A physical activity reward system and method which rewards a person performing physical activity with a reward, such as use of an appliance such as a TV viewing time. The system includes a physical activity monitor capable of generating activity information proportionate to the amount of exertion or work done. The system may be used to record and keep track of the reward points or information. The system may further control the supply of electricity to an appliance through an electrical control module. The electrical control module may be interposed between a source of household electrical current and an electrical appliance such as a TV set.

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COLLECT ACTIVITY INFORMATION

COMMUNICATE TO COMPUTER

CONVERT ACTIVITY INFORMATION TO REWARD INFORMATION

ALLOCATE REWARD INFORMATION
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COLLECT ACTIVITY INFORMATION

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ALLOCATE REWARD INFORMATION

FIGURE 2
PHYSICAL ACTIVITY REWARD SYSTEM

[0001] This application claims priority to U.S. Provisional Patent Application Ser. No. 61/115,219 filed on Nov. 17, 2008 which is hereby incorporated by reference in its entirety.

FIELD OF THE INVENTION

[0002] Embodiments of the invention are directed to a physical activity reward system and methods of rewarding physical activity. A physical activity reward system may be used to motivate individuals to engage in physical activity. Embodiments of a physical activity reward system comprise components that are capable of measuring the amount of physical activity that a person engages in and convert that measure of physical activity into reward information or points (“reward points”). The reward points may be allocated, used, or “cashed in” for a desired reward or allow them to participate in a desired activity such as a trip to an amusement park, a new bicycle, another gift, time playing computer games or watching television, or any other desired activity or reward.

BACKGROUND OF THE INVENTION

[0003] There is a developing obesity and fitness problem among adults and children. Our food products comprise more sugars and fats and our time and effort is spent with more sedentary activities and away from more physical activities. Children’s time is occupied with many hours at school and with homework, watching television, using the computer, as well as other sedentary activities. Physical activity is not a priority in daily life. Though sporting activities are popular, people spend more time watching sports than participating in them.

[0004] As such, there is a need for a physical activity reward system that provides a means for rewarding physical activity with other desired activities such as more sedentary activities.

[0005] There is a further need for a physical activity reward system that provides a means for encouraging and developing a lifestyle more balanced between physical activities and more sedentary entertainment activities.

[0006] There is still a further need for a method of rewarding physical activity that is capable of measuring an amount of physical activity performed by a person, transferring the activity information to a computer, converting that activity to reward points, and providing a means for controlling and/or allocating the reward information. There is a need for a physical activity reward system that is capable of transferring activity information to the computer conveniently and/or securely. There is an even further need that for a physical activity rewards system that allows for accumulation of rewards and allocation of reward points.

SUMMARY OF THE INVENTION

[0007] Embodiments of the invention relate to a physical activity reward system comprising a physical activity monitor capable of storing or transmitting physical activity information related to physical activity and a communication device for transferring the activity information from the physical activity monitor to a computer or other processing device wherein the computer or other processing device is configured to convert the activity information to reward information or points. The reward information may be proportional to the amount of physical activity that is performed and measured by the physical activity monitor. Thus, the system provides a means to accumulate, organize, keep track of, and allocate reward points earned from participation in physical activity. The system may further comprise an electric flow control device installed between a source of electrical power and an electrical appliance. In such an embodiment, the computer or other processing device may be configured to activate the electric flow control device to allow use of the appliance based upon the reward information.

[0008] Embodiments of the invention also include a method of rewarding physical activity, comprising electronically monitoring physical activity and generating physical activity information. The method may also include transferring at least a portion of the physical activity information to a computer or internet website and converting the physical activity information into reward points. The reward points may be allocated to an amount of time to be spent watching television, playing video games, using a computer, or other desired activities. The reward information may also be allocated to certain other activities or rewards or accumulated for use at a later time.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Reference to the following drawings along with the specification provides an understanding of the nature and embodiments of the invention reference, where:

[0010] FIG. 1 depicts an embodiment of a physical activity reward system;

[0011] FIG. 2 is a flow diagram showing an embodiment of the method of rewarding physical activity; and

[0012] FIG. 3 depicts a further embodiment of the physical activity reward system.

DETAILED DESCRIPTION

[0013] The present invention relates to systems and methods for rewarding physical activity and/or other activities. Embodiments of the method of rewarding physical activity comprise monitoring physical activity, generating physical activity information, transferring the physical activity information to a computer, the internet, and/or another processor, and converting the physical activity information into reward points. The methods may further comprise allocating the reward points to certain activities or rewards. The rewards may include, but are not limited to, monetary rewards, a trip to a sporting or musical event, shopping trip, or a day at an amusement park, or any other desired article or activity, for example. The allocating of the reward information may include remotely controlling operation of an electrical supply to an appliance. For example, the appliance may be any appliance that may be desired to be used such as, but not limited to, a computer, television, or video game system. Preferably, the appliance relies upon household electrical supply to operate such that an electricity control module may be interposed between the household electrical supply and the appliance. As such, the computer may determine whether a particular person has accumulated sufficient reward points to use the appliance. If sufficient reward points are available, the computer may be requested to allow electricity to flow through the control module to the desired appliance. The computer may be configured to deduct reward points from the user’s account to activate the electric flow control device. The amount of deducted points may be proportional to the amounts of time...
the electric flow device is activated. The method or system may also include appliances that are designed specifically for use with the physical activity reward system. For example, the computer of the system or method may be integrated into a video game system, incorporated into a television, or a computer with computer games that automatically check to determine whether sufficient reward points are available to play the game, for example.

[0014] The method or system may use any type of physical activity monitor capable of estimating the amount of physical activity performed. The amount of physical activity may be measured by the length of time the physical activity has been performed, the distance traveled during the exercise session, an estimate of virtual distance traveled on exercise equipment such as a rowing machine or stationary bicycle, a measurement of acceleration such as in wristwatch activity computers, an estimate of calories burned, the average speed maintained during the physical activity, the heart rate achieved and maintained during the physical activity, the length of time the heart rate is above a certain heart rate or within a specified heart rate range, other computer monitored physical activity such as, but not limited to, use of NINTENDO Wii Fit® software, any other means of measuring physical activity, or a combination of any of these methods. The physical activity monitor may be, for example, a heart rate monitor, a global positioning satellite ("GPS") device, a pedometer showing the number of steps taken, an exercise monitor such as POLAR™ F55, activity computer or monitor such as POLAR® A300 or POLAR® FA20, a bicycle computer, a motion sensor, a computer or processing unit configured with cameras to monitor movement and calculate physical activity based upon interpretation of the camera images, or an electronic or mechanical device attached to the exercise equipment. For example, in an embodiment of the physical activity reward system, the amount of exercise may be estimated or monitored by use of a heart monitor. An embodiment of the physical activity reward system 100 is shown in FIG. 1, a person performing physical activity such as running, jogging, walking, playing a sport, may wear or hold a heart rate monitor 110, for example, that measures and records physical activity information related to the heart rate of the user. In this embodiment, the physical activity information may include, but not limited to, actual heart rate, the time the wearer is above a minimum heart rate and/or the time the wearer is within a specified heart rate range. The heart rate monitor 100 may transfer the activity information to a processor 120 either directly or wirelessly. Wireless transmission may be sonically, infrared transmission, with radio frequency transmission, a Bluetooth connection, WiFi connection, or other known wireless transmission means. The heart rate monitor 110 may be any number of commercially available heart rate monitors from companies such as Polar™, Garmin™, Polar F6™ Heart Rate Monitor or Polar RS800 G3 that includes GPS capabilities. The computer 120 may then convert the activity information to reward information and allocate the reward information to allow the electricity control module 130 to allow electricity from the household circuit 140 to power an appliance such as television 150.

[0015] The computer or other processing unit may control the electricity control module through a transmitter connected to the computer, such as a USB cable or wirelessly through a Bluetooth or WiFi interface, for example. Additionally, there may be an additional communication module that acts as a communication link between the computer and the electricity control module. In this way the communication module may provide additional versatility as a means of communication. For example, the computer may control the communication module through any of the above described means and the communication module may transmit a signal to the electricity control modules wirelessly, through a direct wired connection, or through the household electrical supply wiring or a combination of these means, for example.

[0016] The computer or other processing unit may be any processing unit capable of receiving and storing information. Thus, any processing unit may be used to communicate with the physical activity monitor and receive the physical activity information, the processing unit may be integral to the physical activity monitor, may be a handheld unit such as a BLACKBERRY™ iPhone™, iPod™, or a personal computer. In certain embodiments, the physical activity monitor is itself capable of calculating and storing the physical activity information and also converting the physical activity information into reward information or reward points. In either embodiment wherein the physical activity monitor or another processing unit does the conversion, the conversion of physical activity information to reward information may be performed by any desired algorithm or other method. For example, in a simple case, one minute of physical activity, such as one minute of activity resulting in the heart rate of the user within a target heart rate range or one minute playing soccer, may be converted into one minute of reward activity. In other embodiments, the physical activity information may be converted to reward information by use of a multiplier such as one and a half times the time spent in physical activity equals the time of reward activity earned, or two times, three times, four times, or other multiples. Other methods may be used alone or in combination with rewarding physical activity such as additional reward points for reaching a milestone such as additional reward points may be given for achieving the target heart rate for more than thirty minutes in one day, for achieving the target heart rate for 20 minutes every day of a week, or for running more than two miles, for example. These examples are given to provide an understanding of the invention, but do not limit the scope of the invention.

[0017] The computer or other processing unit may also be used to allocate and control use of the reward points. In one embodiment, the computer may be capable of communicating to a device that controls the flow of electricity to at least one appliance. In this embodiment, the physical activity reward system may be used to reward physical activity by allowing use of televisions, computers, video game consoles, or charging portable devices such as lap tops, music players, or portable game consoles. The computer may communicate either directly or wirelessly with the device or by both means. One example of a method of communicating may be through existing household electrical wiring such as the commercially available system Pro Model CM15A™, from ACTIVE-HOM™. In another embodiment, the reward information may be transmitted over the internet to a separate location or wirelessly to operate the control module.

[0018] In certain embodiments, the physical activity reward system includes features that prevent bypassing the system to receive rewards that were not earned through physical activity or allocated to a reward in the computer system. For example, the electric flow control modules may comprise features that prevent the appliance from being unplugged from the electricity control module such as locks, hardwiring, or seals that must be broken or other indicators of tampering;
the computer or communication module may comprise indicators that record if either or both of such components is powered off; the computer may be configured to record in a log file when any component is turned off and the length of time the unit was without power; or the electricity control modules may be programmed to close the circuit if any component of the physical activity reward system is off and remain closed until that component is powered on. In another embodiment, the computer or communication module may be configured to repeatedly send signals to the electric flow control module to open the circuit if no reward information or reward points have been allocated for its use. Such repeated signaling at regular intervals may be used with electricity control modules that allow local bypassing of the control circuit, for example. Therefore, the local bypass feature may not be used to supply power to the appliance.

[0019] In one embodiment, the physical activity reward system comprises a physical activity monitor that is capable of generating activity information, a computer capable of converting the activity information into reward points, and an electricity flow control module capable of communicating with the computer. The electric flow control module may be installed between a source of electrical power and an appliance such that the appliance may not be operated unless the computer communicates to the electric flow control module that sufficient physical activity has been performed to allow the control module to open the flow of electricity to the appliance if the reward information indicates that it is allowable. In certain embodiments, the reward information is accumulated by performing physical activity being monitored by the physical activity monitor. The monitor accumulates activity information based upon the intensity and time period of the physical activity. This activity information may then be communicated to the computer and, optionally, stored on a storage device such as a hard drive or in other memory. The activity information may then be converted to reward points according to an algorithm or other methods. The computer may be configured to store the reward points and allow allocation of the reward information to various rewards. The reward information or reward points may be allocated to use of a particular appliance. In such an embodiment the computer may be configured to allocate use of the reward information or reward points to a user to supply the appliance with electricity. A certain amount of reward information or reward points are then subtracted from the total in relation to the amount of time that the appliance is in use, such as one minute of use of the appliance results in loss of one reward point. Additional allocation algorithms may be used, such as one reward point may equal to one minute of use of a video game console but one reward point may be used for two minutes of television viewing, for example. The allocation of reward points is flexible.

[0020] Embodiments of the invention also include a method of rewarding physical activity. An embodiment of the method of rewarding physical activity 200 comprises monitoring physical activity of a person, generating activity information based on at least one of an intensity of the physical activity and a length of the physical activity 210, communicating the activity information to a computer 220, and converting the activity information to reward points 230. The method may also comprise allocating the reward points 240.

[0021] Electrical control module 130 may employ the principle of a solenoid-type on/off switch or electronic control module that maintains a switch in a closed state, thereby connecting TV set 150 or other appliance to household electrical current such as 110 volt A.C. supplied from wall receptacle 130. When the reward information on computer 120 indicates that the allotted reward information or reward points are consumed, the solenoid-type switch or control module will open, thereby disconnecting electrical current from the wall receptacle 140 to the appliance.

[0022] Preferably, electrical control module 130 is secured to the electrical input to the TV set in a manner preventing bypass by an unauthorized electrical conductor communicating directly to the TV set from another source of household electrical current. Thus embodiments of the physical activity reward system and method allow an exercising person to accumulate or bank reward information or reward points obtained by physical activity, and such “points” may be spent at any time and on any electrical appliance compatible with this system, regardless of location within the house or within another, similarly equipped house.

[0023] The computer or processing unit may be configured to allow inputting other reward points to be added to a user’s account. Additional reward points may be allocated to a user’s account based upon performing a desired activity, achieving a desired result such as graduating or certain grades in school, for example. The reward points may be allocated to any reward in the same manner as reward points earned through the physical activity monitor. In fact, the physical activity reward system may be used without a physical activity monitor. An administrator may input reward points into a user’s account based upon physical activity performed or to reward other behaviors or achievements. In an embodiment, other reward points may be allocated to allow control of the electric control module.

EXAMPLES

[0024] FIG. 3 shows an embodiment of the physical activity reward system and method. In this embodiment, the physical activity monitor 300 is an accelerometer-type activity monitor such as the POLAR™ FA20 Activity Computer wristwatch. The POLAR™ FA20 Activity Computer may be worn at all times or may be worn only when the user wishes to measure their activity. A POLAR FA20 Activity Computer measures effective active movement and displays the active movement graphically. The measured active movement may be combined with personal data concerning the user such as, but not limited to, age, gender, height and weight. The POLAR FA20 performs calculations that convert this data into activity information. The activity information may include, for example, active time, calories burned during active times, active steps, distance, as well as other activity information.

[0025] The activity monitor may store activity information or may communicate the activity information directly to the computer as the activity information as it is being generated. The activity information may be wirelessly communicated to the computer or communicated across a wired connection. Embodiments of the physical activity reward system that has a communication device that is able to communicate with the computer during the physical activity. If the communication is performed wirelessly, the physical activity monitor must be in range of the communication device. If the communication device is wired directly into the computer or other means of communication, such as through the internet, the physical activity must be performed within the length of the cable. The activity information may be communicated to software on a personal computer or a computer attached to the internet.
In another embodiment, the physical activity monitor may both communicate with the computer in real time and also store the activity information in its own memory. Such memory may be any memory storage system including but not limited to random access memory, magnetic or optical drives, or flash memory, for example. In this way, the physical activity monitor may be used within the communication range of the computer or outside the communication range.

In the embodiment of FIG. 3, the activity information is stored in the POLAR™ Activity Computer 300. The physical activity monitor 300 may be used to store multiple days of physical activity information if desired. The physical activity information may then be transferred from the physical activity monitor 300 through a communication device 310 to the computer 320. In the embodiment shown in FIG. 3, the communication device is a POLAR™ FlowLink communication device. The FlowLink or other communication device may be internal or external to the computer. The communication device may be connected to the computer through any connection including, but not limited to, a USB connection, a microphone or other audio input connection, a BlueTooth communication device, a wireless network connection, a WiFi connection, or an ultrasonic communication device, for example.

In a further embodiment of the physical activity reward system, the physical activity monitor and the communication device and the computer are all housed within the same unit. In this embodiment, the physical activity information is converted to the reward information in this combination unit. The combination unit may then display the reward information or communicate the reward information to another device for storage or allocation.

After the activity information is communicated to the computer, the activity information may be converted to reward information as described previously. In the embodiment of FIG. 3, the computer 320 is connected to an electric control flow device. The electric control flow device in the embodiment of FIG. 3 comprises a transmitter 330 connected to the computer 320 by a cable 350 and an appliance module 360. Both the transmitter 330 and the appliance module 360 are plugged into electrical outlets 362. The transmitter 330 communicates with the appliance module 360 by transmitting signals through the household electrical circuitry. The transmitter 330 may communicate with multiple appliance modules 360 by setting codes on each appliance module 360 by using the code setting dials 361 on the appliance module 360.

In some residential or commercial buildings, the household electrical circuitry may include two or more independent circuits. The transmitter 330 may only communicate with the appliance module 360 if they are both installed on the same circuit. In a further embodiment with two or more independent circuits, the electric control flow device may further comprise a transceiver 331 installed on the different circuit than the transmitter 330. The transmitter 330 may also communicate through the household circuitry and also wirelessly. The transmitter 330 may communicate wirelessly to allow communication with appliance modules on the independent circuit. The wireless communication allows the signal to “jump” form one circuit to another and allow control of an appliance connected to the independent circuit.

Television 370 comprises a cord 371 plugged into appliance module 360. Appliance module 360 is plugged into outlet 362 to electrically connect the television 370 to the household electric supply. The computer 320 may send signals to the electric control flow device to open or close the circuit in the appliance module 360 to allow electricity to flow to the television 370 or other appliance. To enable the computer 320 to send signals to the electric control device, the user must earn activity information by performing some physical activity that is monitored by the physical activity monitor 300. A computer or other processor is configured to keep a record of the reward information and keep a total of the reward information earned. The activity information is converted to reward information and allocated to a specific appliance module 360 to close the circuit and allow electricity to flow to the television 370 or other desired appliance. The user that wishes to allocate reward information must have sufficient points in their account to operate the appliance module 360 for the desired period of time. By using an embodiment of the physical activity reward system, the user is rewarded with ability to operate an appliance by performing physical activity.

Reward information may be earned by performing physical activity or may be earned and added to an account by other means. An administrator of an account, such as a parent, physical trainer or other guardian, may reward a user of the physical activity reward system by adding reward points as a bonus directly into an account. The bonus reward information may be added to the account for earning high grades, completing chores, baby sitting, or for any other reason acceptable to the administrator.

While particular examples of the present invention have been shown and described, it is apparent that changes and modifications may be made therein without departing from the invention in its broadest aspects. The aim of the appended claims, therefore, is to cover all such changes and modifications as fall within the true spirit and scope of the invention.

1. A physical activity reward system, comprising:
   a physical activity monitor capable of generating activity information related to physical activity;
   a communication device for transferring the activity information from the physical activity monitor to a computer; wherein the computer is configured to convert the activity information to reward information.
2. The physical activity reward system of claim 1, wherein the communication device is a wireless communication device.
3. The system of claim 1, comprising:
   an electric flow control device installed between a source of electrical power and an electrical appliance, wherein the computer is configured to activate the electric flow control device based upon the reward information.
4. The system of claim 1, wherein electric flow control device is activated to allow flow of electricity from the source of electrical power to the electrical appliance.
5. The system of claim 4, wherein the electric flow control device comprises an bypass that allows flow of electricity from the source of electrical power to the electrical appliance through electric control device.
6. The system of claim 5, wherein the computer is configured to transmit the signal to close the bypass.
7. The system of claim 6, wherein the computer is configured to transmit the signal to close the bypass at regular intervals.
8. The system of claim 3, wherein the reward information comprises an amount of time that the electric flow control device is to be activated.
9. The system of claim 8, wherein the computer is configured to be capable of allocating reward information to activate the electric control device.

10. The system of claim 9, wherein a point of reward information may be allocated to activate the electric control device for a period of time.

11. The system of claim 1, wherein the reward information is calculated based upon a mathematical function of the activity information.

12. The system of claim 1, wherein the physical activity monitor comprises at least one of a heart rate monitor, an accelerometer, a global positioning satellite device, a pedometer, camera, or combinations thereof.

13. The system of claim 12, wherein the physical activity monitor is capable of storing activity information.

14. The system of claim 13, wherein the physical activity monitor is capable of transferring the activity information to the computer.

15. A method of rewarding physical activity, comprising:

   generating physical activity information,
   transferring the physical activity information to a computer, and
   converting the physical activity information into reward information.

16. The method of claim 15, comprising allocating the reward information to certain activities or rewards.

17. The method of claim 16, wherein allocating the reward information includes remotely controlling operation of an electrical supply to an appliance.

18. The method of claim 17, wherein the appliance is a computer, television, or video game system.

19. The method of claim 17, wherein the appliance relies upon household electrical supply to operate such that an electricity control module may be interposed between the household electrical supply and the appliance.

20. A method of rewarding physical activity, comprising:

   entering reward information into a computer,
   allocating at least a portion of the reward information to operating an electrical appliance, and
   activating electric flow control device capable of allowing flow of electricity from the source of electrical power to the electrical appliance for a period of time.

21. The method of claim 20, comprising:

   earning reward information by completing a task.

22. The method of claim 21, comprising:

   entering the reward information into a processing unit.

23. The method of claim 22, comprising:

   reducing the reward information based upon the length of the period of time that the electric flow control device is activated.

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