The wireless connection may be an 802.11/a/b/n ("Wi-Fi") connection, a Bluetooth connection, a personal area network ultra-low-power technology ("PeANUT") connection, an impulse radio connection, a communication link, a radar link, any combination thereof, or any other wireless connection well known in the art. Further, the wireless connection can be implemented using code division multiplexed access ("CDMA"), time division multiplexed access ("TDMA"), frequency division multiplexed access ("FDMA"), orthogonal frequency division multiplexed access ("OFDMA"), global system for mobile communications ("GSM"), Analog Advanced Mobile Phone System ("AMPS"), Universal Mobile Telecommunications System ("UMTS"), World Interoperability for Microwave Access ("WiMAX"), Bluetooth, some other wireless communication technology, or a combination thereof.

[0062] In a particular aspect, the external sensors **134**, **136**, **138** may track relative movement between appendages of the user with respect to each other, with respect to the first exercise device **128**, and with respect to the first game console **102** using distance ranging. In other words, by transmitting signals between the externals sensors **134**, **136**, **138** and the first game console **102** and measuring the transmission time between the sensors **134**, **136**, **138** or between the sensors **134**, **136**, **138** and the first game console **102**, the relative movement of the sensors **134**, **136**, **138** may be determine with respect to each other and the first game console **102**. As such, the relative movement of the user's appendages may be determined. Further, the external sensors **134**, **136**, **138** may be used to provide distance ranging between a first user and a second user. Moreover, the movement of a user relative to the first game console **102** may be tracked and monitored.

[0063] It may be appreciated that the first exercise device **128** may include more or less than two internal sensors **130**, **132** and may include more or less than three external sensors **134**, **136**, **138**. FIG. **1** further shows a power source **140** connected to the first exercise device **128** and the first game console **102**. The power source **140** may be an alternating current ("AC") power source, a direct current power source ("DC"), or a combination thereof. It may be appreciated that the first game console **102**, the first exercise device **128**, the first display **122**, and the speakers **124**, **126** may be included in a single device. For example, the first exercise device **128** may include the first display **122** and speakers **124**, **126**. Moreover, the first game console **102** may be incorporated in the first exercise device **128**. Further, the system **100** may include a first game console **102** and one or more sensors connected thereto. The sensors may be connected to a user and may monitor the movement of the user, the vitals associated with the user, or a combination thereof—regardless of whether the user is utilizing the first exercise device **128**.

[0064] Still referring to FIG. **1**, the system **100** may also include a second game console **152** connected that is connected to the network **104**. In a particular aspect, the second game console **152** may connect to the network **104** via a network device such as a cable modem, a dial-up modem, a digital subscriber line ("DSL") modem, or some other network device well know in the art. In another aspect, the second game console **152** may connect to the network **104** via an over-the-air interface, e.g., a cellular tower **156**, that is connected to a base station (not shown). In such a case, the second game console **152** may connect to the cellular tower via a cellular network card.

[0065] In a particular aspect, the second game console **152** may include a cradle (not shown) in which a user's wireless device (not shown), e.g., a cellular telephone, a portable digital assistant, etc., may be installed or otherwise engaged. The user's wireless device may be used to access the network **104**. Further, engaging the user's wireless device may activate the system **100**, as described herein, and the user's wireless device may serve as an identifier.

[0066] FIG. **1** shows that the second game console **152** may include a processor **158** therein. Further, a memory **160**, i.e., a computer-readable medium, may be connected to the processor **158**. By way of example, and not limitation, the memory may be a random access memory ("RAM"), a read-only memory ("ROM"), an electrically erasable programmable read only memory ("EEPROM"), a compact disc-read only memory ("CD-ROM") or other optical disc storage, magnetic disc storage or other magnetic storage devices, or any other medium that may be used to carry or store desired program code in the form of instructions or data structures and that may be accessed by a computer. The processor **158** and the memory **160** may serve as a means for executing one or more of the method steps described herein and as a means for storing activity information, either locally or remotely. In such a case, the method steps may be stored as instructions

within the memory **160** and these instructions may be executed by the processor **158**.

[0067] As illustrated in FIG. **1**, a disc drive **162** may also be connected to the processor **158**. The disc drive **162** may be a compact disc ("CD") drive, a digital video disc ("DVD") drive, a DVD-ROM drive, a DVD-RAM drive, a DVD-read/write ("DVD-RW") disc drive, or any other DVD drive well known in the art. Further, an input **164** and an output **166** may be connected to the processor **158**. The input **164** may be an input for a controller, a video input, an audio input, a sensor input, or any other type of input well know in the art. Further, the output **166** may be output for a controller, a video output, an audio output, a sensor output, or any other type of output well know in the art. The second game console **152** may also include a network device **168** installed therein. The network device **168** may be a cable modem, a dial-up modem, a digital subscriber line ("DSL") modem, a cellular network device, or some other network device well know in the art.

[0068] As depicted in FIG. **1**, the activity system **100** may further include a controller **170** connected to the second game console **158**. The controller **170** may be a multi-button game controller that may allow a user to interact with the second game console **152** using his or her fingers and thumbs. The user may interact with the second game console **152** before an activity, during an activity, after an activity, or any combination thereof. FIG. **1** also shows a display **172** connected to the second game console **152**. The display **172** may be a television, a computer monitor, or some other display device well known in the art. A first speaker **174** and a second speaker **176** may be connected to the display **172**. In lieu of speakers **174**, **176**, the user may connect a pair of headphones to the display **172** or the second game console **152**.

[0069] FIG. **1** also shows that the system **100** may include a second exercise device **178** connected to the second game console **152**. In a particular aspect, the second exercise device **178** may be a treadmill, an elliptical trainer, an elliptical cross-trainer, a stationary bike, an upright stationary bike, a recumbent stationary bike, a rowing machine, or any combination thereof. Further, the second exercise device **178** may be a weighted exercise device that includes a cable or belt to transfer a force to the user from a weight plate. The weighted exercise device may be a plate loaded device that does not include a cable or belt in which the load of the weight is directly transmitted to the user by one or more mechanical links. For example, the second exercise device **178** may be a lateral pull down device, a low row device, a biceps curl device, a triceps extension device, a leg press device, a leg extension device, a leg curl device, a squat device, a calf-raise device, a peck deck device, a flat chest press device, an incline chest press device, a decline chest press device, a shoulder press device, a cable crossover device, or a combination thereof (i.e., a universal device). Additionally, the second exercise device **178** may include free weights, i.e., dumbbells, barbells, or a combination thereof. Further, the second exercise device **178** may include a racket, e.g., a tennis racket, a badminton rack, a racket ball racket, or any other racket. The second exercise device **178** may also include boxing gloves and a heavy bag, a speed bag, a double-ended bag, etc. Moreover, the second exercise device **178** may include a golf club a baseball bat, or some other club associated with a sport. In yet another aspect, the second exercise device **178** may simply be the exercise itself in which no physical device is required, e.g., yoga, karate, etc. In such a case, the user may wear sensors that may be used as described herein to track the user's movements and the user's vital signs.

[0070] As shown, the second exercise device **178** may include a first internal sensor **180** and a second internal sensor **182**. Each of the internal sensors **180**, **182** may include: an accelerometer, a gyroscope, a pressure sensor, a weight sensor, a speedometer, a tachometer, a magnetometer, a pedometer, radar, a global positioning system ("GPS") sensor, or any combination thereof. The internal sensors **180**, **182** may be used to track and monitor linear movement, angular movement, linear velocity, angular velocity, linear acceleration, angular acceleration, etc. of the second exercise device **178** relative to the user, relative to the second game console **152**, or a combination thereof. Further, the internal sensors **180**, **182** may be used to track and monitor linear movement, angular movement, linear velocity, angular velocity, linear acceleration, angular acceleration, etc. of elements of the second exercise device **178** relative to each other, relative to the second game console **152**, or a combination thereof.

[0071] The internal sensors **180**, **182** may be connected to the second game console **152** via a wired connection, a wireless connection, or a combination thereof. The wired connection may include an IEEE 1394 cable ("Firewire"), a universal serial bus ("USB") cable, an Ethernet cable, a twisted pair cable, a coaxial cable, or any other wired connection well known in the art. The wireless connection may be an 802.11/a/b/n ("Wi-Fi") connection, a Bluetooth connection, a personal area network ultra-low-power technology ("PeANUT") connection, an impulse radio connection, a communication link, a radar link, any combination thereof, or any other wireless connection well known in the art. Further, the wireless connection can be implemented using code division multiplexed access ("CDMA"), time division multiplexed access ("TDMA"), frequency division multiplexed access ("FDMA"), orthogonal frequency division multiplexed access ("OFDMA"), global system for mobile communications ("GSM"), Analog Advanced Mobile Phone System ("AMPS"), Universal Mobile Telecommunications System ("UMTS"), World Interoperability for Microwave Access ("WiMAX"), Bluetooth, some other wireless communication technology, or a combination thereof.

[0072] In a particular aspect, the internal sensors **180**, **182** may track relative movement between various parts of the second exercise device **178** with respect to each other and with respect to the second game console **152** using distance ranging. In other words, by transmitting signals between the internals sensors **180**, **182** and the second game console **152** and measuring the transmission time between the sensors **180**, **182** or between the sensors **180**, **182** and the second game console **152**, the relative movement of the sensors **180**, **182** may be determine with respect to each other and the second game console **152**.

[0073] As shown in FIG. **1**, the second exercise device **178** may include a first external sensor **184**, a second external sensor **186**, and a third external sensor **188**. Each of the external sensors **184**, **186**, **188** may include: an accelerometer, a gyroscope, a pressure sensor, a weight sensor, a speedometer, a tachometer, a magnetometer, a pedometer, radar, a global positioning system ("GPS") sensor, or any combination thereof. The external sensors **184**, **186**, **188** may be worn by the user, e.g., on the wrists, the ankles, around the waist, around the head, around the chest, etc. As such, the external sensors **184**, **186**, **188** may be used to track and monitor linear movement, angular movement, linear velocity, angular veloc-

ity, linear acceleration, angular acceleration, etc. of the user relative to the second exercise device **152**, relative to the second game console **152**, or a combination thereof. Further, the external sensors **184**, **186**, **188** may be used to track and monitor linear movement, angular movement, linear velocity, angular velocity, linear acceleration, angular acceleration, etc. of the appendages of the user relative to the second exercise device **178**, relative to each other, relative to the second game console **152**, or a combination thereof.

[0074] Each of the external sensors **184**, **186**, **188** may also include a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index ("BMI") sensor, a pulse rate sensor, a pulse oximetry sensor, a lung capacity sensor, or a combination thereof. Accordingly, the external sensors **184**, **186**, **188** may be used to sense and monitor the vital signs of the user (i.e., the "vitals"). The vitals may include the user's heart rate, body temperature, perspiration rate, respiration rate, blood glucose, BMI, a pulse rate, a hemoglobin oxygenation level, a carbon dioxide level, a lung capacity, a peak flow, or any combination thereof.

[0075] The external sensors **184**, **186**, **188** may be connected to the second game console **152** and the second exercise device **152** via a wired connection, a wireless connection, or a combination thereof. The wired connection may include an IEEE 1394 cable ("Firewire"), a universal serial bus ("USB") cable, an Ethernet cable, a twisted pair cable, a coaxial cable, or any other wired connection well known in the art. The wireless connection may be an 802.11/a/b/n ("Wi-Fi") connection, a Bluetooth connection, a personal area network ultra-low-power technology ("PeANUT") connection, or any other wireless connection well known in the art. Further, the wireless connection can be implemented using code division multiplexed access ("CDMA"), time division multiplexed access ("TDMA"), frequency division multiplexed access ("FDMA"), orthogonal frequency division multiplexed access ("OFDMA"), global system for mobile communications ("GSM"), Analog Advanced Mobile Phone System ("AMPS"), Universal Mobile Telecommunications System ("UMTS"), World Interoperability for Microwave Access ("WiMAX"), Bluetooth, some other wireless communication technology, or a combination thereof.

[0076] In a particular aspect, the external sensors **184**, **186**, **188** may track relative movement between appendages of the user with respect to each other, with respect to the second exercise device **178**, and with respect to the second game console **152** using distance ranging. In other words, by transmitting signals between the externals sensors **184**, **186**, **188** and the second game console **152** and measuring the transmission time between the sensors **184**, **186**, **188** or between the sensors **184**, **186**, **188** and the second game console **152**, the relative movement of the sensors **184**, **186**, **188** may be determine with respect to each other and the second game console **152**. As such, the relative movement of the user's appendages may be determined.

[0077] It may be appreciated that the second exercise device **178** may include more or less than two internal sensors **180**, **182** and may include more or less than three external sensors **184**, **186**, **188**. FIG. **1** further shows a power source **190** connected to the second exercise device **178** and the second game console **152**. The power source **190** may be an alternating current ("AC") power source, a direct current power source ("DC"), or a combination thereof. It may be appreciated that the second game console **152**, the second exercise device **178**, the display **172**, and the speakers **174**, **176** may be included in a single device. For example, the first exercise device **128** may include the first display **122** and speakers **124**, **126**. Moreover, the first game console **102** may be incorporated in the first exercise device **128**.

[0078] It may be appreciated that with the two game consoles **102**, **152** and the two exercise devices **128**, **178** two users may compete with each other during an activity. It may be further appreciated that the system **100** may include more or less than two game consoles **102**, **152** and two exercise devices **128**, **178**. As such, the system **100** may allow more than two players to compete in a single activity. Two or more players may engage in an activity using the same game console **102**, **152** either directly or through a network connection, i.e., one player is remotely located, but connected to the game console **102**, **152** via a network. Further, two or more players may engage in an activity using a remote game console **102**, **152**. These players may connect to the game console **102**, **152** via a network. Additionally, two or more exercises devices **128**, **178** may be connected to a single game console **102**, **152**, either locally, remotely, or a combination thereof.

[0079] The users may be co-located or they may be remotely located. The users may engage in competitive activities with each other. For examples, the users may compete against each other and virtual competitors in a foot race, a bike race, a rowing race, a kayaking race, etc. Further, the users may engage in a virtual boxing match, a virtual tennis match, a virtual badminton match, a virtual golf match, a virtual racket ball match, or any other two person sport involving a racket or stick. Also, the users may engage in other activities such as virtual bowling, virtual horse shoe pitching, etc.

[0080] The users may interact verbally, by text messaging, by instant messaging, through sensors, or any combination thereof. Further, the system **100** described herein may provide an augmented reality. For example, a first user may be using a stationary bike and a second user may be riding a real bike through a city. Sensors associated with the second user may transmit information back to the first user, e.g., a game console and display associated with the first user, and the information from the second user may be used to augment the experience of the first user on the stationary bike. For example, a GPS sensor on the second user may be used to track the second user through a virtual city and the first user may follow the same route as the second user through the virtual city.

[0081] One or more of the various sensors **130**, **132**, **134**, **136**, **138**, **180**, **182**, **184**, **186**, **188** described herein may act as a means for monitoring the exercise devices **128**, **178** used by the users. The sensors **130**, **132**, **134**, **136**, **138**, **180**, **182**, **184**, **186**, **188** may monitor the movement, velocity, acceleration or any combination thereof associated with the exercise devices **128**, **178** and the component parts of the exercise devices **128**, **178**. Further, the sensors **130**, **132**, **134**, **136**, **138**, **180**, **182**, **184**, **186**, **188** may monitor forces associated with the exercise devices **128**, **178**, e.g., how hard a user is punching a heavy bag and therefore, how hard a user is punching a virtual opponent. Also, one or more of the sensors **130**, **132**, **134**, **136**, **138**, **180**, **182**, **184**, **186**, **188** may act as a means for monitoring the vitals associated with a user. The vitals may be used to tailor, or otherwise alter, the activity program as it is in progress.

[0082] For example, if the vitals show that a user is becoming tired, the activity may automatically become easier. Alter-

natively, if the vitals show that a user is not becoming tired, the activity may automatically become harder. In the case of powered exercise device, e.g., a treadmill, the system **100**, e.g., a gaming console **102**, **152** therein, may speed the treadmill up if the vitals show the user is not becoming tired. Conversely, the system **100** may slow the treadmill down if the vitals show the user is becoming too tired. Also, in the case of a resistance exercise device, e.g., a stationary bike or weights, the system **100** may alter the resistance depending on vitals. The system **100** may increase a braking force on a stationary bike if the vitals show the user is not becoming tired or the system may decrease the braking force if the vitals show the user becoming too tired. In the case that the system **100** does not have direct control of the exercise device **128**, **178**, the system **100** may send an instruction to the user, e.g., via a game console **102**, **152** and a display **122**, **172**, to alter the resistance, weight, speed, etc. of the exercise device **128**, **178** accordingly. Accordingly, the system may help a user achieve a preferred pulse rate or a target pulse rate.

[0083] Further, if the vitals show that a user is in physical danger the activity may become easier until the vitals indicate the user is safe or the activity may be stopped. The vitals may be collected by the system **100** and periodically, the vitals may be transmitted, in the form of a report, to a health care provider, e.g., a doctor, nurse, a physical therapist, etc. Further, the report may be transmitted to a healthcare monitoring service, a family friend, etc. The health care provider may use the vitals to remotely track the health of the patient and if there are any signs that the patient's health is failing, the health care provider may contact the user and request that the user appears for further testing. Further, the report may be used to track the user's progress and determine trends of the user progress. With this type of trending, the system may make a user's workout get progressively harder over time or the system may make a user's workout easier if there is a substantial absence of activity between workouts.

[0084] The system **100** may further include an algorithm, e.g., stored in the first game console **102**, the second game console **152**, the server **192**, the computer **198**, or any combination thereof. The algorithm may be use to process the activity information, e.g., the user's vitals, and determine if any health issues exist for the user. If so, the algorithm may notify the appropriate individual, or individuals, regarding any issues. Also, the algorithm may be executed locally (i.e., on the game console **102**, **152**), remotely (i.e., on the server **192** or computer **198**), or a combination thereof.

[0085] FIG. **1** further indicates that the system **100** may include a server **192** connected to the network **104**. A database **194** may be connected to the server **192** and may be used to store user information **196**. The user information **196** may include game information, game statistics, virtual character information, and vitals associated with one or more users. The user information **196** may be tied to an electronic medical record ("EMR") associated with the user and stored in the database **194**. The data within the database **194** may be secure, private, and the user may restrict access to the user information **196**. The system **100** may also include a computer **198** connected to the network **104**. The computer **198** may be used by a user to access his or her user information. Further, the computer **198** may be used by a health care professional, e.g., a doctor or a nurse, to access the user information of a particular patient. The computer **198** may also be used by a user to register with the system **100**, as described below, in order to input relevant personal information and relevant fitness information, e.g., age, weight, BMI, fitness level, fitness goals, etc.

[0086] Referring now to FIG. **2** through FIG. **4**, a flowchart illustrating a method of providing an interactive activity, generally designated **200**. Commencing at block **202**, a do loop is entered wherein when the system is activated, the following steps may be performed. In a particular aspect, the system may be activated after a user loads an activity disc in a disc drive of a game console. For example, the disc can be a Blu-Ray disc (e.g., as used by in a Sony PlayStation **3**), a DVD disc (e.g., as used in a Wii), a cartridge (e.g., as used in Nintendo DS), etc.

[0087] Alternatively, the activity may be preloaded in the game console. Further, the game may be stored remotely on a game server and the game console may be used to access the game via a data network.

[0088] At decision step **204**, the system may query the user to determine whether the user wishes to login or register as a new user. If the user chooses to login, the method may move to block **206** and the system may receive login information from the user. The login information may include an identifier, e.g., a username, and a password. Additionally, the login may be performed by means of a key, a proximity key, voice confirmation, fingerprint confirmation, confirmation of any other identifiable vital sign, or any combination thereof.

[0089] Moving to decision step **208**, the system may determine whether the login is accepted. If not, the system may prompt the user to re-try, or re-enter, the login information. Then, the method may return to block **206** and continue as described herein. Returning to decision step **208**, if the login is accepted, the method may proceed to block **212** and the system may prompt the user to select an activity.

[0090] Returning to decision step **204**, if the user chooses to register, the method may move to block **214** and the system may receive registration information from the user. The registration information may include a username, a password, or a combination thereof. During registration, the system may also require that the user attach one or more sensors to his or her body, as described herein, in order to capture the resting vitals associated with the user. Accordingly, a current level of fitness for a new user may be established. By measuring the vitals periodically on an ongoing basis, the level of fitness of the user may be tracked and provided to a healthcare provider, as described herein.

[0091] At block **216**, the system may receive user information from the user. The user information may include an age, a weight, a fitness level, workout goals, etc. At block **218**, the system may create a new account associated with the user. The method may then move to block **212**, and the system may prompt the user to select an activity. The activity may be selected by the user at the game console, the exercise device, by a remote game console, or by any combination thereof. Alternatively, the activity may be selected by a third party associated with the user, e.g., a coach, physician, physical therapist, etc.

[0092] Proceeding to decision step **220**, the system may query the user to determine whether the user wishes to engage in an activity with multiple players. If so, the method may move to block **222**, and the user may be prompted for the other player's, or players', information. Then, at block **224**, the system may ping the other player, or players, to instruct them to login. The method may then move to block **226**.

[0093] Returning to decision step **220**, if the user does not wish to engage in a multi-player game, the method may move

directly to decision step **226**. At decision step **226**, the system may determine if there is any previous activity information associated with the player, or players. If so, the method may move to block **228** and the system may retrieve the previous activity information from a database and load the previous activity information into the current game. At block **230**, based on the previous activity information and user statistics, the system may modify the current game for each player, or user. For example, if the user recently performed a very intense workout, the system may modify the current workout to make it easier, or harder, depending on the fitness level of the user. Further, if there has been a substantial lapse in time between the previous workout and the current workout, the system may modify the current workout to make it relatively easier than usual. At block **232**, the activity. Accordingly, the system may track a user's progress and ability and vary the intensity of an activity based on the progress and ability.

[0094] Returning to decision step **226**, if the system determines that there is not any previous activity information associated with the player, or players, the method may move directly to block **232** and continue as described herein.

[0095] Moving to block **234**, the system may monitor the vitals from each player. In addition to monitoring the vitals from each player, the system may display the vitals from each player. Further, the system may display the progress of each player. At block **236**, at least partially based on the vitals, the system may modify the appearance of a virtual character associated with each player. For example, as the respiration of a player increases, the system may show the virtual player breathing harder. Further, as the perspiration of a player increases, the system may show the virtual player sweating more. Also, as the vitals show the player getting tired, the system may show the virtual player getting tired. Further, at least partially based on the vitals, a health status, a life status, or a combination thereof, associated with a virtual player may be altered during the activity.

[0096] Proceeding to block **238**, the system may compare the vitals of each player to previously established safe parameters. The safe parameters may be determined at least partially based on the age, weight, and fitness level of each player. At decision step **240**, the system may determine if the vitals of each player are outside a safe zone, a target zone, or a combination thereof. If so, the method may move to block **242** and the system may modify the activity until the vitals are within the safe zone, the target zone, or a combination thereof. Thereafter, the method may move to block **244**.

[0097] Returning to decision **240**, if the vitals are within the safe zone, the method may move directly to block **244**. At block **244**, the system may compare the vitals for each player to a predetermined threshold associated with each player. The predetermined threshold may be at least partially based on the fitness level of each player and the fitness goals associated with each player. For example, the threshold may be a target heart rate associated with a player.

[0098] At decision step **246**, the system may determine whether the vitals for any player are below the associated threshold. If so, the method may move to block **248** and the system may offer motivation to the player. In a particular aspect, the system may offer motivation to the player via a virtual trainer presented to the player at a display. Thereafter, the method may move to decision step **250**.

[0099] Returning to decision step **246**, if the vitals of each player are not below the associated threshold, the method may move directly to decision step **250**. At decision **250**, the system may determine whether the vitals for any player are above the associated threshold. If so, the method may move to block **252**, and the system may offer positive feedback to the player, or user, via the virtual trainer presented to the player at the display.

[0100] At block **254**, the system may monitor the movement of each player. The system may monitor the movement based on information received from the sensors connected to each player. Thereafter, the method may proceed to FIG. **4** and continue as described herein.

[0101] Returning to decision step **250**, if the vitals for any player are not above the associated threshold, the method may proceed directly to block **254** and continue as described.

[0102] Moving now to decision step **256**, shown in FIG. **4**, the system may determine whether any player is performing the activity correctly. The system may make this determination at least partially based on the movements of the player. If any player is not performing the activity correctly, the method may move to block **258** and the system may offer tips to the player to improve his or her performance. In a particular aspect, the tips may be offered to the player via the virtual trainer. For example, the tips may be offered via audio prompts, visual graphics, or a combination thereof. Further, the tips may be offered via text messaging, instant messaging, email, or a combination thereof. The tips may inform the user of the correct way to perform the activity. Also, the tips may include a graphical representation of the correct way to perform the activity overlaid with the actual way the user is performing the activity. From block **258**, the method may move to decision step **260** and continue as described herein.

[0103] Returning to decision step **256**, if each player is performing the activity properly, the method may move to block **262** and the system may offer encouragement, or congratulations, to each player. The system may offer the encouragement, or congratulations, to each player using the virtual trainer. From block **262**, the method may move to decision step **260**.

[0104] At decision step **260**, the system may determine whether the activity is over. If not, the method may return to block **234** of FIG. **3** and continue as described herein. If the activity is over, the method may move to block **264** and the system may collect the vitals associated with each player. At block **266**, the system may store the vitals of each player, e.g., in a database. Next, at block **268**, the system may store the activity information, e.g., in the database.

[0105] It may be appreciated that a cell phone device, or other similar wireless device, may be worn by the user and may communicate with one or more sensors worn by the user during a workout, with or without an exercise device. The cell phone device may collect information relevant to the user's workout and transmit that information to a third party, e.g., a physical therapist, a doctor, a nurse, a remote trainer, etc. Accordingly, the user may perform a prescribed workout, collect information about that workout, and transmit information regarding that workout to a third party who may determine if the user is performing the workout as prescribed.

[0106] Proceeding to decision step **270**, the system may determine whether any player includes a designated recipient for the vitals. The designated recipient may be a doctor, a nurse, the player, some other person, or a combination thereof. If there is a designated recipient, the method may continue to block **272** and the system may create a report of the vitals for the associated player. Thereafter, at block **274**, the system may transmit the report to the designated recipient.

The report may be transmitted via email, text messaging ("SMS"), instant messaging ("IM"), or any combination thereof. Also, access may be provided to the report via a web browser and may require a login. In such a case, the login information may be transmitted to the designated recipient with instructions on how to access the report. The method may end at state **276**.

[0107] In a particular aspect, the report may include information regarding the exercise(s) performed, the duration of the exercise(s), vital signs, etc. Further, the report may providing trending information, i.e., whether the user's performance becomes better or worse over time. Also, the report may provide information about the user's activity as it relates to other people, i.e., persons having similar physical characteristics and fitness levels. The report may also provide information about how the user's performance relates to baseline fitness levels and vitals established, or otherwise determined, during registration.

[0108] Returning to decision step **270**, if each player does not include a designated recipient to receive the respective vitals, the method may move directly to state **276** and end.

[0109] With the configuration described herein, the system and method may provide a way to monitor one or more users, or a players, during an interactive activity. Vital signs associated with the user may be monitored and the activity may be modified, or even stopped, accordingly. Further, the movement of the user may be monitored and the user may be given appropriate instruction if the movement of the user does not correspond to the correct performance of a given activity or exercise, e.g., yoga, dancing, golf, tennis, boxing, karate, etc. Additionally, the vital signs of the user may be collected during the activity and sent to the appropriate health care provider for analysis. The vital signs of the user may also be collected during rest and the resting vital signs may be used to analyze the level of fitness of the user.

[0110] The system and method described herein may be used to monitor an athlete's progress during training and to provide a verifiable record of the athlete's progress. As such, in the event an athlete becomes accused of utilizing performance enhancing substances, the information provided by the system and method described herein may be used as evidence to exonerate the user of any charges or to substantiate any charges. For example, a report provided by the system and method may display trending information showing a slow increase in performance and not any spikes in performance typically associated with the use of performance enhancing substances.

[0111] It may be understood that the method steps described herein do not necessarily have to be performed in the order as described. Further, words such as "thereafter", "then", "next", etc. are not intended to limit the order of the steps. These words are simply used to guide the reader through the description of the method steps.

[0112] In one or more exemplary aspects, the functions described may be implemented in hardware, software, firmware, or any combination thereof. If implemented in software, the functions may be stored on or transmitted over as one or more instructions or code on a computer-readable medium. Computer-readable media includes both computer storage media and communication media including any medium that facilitates transfer of a computer program from one place to another. A storage media may be any available media that may be accessed by a computer. By way of example, and not limitation, such computer-readable media may comprise RAM, ROM, EEPROM, CD-ROM or other optical disc storage, magnetic disc storage or other magnetic storage devices, or any other medium that may be used to carry or store desired program code in the form of instructions or data structures and that may be accessed by a computer. Also, any connection is properly termed a computer-readable medium. For example, if the software is transmitted from a website, server, or other remote source using a coaxial cable, fiber optic cable, twisted pair, digital subscriber line ("DSL"), or wireless technologies such as infrared, radio, and microwave, then the coaxial cable, fiber optic cable, twisted pair, DSL, or wireless technologies such as infrared, radio, and microwave are included in the definition of medium. Disc and disc, as used herein, includes compact disc ("CD"), laser disc, optical disc, digital versatile disc ("DVD"), floppy disc and blu-ray disc where discs usually reproduce data magnetically, while discs reproduce data optically with lasers. Combinations of the above should also be included within the scope of computer-readable media.

[0113] Although selected aspects have been illustrated and described in detail, it will be understood that various substitutions and alterations may be made therein without departing from the spirit and scope of the present invention, as defined by the following claims.

1. A method of providing an interactive activity, the method comprising:
- monitoring one or more vital signs associated with a player during an activity; and
- at least partially based on the vital signs, providing feedback to the player.

2. The method of claim **1**, wherein the one or more vitals includes at least one of the following: a heart rate, a body temperature, a perspiration rate, a respiration rate, a blood glucose level, a body mass index, or any combination thereof.

3. The method of claim **1**, wherein the feedback is provided by a virtual trainer presented via a display device.

4. The method of claim **1**, wherein the vital signs are monitored using one or more sensors worn by the player.

5. The method of claim **4**, wherein the sensors include at least one of the following: a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index sensor, or a combination thereof.

6. The method of claim **1**, further comprising:
- comparing the vital signs to established safe parameters associated with the player;
- determining whether the vital signs are within a safe zone; and
- when the vital signs are outside of the safe zone, modifying the activity until the vital signs return to the safe zone.

7. The method of claim **6**, further comprising:
- stopping the activity when the vital signs do not return to the safe zone within a time period.

8. The method of claim **1**, further comprising:
- at least partially based on the vital signs of the player, modifying an appearance of a virtual player associated with the player.

9. The method of claim **1**, further comprising:
- comparing the vital signs to a fitness threshold associated with the player; and
- determining whether the vital signs are above or below the fitness threshold.

10. The method of claim **9**, further comprising:
when the vital signs are below the fitness threshold, offering motivation to the player until the vital signs move above the fitness threshold.

11. The method of claim **10**, wherein the motivation is offered to the player by a virtual trainer presented via a display device.

12. The method of claim **9**, further comprising:
when the vital signs are above the fitness threshold, offering positive feedback to the user.

13. The method of claim **12**, wherein the positive feedback is offered to the player by a virtual trainer presented via a display device.

14-20. (canceled)

21. The method of claim **1**, further comprising:
collecting the vital signs of the player;
storing the vital signs of the player;
determining whether a designated recipient for the vital signs is associated with the player;
creating a report with the vital signs; and
transmitting the report to the designated recipient associated with the player.

22. The method of claim **1**, further comprising:
retrieving previous activity information; and
at least partially based on the previous activity information varying an intensity of the activity.

23-24. (canceled)

25. A game server, comprising:
means for monitoring one or more vital signs associated with a player during an activity; and
means for providing feedback to the player at least partially based on the vital signs.

26. The game server of claim **25**, wherein the one or more vitals includes at least one of the following: a heart rate, a body temperature, a perspiration rate, a respiration rate, a blood glucose level, a body mass index, or any combination thereof.

27. The game server of claim **25**, wherein the feedback is provided by a virtual trainer presented via a display device.

28. The game server of claim **25**, wherein the vital signs are monitored using one or more sensors worn by the player.

29. The game server of claim **28**, wherein the sensors include at least one of the following: a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index sensor, or a combination thereof.

30. The game server of claim **25**, further comprising:
means for comparing the vital signs to established safe parameters associated with the player;
means for determining whether the vital signs are within a safe zone; and
means for modifying the activity until the vital signs return to the safe zone when the vital signs are outside of the safe zone.

31. The game server of claim **30**, further comprising:
means for stopping the activity when the vital signs do not return to the safe zone within a time period.

32. The game server of claim **25**, further comprising:
means for modifying an appearance of a virtual player associated with the player at least partially based on the vital signs of the player.

33. The game server of claim **25**, further comprising:
means for comparing the vital signs to a fitness threshold associated with the player; and
means for determining whether the vital signs are above or below the fitness threshold.

34. The game server of claim **33**, further comprising:
means for offering motivation to the player until the vital signs move above the fitness threshold when the vital signs are below the fitness threshold.

35. The game server of claim **34**, wherein the motivation is offered to the player by a virtual trainer presented via a presented display device.

36. The game server of claim **33**, further comprising:
means for offering positive feedback to the user when the vital signs are above the fitness threshold.

37. The game server of claim **36**, wherein the positive feedback is offered to the player by a virtual trainer presented via a display device.

38-44. (canceled)

45. The game server of claim **25**, further comprising:
means for collecting the vital signs of the player;
means for storing the vital signs of the player;
means for determining whether a designated recipient for the vital signs is associated with the player;
means for creating a report with the vital signs; and
means for transmitting the report to the designated recipient associated with the player.

46. The game server of claim **25**, further comprising:
means for retrieving previous activity information; and
means for varying an intensity of the activity at least partially based on the previous activity information.

47-48. (canceled)

49. A game server, comprising:
a processor, wherein the processor is operable to:
monitor one or more vital signs associated with a player during an activity; and
provide feedback to the player at least partially based on the vital signs.

50. The game server of claim **49**, wherein the one or more vital signs includes at least one of the following: a heart rate, a body temperature, a perspiration rate, a respiration rate, a blood glucose level, a body mass index, or any combination thereof.

51. The game server of claim **49**, wherein the feedback is provided by a virtual trainer presented via a display device.

52. The game server of claim **49**, wherein the vital signs are monitored using one or more sensors worn by the player.

53. The game server of claim **52**, wherein the sensors include at least one of the following: a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index sensor, or a combination thereof.

54. The game server of claim **49**, wherein the processor is operable to:
compare the vital signs to established safe parameters associated with the player;
determine whether the vital signs are within a safe zone; and
modify the activity until the vital signs return to the safe zone when the vital signs are outside of the safe zone.

55. The game server of claim **54**, wherein the processor is operable to:
stop the activity when the vital signs do not return to the safe zone within a time period.

56. The game server of claim **49**, wherein the processor is operable to:

modify an appearance of a virtual player associated with the player at least partially based on the vital signs of the player.

57. The game server of claim **49**, wherein the processor is operable to:

compare the vital signs to a fitness threshold associated with the player; and

determine whether the vital signs are above or below the fitness threshold.

58. The game server of claim **57**, wherein the processor is operable to:

offer motivation to the player until the vital signs move above the fitness threshold when the vital signs are below the fitness threshold.

59. The game server of claim **58**, wherein the motivation is offered to the player by a virtual trainer presented via a display device.

60. The game server of claim **57**, wherein the processor is operable to:

offer positive feedback to the user when the vital signs are above the fitness threshold.

61. The game server of claim **60**, wherein the positive feedback is offered to the player by a virtual trainer presented via a display device.

62-68. (canceled)

69. The game server of claim **49**, wherein the processor is operable to:

collect the vital signs of the player;

store the vital signs of the player;

determine whether a designated recipient for the vital signs is associated with the player;

create a report with the vital signs; and

transmit the report to the designated recipient associated with the player.

70. The game server of claim **49**, wherein the processor is operable to:

retrieve previous activity information; and

vary an intensity of the activity at least partially based on the previous activity information.

71-72. (canceled)

73. A computer program product, comprising:

a computer-readable medium, comprising:

at least one instruction for monitoring one or more vital signs associated with a player during an activity; and

at least one instruction for providing feedback to the player at least partially based on the vital signs.

74. The computer program product of claim **73**, wherein the one or more vitals includes at least one of the following: a heart rate, a body temperature, a perspiration rate, a respiration rate, a blood glucose level, a body mass index, or any combination thereof.

75. The computer program product of claim **73**, wherein the feedback is provided by a virtual trainer presented via a display device.

76. The computer program product of claim **73**, wherein the vital signs are monitored using one or more sensors worn by the player.

77. The computer program product of claim **76**, wherein the sensors include at least one of the following: a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index sensor, or a combination thereof.

78. The computer program product of claim **73**, wherein the computer-readable medium further comprises:

at least one instruction for comparing the vital signs to established safe parameters associated with the player;

at least one instruction for determining whether the vital signs are within a safe zone; and

at least one instruction for modifying the activity until the vital signs return to the safe zone when the vital signs are outside of the safe zone.

79. The computer program product of claim **78**, wherein the computer-readable medium further comprises:

at least one instruction for stopping the activity when the vital signs do not return to the safe zone within a time period.

80. The computer program product of claim **73**, wherein the computer-readable medium further comprises:

at least one instruction for modifying an appearance of a virtual player associated with the player at least partially based on the vital signs of the player.

81. The computer program product of claim **73**, wherein the computer-readable medium further comprises:

at least one instruction for comparing the vital signs to a fitness threshold associated with the player; and

at least one instruction for determining whether the vital signs are above or below the fitness threshold.

82. The computer program product of claim **81**, wherein the computer-readable medium further comprises:

at least one instruction for offering motivation to the player until the vital signs move above the fitness threshold when the vital signs are below the fitness threshold.

83. The computer program product of claim **82**, wherein the motivation is offered to the player by a virtual trainer presented via a display device.

84. The computer program product of claim **81**, wherein the computer-readable medium further comprises:

at least one instruction for offering positive feedback to the user when the vital signs are above the fitness threshold.

85. The computer program product of claim **84**, wherein the positive feedback is offered to the player by a virtual trainer presented via a display device.

86-92. (canceled)

93. The computer program product of claim **73**, wherein the computer-readable medium further comprises:

at least one instruction for collecting the vital signs of the player;

at least one instruction for storing the vital signs of the player;

at least one instruction for determining whether a designated recipient for the vital signs is associated with the player;

at least one instruction for creating a report with the vital signs; and

at least one instruction for transmitting the report to the designated recipient associated with the player.

94. The computer program product of claim **73**, wherein the computer-readable medium further comprises:

at least one instruction for retrieving previous activity information; and

at least one instruction for varying an intensity of the activity at least partially based on the previous activity information.

95-96. (canceled)

97. A game system, comprising:

an exercise device;

at least one sensor configured to be worn by a user of the exercise device during an activity; and

a game console connected to the exercise device and the at least one sensor, wherein the game console comprises:

a processor, wherein the processor is operable to monitor one or more vital signs associated with a player during an activity via the at least one sensor; and

provide feedback to the player at least partially based on the vital signs.

98. The game system of claim **97**, wherein the one or more vitals includes at least one of the following: a heart rate, a body temperature, a perspiration rate, a respiration rate, a blood glucose level, a body mass index, or any combination thereof.

99. The game system of claim **97**, wherein the feedback is provided by a virtual trainer presented via a display device coupled to the game console.

100. The game system of claim **97**, wherein the at least one sensor includes at least one of the following: a heart rate sensor, a body temperature sensor, a perspiration sensor, a respiration sensor, a blood glucose sensor, a body mass index sensor, or a combination thereof.

101. The game system of claim **97**, wherein the processor is operable to:

compare the vital signs to established safe parameters associated with the player;

determine whether the vital signs are within a safe zone; and

modify the activity until the vital signs return to the safe zone when the vital signs are outside of the safe zone.

102. The game system of claim **101**, wherein the processor is operable to:

stop the activity when the vital signs do not return to the safe zone within a time period.

103. The game system of claim **97**, wherein the processor is operable to:

modify an appearance of a virtual player associated with the player at least partially based on the vital signs of the player.

104. The game system of claim **97**, wherein the processor is operable to:

compare the vital signs to a fitness threshold associated with the player; and

determine whether the vital signs are above or below the fitness threshold.

105. The game system of claim **104**, wherein the processor is operable to:

offer motivation to the player until the vital signs move above the fitness threshold when the vital signs are below the fitness threshold.

106. The game system of claim **105**, wherein the motivation is offered to the player by a virtual trainer presented via a display device.

107. The game system of claim **106**, wherein the processor is operable to:

offer positive feedback to the user when the vital signs are above the fitness threshold.

108. The game system of claim **107**, wherein the positive feedback is offered to the player by a virtual trainer presented via a display device.

109-114. (canceled)

115. The game system of claim **97**, wherein the processor is operable to:

collect the vital signs of the player;

store the vital signs of the player;

determine whether a designated recipient for the vital signs is associated with the player;

create a report with the vital signs; and

transmit the report to the designated recipient associated with the player.

116. The game system of claim **97**, wherein the processor is operable to:

retrieve previous activity information; and

vary an intensity of the activity at least partially based on the previous activity information.

117-118. (canceled)

119. The game system of claim **97**, wherein the exercise device is selected from the group comprising: a treadmill, an elliptical trainer, an elliptical cross-trainer, a stationary bike, an upright stationary bike, a recumbent stationary bike, and a rowing machine.

120. The game system of claim **97**, wherein the exercise device is selected from the group comprising: a lateral pull down device, a low row device, a biceps curl device, a triceps extension device, a leg press device, a leg extension device, a leg curl device, a squat device, a calf-raise device, a peck deck device, a flat chest press device, an incline chest press device, a decline chest press device, a shoulder press device, a cable crossover device, and a universal device.

* * * * *

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公开(公告)号	US20090292178A1	公开(公告)日	2009-11-26
申请号	US12/124606	申请日	2008-05-21
[标]申请(专利权)人(译)	高通股份有限公司		
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当前申请(专利权)人(译)	高通公司		
[标]发明人	ELLIS JASON MCCLELLAN CLINT		
发明人	ELLIS, JASON MCCLELLAN, CLINT		
IPC分类号	A61B5/00		
CPC分类号	A63B21/00 A63F2300/8094 A63B24/0059 A63B24/0062 A63B24/0075 A63B24/0084 A63B24/0087 A63B49/00 A63B59/00 A63B69/20 A63B69/3611 A63B71/0622 A63B2024/0065 A63B2024/0068 A63B2024/0093 A63B2024/0096 A63B2071/0081 A63B2071/063 A63B2220/12 A63B2220/16 A63B2220/30 A63B2220/40 A63B2220/44 A63B2220/52 A63B2220/56 A63B2220/803 A63B2220/836 A63B2225/20 A63B2225/50 A63B2230/00 A63B2230/06 A63B2230/202 A63B2230/42 A63B2230/50 A63F13/02 A63F13/12 A63F2300/1012 A63F2300/105 A63F2300/1062 A63F2300/554 A63F2300/5573 A63F2300/558 A63B22/00 A63B21/0724 A63B21/0726 A63B22/0076 A63B22/02 A63B22/0605 A63B22/0664 A63B2071/0625 A63B2220/89 A63B2225/685 A63B2244/102 A63B2244/106 A63B2244/22 A63F13/212 A63F13/33 A63F13/85 G16H10/60 G16H20/30 G16H40/67 G16H50/20 A63B60/46		
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摘要(译)

公开了一种游戏系统，其可包括锻炼装置和至少一个传感器，该传感器可被配置成在锻炼期间由锻炼装置的使用者佩戴。该系统还可以包括可以连接到锻炼装置和至少一个传感器的游戏控制台。游戏控制台可以包括处理器，该处理器可操作以在活动期间经由至少一个传感器监测与玩家相关联的一个或多个生命体征，并且至少部分地基于生命体征向玩家提供反馈。