TITLE OF THE INVENTION

Systems and Methods for Increasing Exercise

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not applicable.

A

- good background + validation
- Thorough job

BACKGROUND OF THE INVENTION

[0002] The present invention generally relates to a system for increasing exercise. More particularly, the present invention relates to a system for increasing exercise having an electrical power system electrically connected to an electric plug of a consumer electronic device.

OK

[0003] Child obesity is a global health problem. In the United States, for example, over 16% of children ages six to nineteen are obese. Dep't of Health & Human Serv., Ctr. for Disease Control, Obesity Prevalence, http://www.cdc.gov/nccdphp/dnpa/obesity/childhood/prevalence.htm (last visited Mar. 15, 2009). Children's increased sedentary behavior, particularly time spent with consumer electronic devices, is a contributing factor to child obesity. Dep't of Health & Human Serv., Ctr. for Disease Control, Contributing Factors, http://www.cdc.gov/nccdphp/dnpa/obesity/childhood/contributing_factors.htm (last visited Mar. 15, 2009). For example, children ages eight to eighteen spend over three hours per day watching television, videos, and digital video discs (DVDs). To reduce child obesity, children are encouraged exercise. Indeed, doctors and parents expect by increasing exercise, child obesity will decrease.

[0004] Encouraging children to exercise usually requires providing children with enough incentives to exercise because, as discussed above, children really enjoy spending time watching television, videos, and DVDs. Indeed, children require incentives to exercise because children, who are young and think they will live forever, do not realize the health benefits of exercising. Further still, in our modern society, even when children are provided with enough incentives to exercise, there is a lack of adult supervision to ensure children are in fact exercising.

[0005] Several prior art systems exist to increase exercise. For example, a system for monitoring health, wellness and fitness is disclosed in Teller et al., U.S. Appl. No. 11/724,373. In the system of Teller, Figures 12-17 illustrate a sensor device which is worn on an individual's upper arm, between the shoulder and the elbow. The armband sensor, which has a replaceable battery, detects human physiological information such as galvanic skin response and heat flow. In response to detecting human physiological information, the armband sensor generates data representing the human physiological information. As disclosed in Teller Column 8, paragraph 0065, the data representing human physiological information is uploaded to a server, which is in communication with a personal computer through the internet. As disclosed in Teller Column 9, paragraph 0071, the server stores and analyzes the data representing human physiological activity and also displays the data representing human physiological information in a series of web pages accessible by the user and authorized third parties.

[0006] Another example of a prior art system to increase exercise is disclosed in Cheng and Hailes, *Managed Exercise Monitoring: a Novel Application of Wireless On-Body Inertial Sensing*, IEEE Proceedings of the 5th International Workshop on Wearable and Implantable Body Sensor Networks (2008). Cheng and Hailes discloses a wireless on-body inertial sensor to record and analyze sprint-related exercises that are often assigned to individuals in physical education class. In the system of Cheng and Hailes, a six degree of freedom wireless inertial sensor is strapped to the lower back of a user to detect the user's running. The wireless inertial sensor is electrically powered by an attached battery pack. The wireless inertial sensor transmits data representing the user's running to a personal computer in the user's home and the user's school. Both the user's parents and teachers verify the user's running on the personal computers.

[0007] Systems, devices, and methods for providing a reward based upon the use of a mobile communication device disclosed in Jones, U.S. Pat. No. 7,359,732 is yet another example of a prior system to increase exercise. In the system of Jones, Column 12 describes a predetermined reward sent to a mobile communications device encourages a user of the mobile communications device to participate in a program by inputting data into the mobile communications device. For example, Jones Column 6 discloses the user is a participant in a medical clinical trial. Further still, Jones Column 12 discloses the predetermined reward includes music, ring tones, and text messaging.

[0008] Baker, U.S. Appl. No. 11/872, 937 discloses incenting methods and devices, which is another prior art system to increase exercise. In the system of Baker, Column 2, paragraphs 0026-0029 discloses an incentee user records exercise data with an activity monitoring device and then the incentee user submits the exercise data to the incenting computer system. In response to receiving the exercise data, the incenting computer system makes transactions on behalf of the incentor user. For example, Baker Column 6, paragraph 0059 describes the incenting computer system transfers money from an escrow account. Baker Column 3, paragraph 0041 describes the money transaction is provided to the incentee user by a third party such as a bank or the incentor user.

[0009] The prior art systems to increase exercise have several disadvantages for both parents and children. First, the system of Teller discloses a server that stores and displays data in a series of web pages. Accordingly, the system of Teller requires an Internet connection for parents and children to view the data. The data being accessed through the server is a disadvantage for both parents and children because the data is susceptible to hacking.

[0010] Second, sensors disclosed in the system of Teller and the system of Cheng and Halies are conspicuous sensors. Conspicuous sensors disadvantage children because other children see that a child is wearing the sensor. In response to seeing the sensor, the other children tease the child wearing a conspicuous sensor for being different or being a goody two shoes for following his or her parents' directions to exercise. The armband sensor disclosed in Teller is a conspicuous sensor because other children see a child wearing the sensor on his or her upper arm, between the shoulder and the elbow. Accordingly, other children tease the child wearing the armband sensor for being different or being a goody two shoes for following his or her parents' directions to exercise. Similarly, the six degree of freedom wireless inertial sensor disclosed in Cheng and Hailes is a conspicuous sensor because it is strapped to the lower back of the child. In response to seeing the sensor disclosed in the system of Cheng and Hailes, other children tease the child for wearing the six degree of freedom wireless inertial sensor.

[0011] Further still, conspicuous sensors are cumbersome. For example, the armband sensor disclosed in Teller is worn on the user's upper arm, between the shoulder and elbow. A child is weighed down and has awkward movement by wearing the armband sensor disclosed in Teller. Similarly, a child is weighed down and has awkward movement by having the six degree of freedom wireless inertial sensor disclosed in Cheng and Hailes, which is strapped to the child's lower back.

[0012] Another disadvantage of the prior art systems to increase exercise are the incentives provided to increase exercise. For example, the system of Teller and the system of Chen and Hailes do not disclose incentives to increase exercise. Both children and parents are disadvantaged by systems not providing incentives to increase exercise because children do not exercise without incentives. Accordingly, without exercise children remain unhealthy and obese and parents care for their unhealthy, obese children.

[0013] While the system of Baker discloses rewards for performing exercise, the disclosed reward is money transactions. Money transactions are a disadvantage to the parents because of the cost the parents pay to the children. Also, money transactions do not fully incentivize children to exercise. Being young, children do not realize all of the uses for money. Thus, children cannot be fully incentivized to exercise when they do not realize all of the uses for their incentive. Further still, children accessing or using the money transaction requires parental supervision for two reasons. First, in the system of Baker, the incenting computer transfers money from an escrow account and the money transaction is provided by a bank or by the parent. Being young, children cannot go to banks to receive money. So, either the parent must go with the child to the bank to get the money transaction or provide the money transaction to the child. Second, even if the children get access to the money transaction without parental supervision, children using the money transaction without parental supervision poses problems. For example, an unsupervised child might use the money from the money transaction to buy candy and other unhealthy food. If children purchase and eat candy and other unhealthy food with money transactions from the system of Baker, then child obesity cannot be overcome.

[0014] Although the system of Jones discloses rewarding a user to encourage the user to participate in a program by inputting data into a mobile communications device, the reward is sent to the mobile communications device. By sending the reward to the mobile communications device the child just input data into to receive the reward, the system of Jones does not fully incentivize children to exercise. Indeed, children, being young, have short attention spans. Because children have short attention spans, children become bored with receiving rewards on only one mobile communications device for an extended period of time. Thus, children who become bored with their incentives to exercise are not fully incentivized to exercise.

BRIEF SUMMARY OF THE INVENTION

[0015] One or more of the embodiments of the present invention provide a system for increasing exercise. The system includes a sensor, a control system, and an electrical power system. The electrical power system is in bidirectional communication with the electrical power system. Also, the electrical power system is electrically connected to both an electrical power supply and an electric plug which is attached to a consumer electronic device.

[0016] In operation, the electrical power system allows electrical power to flow from the electrical power supply to the electric plug based on data representing electrical power time in a series of steps. First, a first user sets a multiplier on the control system. The multiplier is used to convert data representing user movement to data representing electrical power time. Next, the sensor generates data representing user movement. The data representing user movement is generated in response to detecting a second user's movement. After the data representing user movement is transmitted to the control system, the control system converts the data representing user movement to data representing electrical power time. Converting the data representing user movement to data representing electrical power is performed by multiplying the data representing user movement by the multiplier. Then the control system transmits the data representing electrical power time to the electrical power system. Finally, the electrical power system responds to receiving the data representing electrical power time by allowing electrical power to flow from the electrical power supply to the electric plug.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] Figure 1 illustrates a block diagram of a system for increasing exercise.

[0018] Figure 2 illustrates a flow chart of a method for increasing exercise.

[0019] Figure 3 a block diagram of the sensor of Figure 1.

[0020] Figure 4 illustrates a plan view of the sensor of Figure 1.

[0021] Figure 5 illustrates an elevational view of the sensor of Figure 1.

[0022] Figure 6 illustrates a block diagram of the control system of Figure 1.

[0023] Figure 7 illustrates a plan view of the entry screen.

[0024] Figure 8 illustrates a plan view of the first profile screen.

[0025] Figure 9 illustrates a plan view of the local setup screen.

[0026] Figure 10 illustrates a block diagram of the electrical power system of Figure 1.

[0027] Figure 11 illustrates an exploded, perspective view of the electrical power system of Figure 1.

[0028] Figure 12 illustrates a perspective view of an electrical power system of Figure 1.

[0029] Figure 13 illustrates a plan view of the display device of Figure 10 of the electrical power management system of Figure 1 in input mode.

[0030] Figure 14 illustrates a plan view of the display device of Figure 10 of the electrical power management system of Figure 1 in power mode.

[0031] Figure 15 illustrates a plan view of the display device of Figure 10 of the electrical power management system of Figure 1 in lock out mode.

[0032] Figure 16 illustrates a plan view the display device of Figure 10 of the electrical power management system of Figure 1 in restore mode.

[0033] Figure 17 illustrates an elevational view of the electrical power system of Figure 1.

[0034] Figure 18 illustrates a block diagram of an alternative embodiment of the electrical power system of Figure 1.

[0035] Figure 19 illustrates a flow chart of a method for granting a first user electrical power access.

[0036] Figure 20 illustrates a flow chart for a method of granting a second user control system of Figure 1 access.

[0037] Figure 21 illustrates a flow chart for a method of uploading data representing user movement.

[0038] Figure 22 illustrates a flow chart for an alternative method of uploading data representing user movement.

DETAILED DESCRIPTION OF THE INVENTION

[0039] Figure 1 illustrates a block diagram of a system for increasing exercise 100 according to an embodiment of the present invention. The system for increasing exercise 100 includes a sensor 110, a control system 120, an electrical power system 130, an electrical power supply 135, a consumer electronic device 140, and a server 150. The consumer electronic device 140 includes an electric plug 145.

[0040] In the system for increasing exercise 100, the sensor 110 is in bidirectional communication with the control system 120. The control system 120 is in bidirectional communication with the electrical power system 130. Also, the electrical power system 130 is in bidirectional communication with the electrical power supply 135. The electrical power system 130 is electrically connected to the electric plug 145. The electrical plug 145 is electrically coupled to the consumer electronic device 140. The control system 120 is also in bidirectional communication with the server 150.

[0041] In operation, data representing user movement is converted into data representing electrical power time, which is preferably the amount of time electrical power is provided to the consumer electronic device 140. When the electrical power system 130 receives data representing electrical power time, the electrical power system 130 responsively provides electrical power the consumer electronic device 140 in a series of steps. First, the data representing user movement is generated and stored by the sensor 110 (as shown below in Figure 3). Then the sensor 110 transmits the data representing user movement to the control system 120 (as shown below in Figure 6). The control system 120 operates on the received data representing user movement to convert the data representing user movement into data representing electrical power time. The data represents electrical power time regardless of the power consumption of the consumer electronic device 140. Next, the control system 120 transmits data representing electrical power time to the electrical power system 130 (as shown below in Figure 10). After the electrical power system 130 receives the data representing electrical power time, the electrical power system 130 allows electrical power, which is preferably alternating current (AC) electrical power, to flow from the electrical power supply 135 to the electric plug 145. The electrical power supply 135 is preferably an electrical wall outlet. Finally, the electric plug 145 transfers the electrical power to the consumer electronic device 140, which is preferably a television.

[0042] The consumer electronic device 140 may also be any electronic device which provides information to a user. Accordingly, the consumer electronic device 140 may also be a computer, DVD player, or a stereo. Further still, the consumer electronic device 140 may also be a video game console such as the Microsoft Xbox or Nintendo Wii.

[0043] In another embodiment, data representing user movement is converted to data representing electrical power in Watts. When the signal represents electrical power in Watts, the power consumption of the consumer electronic device 140 becomes relevant to the system for increasing exercise 100.

[0044] In another embodiment, the server 150 sends data representing an update to the control system 120. In response to receiving the data representing an update, the control system 120 updates the system for increasing exercise 100.

[0045] In operation, the electrical power system 130 may also allow direct current (DC) electrical power to flow from the electrical power supply 135 to the electric plug 145.

[0046] Figure 2 illustrates a flow chart of a method for increasing exercise 200. First, at step 210, a user sets a multiplier on the control system 120 of Figure 1. The multiplier is used to convert data representing user movement to data representing electrical power time.

[0047] Next, at step 220, the sensor 110 of Figure 1 generates data representing user movement. The generating the data representing user movement step 220 is performed in response to detecting user movement.

[0048] Next, at step 230, the control system 120 of Figure 1 converts the data representing user movement to data representing electrical power time. Converting the data representing user movement to data representing electrical power time step 230 is performed by multiplying the data representing user movement by the multiplier set in step 210. The multiplying is preferably performed by a suitable combination of digital logic.

[0049] Next, at step 240, the control system 120 of Figure 1 communicates the data representing electrical power time to the electrical power system 130 of Figure 1. The communicating is performed by transmitting the data.

[0050] Next, at step 250, The electrical power system 130 of Figure 1 powers the electric plug 145 of Figure 1. The powering the electrical plug step 250 is performed by allowing electrical power to flow from the electrical power supply 135 of Figure 1 to the electric plug 145 of Figure 1.

[0051] In another embodiment, setting a multiplier step 210 is performed on the control system 120 of Figure 1. The multiplier is used to convert data representing user movement to data representing electrical power in Watts. Accordingly, in response to receiving the data representing electrical power in Watts, powering the electric plug 250 step is performed on the electrical power system 130 of Figure 1. The powering the electrical plug 250 step is performed by allowing electrical power to flow from the electrical power supply 135 of Figure 1 to the electric plug 145 of Figure 1.

[0052] Figure 3 illustrates a block diagram of the sensor 110 of Figure 1. The sensor 110 of Figure 1 includes a housing 310, a sensor central processing unit 320, a sensor storage 330, a rechargeable power supply 340, a communication link 350 a user movement detection component 360, a mode button 370, and a sensor display 380.

[0053] In the sensor 110 of Figure 1, the sensor central processing unit 320 is in bidirectional communication with the sensor storage 330, the rechargeable power supply 340, the communication link 350, the user movement detection component 360, the mode button 370, and the sensor display 380. The sensor central processing unit 320, the sensor storage 330, the communication link 350, the user movement detection component 360, the mode button 370, and the sensor display 380 are all electrically coupled to the housing 310. The communication link 350 is in bidirectional communication with the control system 120 of Figure 1.

[0054] In operation, when the user movement detection component 360 detects user movement, the sensor central processing unit 320, which is preferably implemented as a suitable combination of digital logic, generates data representing user movement. The user movement detection component 360 preferably uses a movement detection component similar to that used in the Sportline ShrinQ Pedometer model 304. Accordingly, the user movement detected by the user movement detection component 360 is preferably a walking step. The data representing user movement travels through the sensor 110 of Figure 1 in a series of steps.

[0055] First, after the data representing user movement is generated by the sensor central processing unit 320, the sensor central processing unit 320 passes the data representing user movement to the sensor storage 330. The sensor storage 330 is preferably flash memory. When the communication link 350 is in bidirectional communication with the control system 120 of Figure 1, the sensor central processing unit 320 retrieves the data representing user movement from the sensor storage 330. The communication link 350 is preferably a universal serial bus (USB) port. Then the central processing unit 320 transmits the data representing user movement to the control system 120 of Figure 1 through the communication link 350.

[0056] Second, after the data representing user movement is generated by the central processing unit 320, the central processing unit 320 converts the data representing user movement into a number representing the data representing user movement based on a first mode. There are preferably three modes: steps, distanced-traveled, and calories-burned. Then the central processing unit 320 passes the number representing the data representing user movement to the sensor display 380. A user views the number representing the data representing user movement on the sensor display 380. When the user movement detection component 360 detects additional user movement, the number representing the data representing user movement responsively increases based on the total amount of detected user movement.

[0057] When the user presses the mode button 380, the mode button 380 sends mode change data to the sensor central processing unit 320. In response to receiving the mode change data, the sensor central processing unit 320 converts the data representing user movement into a number representing the data representing user movement based on a second mode. Then the sensor central processing unit 320 passes the number representing the data representing user movement to the sensor display 380. A user views the number representing the data on the sensor display 380.

[0058] In operation, the rechargeable power supply 340 provides electrical power to the sensor central processing unit 320, the sensor storage 330, the communication link 350, the user movement detection component 360, the sensor display 380, and the mode button 370. The rechargeable power supply 340 is preferably a rechargeable battery. When the communication link 350 is electrically connected to the control system 120 of Figure 1, electrical power flows from the control system 120 of Figure 1 to the rechargeable power supply 340. In response to receiving electrical power from the control system 120, the electrical power supply 340 stores electrical power after electrical power is provided to the sensor central processing unit 320, the sensor storage 330, the rechargeable power supply 340, the communication link 350, the user movement detection component 360, the mode button 370, and the sensor display 380.

[0059] The sensor storage 330 may also be any computer-readable medium, such as physical or virtual memory, including random-access memory (RAM), static random access memory (SRAM), dynamic random access memory (DRAM), read-only memory

(ROM), programmable read-only memory (EPROM), electronically-erasable programmable read-only memory (EEPROM), magnetic media, optical media, a soft disk, a hard disk, and any other type of secondary or tertiary memory.

[0060] The communication link 350 may also be any serial or parallel communication port, such as an Ethernet port, an IEEE 1394 port, or a DB-25 port.

[0061] The user movement detection component 360 may also be an accelerometer or a gyroscope, a Galvanic Skin Response (GRS) sensor, or a heat flux sensor.

[0062] In an alternative embodiment, the rechargeable power supply 340 may also be a removable battery that does not necessarily receive and store electrical power from the control system 120 of Figure 1 when the communication link 350 is electrically connected to the control system 120 of Figure 1. Further still, the rechargeable power supply 340 may alternatively be electrically attached to a portable electrical power generator such as a Sundance Solar solar panel.

[0063] In another embodiment, the sensor 110 of Figure 1 is in wireless communication with the control system 120 of Figure 1. In this embodiment, the wireless communication is preferably performed on a Bluetooth network. Accordingly, the communication link 350 is preferably a high power Bluetooth Tx/Rx dongle having about a 100 meter transmitting range. In this embodiment, the sensor 110 of Figure 1 does not necessarily include the sensor storage 330. In operation, after the data representing user movement is generated by the sensor central processing unit 320, the sensor central processing unit 320 transmits the data representing user movement to the control system 120 of Figure 1 through the communication link 350. In this embodiment, the control system 120 of Figure 1 includes a security device that minimizes spoofing. Alternatively, the communication link 350 may also be an intermediate power Bluetooth Tx/Rx dongle having about a ten meter transmitting range or a low power Bluetooth Tx/Rx dongle having about a one meter transmitting range. The communication link 350 may also be any serial or parallel communication port, such as an Ethernet port, a 802.11 port, or a DB-25 port.

[0064] In yet another embodiment, the sensor 110 of Figure 1 is in wireless bidirectional communication with the control system 120 of Figure 1. In such an embodiment, the wireless communication is preferably performed on a Bluetooth network. Accordingly, the communication link 350 is preferably an intermediate Bluetooth Tx/Rx dongle having about a ten meter transmitting range. When the user movement detection component 360 detects user movement, the sensor central processing unit 320 generates data representing user movement. After the data representing user movement is created by the sensor central processing unit 320, the sensor central processing unit 320 passes the data representing user movement to the sensor storage 330. When the communication link 350 is in transmitting range of the control system 120 of Figure 1, the sensor central processing unit 320 retrieves the data representing user movement from the sensor storage 330. Then the sensor central processing unit 320 responsively transmits the data representing user movement to the control system 120 of Figure 1 through the communication link 350. In this embodiment, the control system 120 of Figure 1 includes a security device that minimizes spoofing. The communication link 350 may also be a low power Bluetooth Tx/Rx dongle having about a one meter transmitting range. The wireless bidirectional communication may also be performed on a suitable communications network such as Infrared Data Association (IrDA) network, an ultra-wideband network (UWB), a ZigBee protocol network, a wireless fidelity alliance (Wi-Fi Alliance) network, or an 802.11 network.

[0065] Figure 4 illustrates a plan view of the sensor 110 of Figure 1. The sensor 110 of Figure 1 includes the housing 310 of Figure 3, a mode display 480, a value display 485, and the mode button 370 of Figure 3.

[0066] In the sensor 110 of Figure 1, the mode display 480, the value display 485, and the mode button 370 of Figure 3 are all electrically coupled to the housing 310 of Figure 3. Also, the mode button 370 is in bidirectional communication with both the mode display 480 and the value display 485.

[0067] In operation, the value display 485, which is preferably a light-emitting diode (LED), displays a number representing data representing user movement based on a first mode. The mode display 480, which is preferably a LED, displays a letter representing the first mode. There are preferably three modes: steps, distanced-traveled, and calories-burned. Accordingly, "S" preferably represents steps, "D" preferably represents distance-traveled, and "C" preferably represents calories-burned. Both the value display 485 and the mode display 480 provide a user with contemporaneous information representing the sensor 110 of Figure 1 operation.

[0068] When the user pushes the mode button 370 of Figure 3, which is preferably an electronic push button switch, the mode button 370 of Figure 3 sends mode change data to both the value display 485 and the mode display 480. In response to receiving the mode change data, the value display 485 displays a number representing data representing user movement based on a second mode. In response to receiving the mode change data, the mode display 485 displays a letter representing the second mode.

[0069] The mode display 480 may also be any suitable display device including a liquid crystal display (LCD), a plasma display, an electroluminescent display, or a vacuum fluorescent display tube. Similarly, the value display 485 may also be any suitable display device including a LCD, a plasma display, an electroluminescent display, or a vacuum fluorescent display tube.

[0070] The mode button 370 of Figure 3 may also be any suitable user input device such as a touch screen display, at least one alphanumeric key, or a mechanical rotating dial.

[0071] In another embodiment, the mode button 370 of Figure 3 is preferably a speaker with voice recognition software. In this embodiment, when a user speaks a predetermined verbal command into the mode button 370 of Figure 3, the mode button 370 of Figure 3 sends mode change data to both the value display 485 and the mode display 480. In response to receiving the mode change data, the value display 485 displays a number representing user movement data based on the predetermined verbal command. The preferable verbal command for steps mode is "steps," the preferable verbal command for distance-traveled mode is "distance," and the preferable verbal command for calories-burned is "calories." In response to receiving the mode change data, the mode display 480 displays a letter representing a mode that corresponds to the predetermined verbal command.

[0072] In operation, the sensor 110 of Figure 1 is preferably sized to fit inside a user's pocket while the sensor 110 is detects user movement.

[0073] Figure 5 illustrates an elevational view of the sensor 110 of Figure 1. The sensor 110 of Figure 1 includes the communication link 350 of Figure 3. The communication link 350 of Figure 3 is electrically coupled to the sensor 110 of Figure 1. The communication link 350 of Figure 3 is in bidirectional communication with the control system 120 of Figure 1. In operation, when the communication link 350 of Figure 3, which is preferably a USB port, is in bidirectional communication with the control system 120 of Figure 1, the communication link 350 of Figure 3 transmits data representing user movement from the sensor 110 of Figure 1 to the control system 120 of Figure 1.

[0074] Figure 6 illustrates a block diagram of the control system 120 of Figure 1. The control system 120 of Figure 1 includes a control system central processing unit 610, an identifying code database 620, a first communication link 650, a second communication link 660, a third communication link 670, a control system storage component 680, and a second user input device 690.

[0075] In the control system 120 of Figure 1, the control system central processing unit 610 is in bidirectional communication with the first communication link 650. The first communication link 650 is in bidirectional communication with the sensor 110 of Figure 1. The control system central processing unit 610 is in bidirectional communication with the second communication link 660. The second communication link 660 is in bidirectional communication with the electrical power system 130 of Figure 1. The control system central processing unit 610 is in bidirectional communication with the third communication link 670. The third communication link 670 is in bidirectional communication with the server 150 of Figure 1. Also, the control system central processing unit 610 is in bidirectional communication with the identifying code database 620 and the control system storage component 680.

[0076] In operation, the control system 120 of Figure 1 preferably has three functions: granting a first user, which is preferably a child, electrical power access (as shown in Figure 19), granting a second user, which is preferably a parent of the first user, control system 120 of Figure 1 access (as shown in Figure 20), and uploading data representing user movement (as shown in Figure 21). The second user's access to the control system 110 of Figure 1 allows the second user to interact with the entry screen (as shown in Figure 7), to interact with the profile screen (as shown in Figure 8), and to interact with the local setup screen (as shown in Figure 9).

[0077] In an alternative embodiment, the control system central processing unit 610 of Figure 6 is a personal computer microprocessor.

[0078] In yet another embodiment, the control system 120 of Figure 1 includes a personal computer with a software program.

[0079] Figure 7 illustrates a plan view of the entry screen. As described above, the entry screen 700 is a part of a second user's control system 120 of Figure 1 access The entry screen 700 includes home command 710, new profile command 720, local setup command 730, server command 740, a first profile command 750, a second profile command 760, and view updates and alert command 770.

[0080] In operation, a second user may access a variety of information from the entry screen 700. First, the second user returns to the entry screen 700 by engaging the home command 710. The second user generates a new user profile by engaging the new profile command 720. Also, the second user controls a local network by engaging the local setup command 730. Finally, the second user accesses the server by engaging the server command 740.

[0081] Also, the second user accesses a first user profile by engaging the first profile command 750. The first profile command 750 preferably displays a picture and an alphanumeric string. The picture preferably corresponds to the first user. The alphanumeric string preferably corresponds to the name of the first user, which is preferably "Jason." Similarly, the second user accesses a second user profile by engaging the second profile command 760. The second profile command 760 preferably displays a picture and an alphanumeric string. The picture preferably corresponds to the second user. The alphanumeric string preferably corresponds to the name of the second user, which is preferably "Anne." Finally, the second user accesses any updates and alerts by engaging the view updates and alert command 770.

[0082] Figure 8 illustrates a plan view of the first profile screen 800. As described above, the first profile screen 800 is a part of a second user's access to the control system 120 of Figure 1. The first profile screen provides access to the control system 120 of Figure 1. The profile screen 800 includes the home command 710 of Figure 7, profile status 820, a user image 830, a multiplier data box 835, a stats data box 840, a performance tracking data box 850, a bonuses data box 860, a lockout timing data box 870, and an alerts data box 880. The first profile screen 800 is accessed from the entry screen 700 of Figure 7 by engaging the first profile command 750.

[0083] In operation, the second user views a variety of data in the profile screen 800. First, the second user returns to the entry screen 700 of Figure 7 by engaging the home command 710 of Figure 7. The second user views profile status 820. The profile status preferably displays an alphanumeric string. The alphanumeric string preferably corresponds to the name of the first user, which is preferably "Jason." The second user also views the user image 830. The user image 830 preferably displays a picture which corresponds to the first user. Next, the second user views the first user's fitness performance in the performance tracking data box 850. The performance tracking data box 850 preferably provides historical, time-series data on the first user's data representing user movement, data representing electrical power time, and electrical power access to the consumer electronic device 140 of Figure 1. Finally, when the first user has suspiciously high fitness performance, the alert data box 880 displays an alert. Suspiciously high fitness performance is preferably determined by a suitable combination of digital logic that compares the first user's fitness performance to a predetermined fitness performance threshold. The predetermined fitness performance threshold is preferably determined by the second user during control system 120 access. The alert data box 880 also displays lockout data transmitted from the electrical power system 130 of Figure 1.

[0084] In operation, the second user inputs a variety of data into the first profile screen 800. First, the second user inputs a multiplier into the multiplier data box 835. The multiplier is a numerical value the control system 120 of Figure 1 multiplies by data representing user movement data to convert data representing user movement to data representing electrical power time. The multiplier is preferably 1/100. Accordingly, 1000 user movement steps preferably corresponds to ten minutes of electrical power time.

[0085] The second user inputs statistics into the stats data box 840. The statistics preferably include the height, weight, and stride length of the first user. The statistics are preferably used to calculate the first user's distance per stride and calorie per stride which is displayed as real-time series data in the performance tracking data box 850.

[0086] The second user inputs a first user bonus into the bonuses data box 860. When the first user takes 5000 user movement steps in one day, the first user bonus for additional user movement steps is preferably double electrical power time. Accordingly, 6000 user movement steps preferably corresponds to seventy minutes of electrical power time.

[0087] The second user inputs a first user lockout time into the lockout timing data box 870. When the second user inputs the first user lockout time into the lockout timing data box 870, the control system 120 does not grant the first user electrical power access during the lockout time. The first user lockout time is preferably 5:00PM–6:00PM EST Monday through Friday because the second user wants the first user to eat his or her dinner without electrical power access.

[0088] Figure 9 illustrates a plan view of the local setup screen 900. As described above, the local setup screen 900 is a part of a second user's control system 120 of Figure 1 access The local setup screen 900 includes the home command 710 of Figure 7, local setup status 920, a first electrical power system panel 930, a first electrical power system data display 940, a second electrical power system panel 950, a second electrical power system data display 960, a third electrical power system panel 970, and a third electrical power system data display 980. As described in above in paragraph 0041, the local setup screen 900 is a part of a second user's control system 120 of Figure 1 access. The local setup screen 900 is accessed from the entry screen 700 of Figure 7 by engaging the local setup command 730 of Figure 7.

[0089] In operation, the second user controls a network of electrical power systems with the local setup screen 900. First, the second user inputs an alphanumeric string into the first electrical power system panel 930. The alphanumeric string preferably corresponds to the name of the consumer electronic device 140 of Figure 1 electrically connected to the electrical power system 130 of Figure 1. Next, the second user inputs a secret override control into the first electrical power system panel 930. When the second user inputs the secret override control into the electrical power system 130 of Figure 1, the electrical power system 130 of Figure 1 provides unlimited electrical power time access to the second user. Finally, the first electrical power system data display 940 displays real-time data based on the performance of the electrical power system. The first electrical power system data display 940 preferably displays location, status, and usage data of the electrical power system 130 of Figure 1. The status field preferably indicates the real-time mode of the electrical power system 130 of Figure 1.

[0090] The local setup screen 900 preferably controls seven electrical power systems for one second communication link 660 of Figure 6.

[0091] In an alternative embodiment, the control system 120 of Figure 1 has a plurality of second communication links. Accordingly, the local setup screen 900 preferably controls more than seven electrical power systems.

[0092] Figure 10 illustrates a block diagram of the electrical power system 130 of Figure 1. The electrical power system includes an electrical power system housing 1010, an electrical power system central processing unit 1020, a power toggle 1030, a lock monitor 1040, an electrical outlet monitor 1050, a communication link 1060, a user interface 1070, an emergency power supply 1080. The user interface 1070 includes a display device 1072 and an input button 1074.

[0093] In the electrical power system 130 of Figure 1, the electrical power system central processing unit 1020 is in bidirectional communication with the power toggle 1030, the lock monitor 1040, the communication link 1060, the user interface 1070, and the emergency power supply 1097. The display device 1072 of user interface 1070 is responsive to the central processing unit 1020. The input button 1074 of user interface 1070 provides data to the central processing unit 1020. The electrical outlet monitor 1050 is electrically connected to the electrical outlet 1080. The electrical outlet monitor 1050 is electrical connected to the power toggle 1030. The power toggle 1030 is electrically connected to the electrical power supply 135 of Figure 1. The emergency power supply 1080 is electrically connected to the electrical outlet monitor 1050. The power toggle 1030 is electrically connected to an electric plug 145 of Figure 1. The electrical power system central processing unit 1020, the power toggle 1030, the lock monitor 1040, the electrical outlet monitor 1050, the communication link 1060, and the user interface 1070 are all mechanically positioned inside the electrical power system housing 1010. The electric plug 145 of Figure 1 is mechanically coupled to the electrical power system housing 1010. The electric plug 145 of Figure 1 is electrically connected to the consumer electronic device 140 of Figure 1.

[0094] In operation, the electrical power system 130 of Figure 1 performs four independent functions. First, the electrical power system 130 of Figure 1 allows electrical power to flow from the electrical power supply 135 of Figure 1 to the electric plug 145 of Figure 1 in a series of steps (as described below). Second, the electrical power system 130 of Figure 1 monitors the electrical connection between the electrical outlet monitor 1050 and the electrical power supply 135 of Figure 1 in a series of steps (as described below). Third, the electrical power system 130 of Figure 1 monitors the electrical connection between the power toggle 1030 and the electric plug 145 of Figure 1 (as described below). Finally, the electrical power system 130 of Figure 1 locks the electrical power system housing 1010 around the electric plug 145 of Figure 1 in a series of steps (as described below).

[0095] In operation, the electrical power system 130 of Figure 1 allows electrical power to flow from the electrical power supply 135 of Figure 1 to the electric plug 145 of Figure 1 in a series of steps. First, the display device 1072, which is preferably an LCD display, shows a "ENTER CODE" message (as shown below in Figure 13). In response to reading the "ENTER CODE" message, a user inputs an indentifying code on the input button 1074. The input button 1074, which is preferably five numeric keys representing numerals one, two, three, four, and five, passes data representing the indentifying code to the electrical power system central processing unit 1020. The electrical power system central processing unit 1020 passes the data representing the identifying code to the communication link 1060.

[0096] Then the communication link 1060, which is preferably a Bluetooth Tx/Rx dongle, transmits the data to the control system 120 of Figure 1. As described above, when the identifying code corresponds to data representing electrical power time, the control system transmits data representing electrical power time to the communication link 1060. Then the communication link 1060 passes the data representing electrical power time to the electrical power system central processing unit 1020.

[0097] After the electrical power system central processing unit 1020 has received the data representing electrical power time from the communication link 1060, the electrical power system central processing unit 1020 passes the data representing electrical power time to the power toggle 1030. The power toggle 1030, which is preferably includes a timed AC power switch, converts the data representing electrical power time to a switch time in response to receiving the data representing electrical power time from the electrical power system central processing unit 1020. Then the power toggle 1030 switches to power-on mode for the switch time. When the power toggle 1030 is in power-on mode, the power toggle allows electrical power to flow from the electrical power supply 135 of Figure 1 to the electric plug 145 of Figure 1. The electric plug 145 of Figure 1 transfers the electrical power to the consumer electronic device 140 of Figure 1, which is preferably a television.

[0098] When the electrical power system central processing unit 1020 determines the switch time expires, the central processing unit sends a control instruction to the power toggle 1030. The electrical power system central processing unit 1020 preferably determines the switch time is expired by counting down the switch time. The counting is preferably performed by a suitable combination of digital logic. The power toggle 1030 switches to power-off mode in response to receiving the control instruction from the electrical power system central processing unit 1020. When the power toggle 1030 switches to power-off mode, the power toggle 1030 stops electrical power flow from the electrical power supply 130 of Figure 1 to the electric plug 145 of Figure 1.

[0099] In operation, the electrical power system 130 of Figure 1 monitors the electrical connection between the electrical outlet monitor 1050 and the electrical outlet 1080 in a series of steps. First, the electrical outlet monitor 1050 periodically sends a pulsed signal out into the electrical connection, which is preferably an electrical cord, between the electrical outlet monitor 1050 and the electrical power supply 130 of Figure 1. The pulsed signal is preferably sent into the electrical connection about ten times per second. The pulsed signal is preferably on the order of Miliwatts, which is preferably not sufficient to power the electrical power system 130 of Figure 1. After the pulsed signal is sent into the electrical connection, the pulsed signal transverses the length of the electrical connection. When the pulsed signal reaches the end of the electrical connection, the pulsed signal reflects back along the length of the electrical connection and is received by the electrical outlet monitor 1050. When the electrical outlet monitor 1050 is in electrical connection with the electrical power supply 130 of Figure 1, the reflected pulsed signal represents a closed circuit. Conversely, when the electrical outlet monitor 1050 is not in electrical connection with the electrical power supply 130 of Figure 1, the reflected pulsed signal represents an open circuit.

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[00100] After the electrical outlet monitor 1050 receives the reflected pulsed signal, the electrical outlet monitor 1050 compares the reflected pulsed signal to a predetermined signal profile. The comparing the reflected pulsed signal to the predetermined signal profile is performed on a suitable combination of digital logic. The predetermined signal profile is preferably a digital signal representing a closed circuit based on the electrical connection between the electrical outlet monitor 1050 and the electrical power supply 130 of Figure 1. When the electrical outlet monitor 1050 determines the reflected pulsed signal equals the predetermined signal profile, the electrical outlet monitor 1050 passes data representing a closed circuit to the electrical power system central processing unit 1020. Conversely, when the electrical outlet monitor 1050 determines the reflected pulsed signal does not equal the predetermined signal profile, the electrical outlet monitor 1050 passes data representing an open circuit to the electrical power system central processing unit 1020.

[00101] In response to receiving the data representing an open circuit from the electrical outlet monitor 1050, the electrical power system central processing unit 1020 sends a power instruction, which is preferably implemented by suitable machine code, to the emergency power supply 1080, which is preferably a capacitor. After the emergency power supply 1080 receives the power instruction from central processing unit 1020, the emergency power supply 1080, allows electrical power to flow from the emergency power supply to electrical power system 130 of Figure 1. The emergency power supply 1080 preferably allows a sufficient quantity of electrical power to flow from the emergency power supply 1080 to the electrical power system 130 of Figure 1 to allow the electrical power system 130 of Figure 1 to complete a lockout as described in below paragraph 0075.

[00102] In operation, the electrical power system 130 of Figure 1 executes a lockout in a series of steps. First, the electrical power system central processing unit 1020 sends a lockout instruction, which is preferably implemented by suitable machine code, to the user interface 1070, the power toggle 1030, and the communication link 1060. First, the user interface 1070 responds to receiving the lockout instruction by displaying a string of alphanumeric characters on the display 1072. The string of alphanumeric characters on the display 1072 is preferably "LOCKOUT" (as shown below in Figure 15). The user interface also responds by disabling the input button 1074. The input button 1074 is preferably disabled when the input button 1074 does not pass data representing an indentifying code to the electrical power system central processing unit 1020 in response to a user inputting the identifying code into the input button 1074. Second, the power toggle 1030 responds to receiving the lockout instruction by switching to power-off mode. When the power toggle 1030 switches to power-off mode, the power toggle 1030 stops electrical power flow from the electrical power supply 135 of Figure 1 to the electric plug 145 of Figure 1. Finally, the communication link 1060 responds to receiving the lockout instruction by transmitting data representing a lockout request to the control system 120 of Figure 1. After the data representing a lockout request is transmitted to the control system 120 of Figure 1, the electrical power system 130 of Figure 1 shuts down. The control system 120 of Figure 1 responds to receiving the data representing a lockout request by displaying an alert in both the view updates and alert command 770 of Figure 7 and the alert data box 880 of Figure 8.

[00103] In operation, the electrical power system 130 of Figure 1 executes a restore in a series of steps. First, the electrical outlet monitor 1050 is electrically connected to the electrical outlet 1080. After the electrical outlet monitor 1050 is electrically connected to the electrical outlet 1080, the electrical power system 130 of Figure 1 receives electrical power from the electrical power supply 135 of Figure 1. Accordingly, the emergency power supply 1080 draws electrical power from the electrical power supply 135 of Figure 1 to recharge. Next, when the communication link 1060 receives data representing a restore command from the control system 120 of Figure

1, the communication link 1060 passes the data to the electrical power system central processing unit 1020. After the electrical power system central processing unit 1020 receives the restore instruction, the electrical power system central processing unit 1020 sends a restore instruction, which is preferably implemented by suitable machine code, to the user interface 1070. The user interface 1070 responds to receiving the restore instruction by displaying a string of alphanumeric characters on the display device 1072 for a predetermined time period. The string of alphanumeric characters on the display device 1072 is preferably "RESTORE." The predetermined time period is preferably sixty seconds. The user interface also responds by enabling the input button 1074. The input button 1074 is preferably enabled when the input button 1074 passes data representing an indentifying code to the central processing unit 1020 in response to a user inputting an identifying code into the input button 1074.

[00104] In operation, the electrical power system 130 of Figure 1 monitors the electrical connection between the power toggle 1030 and the electric plug 145 of Figure 1 in a series of steps. First, the electrical outlet monitor 1050 periodically sends a pulsed signal out into the electrical connection, which is preferably an electrical cord, between the power toggle 1030 and the electric plug 145 of Figure 1. The pulsed signal is preferably sent into the electrical connection about ten times per second. The pulsed signal is preferably on the order of Miliwatts. After the pulsed signal is sent into the electrical connection, the pulsed signal transverses the length of the electrical connection. When the pulsed signal reaches the end of electrical connection, the pulsed signal reflects back along the length of the electrical connection and is received by electrical outlet monitor 1050. When the power toggle 1030 is in electrical connection with the electric plug 145 of Figure 1, the reflected pulsed signal represents a closed circuit. Conversely, when the power toggle 1030 is not in electrical connection with the electric plug 145 of Figure 1, the reflected pulsed signal represents an open circuit.

[00105] After the electrical outlet monitor 1050 receives the reflected pulsed signal, the electrical outlet monitor 1050 compares the reflected pulsed signal to a predetermined signal profile. The comparison of the reflected pulsed signal to a predetermined signal profile is performed on a suitable combination of digital logic. The predetermined signal profile is preferably a digital signal representing a closed circuit based on the electrical connection between the power toggle 1030 and the electric plug 145 of Figure 1. When the electrical outlet monitor 1050 determines the reflected pulsed signal equals the predetermined signal profile, the electrical outlet monitor 1050 passes data representing a closed circuit to the electrical power system central processing unit 1020. Conversely, when the electrical outlet monitor 1050 determines the reflected pulsed signal does not equal the predetermined signal profile, the electrical outlet monitor 1050 passes data representing an open circuit to the electrical power system central processing unit 1020.

[00106] In operation, the electrical power system 130 of Figure 1 executes a lockout in a series of steps. First, the central processing unit 1020 sends a lockout instruction, which is preferably implemented by suitable machine code, to the user interface 1070, the power toggle 1030, and the communication link 1060. First, the user interface 1070 responds to receiving the lockout instruction by displaying a string of alphanumeric characters on the display device 1072. The string of alphanumeric characters on the display device 1072 is preferably "LOCKOUT." The user interface also responds by disabling the input button 1074. The input button 1074 is preferably disabled when the input button 1074 does not pass data representing an indentifying code to the central processing unit 1020 in response to a user inputting the identifying code into the input button 1074. Second, the power toggle 1030 responds to receiving the lockout instruction by switching to power-off mode. When the power toggle 1030 switches to power-off mode, the power toggle 1030 stops electrical power flow from the electrical power supply 130 of Figure 1 to the electric plug 145 of Figure 1. Finally, the communication link 1060 responds to receiving the data representing a lockout instruction by transmitting data representing a lockout request to the control system 120 of Figure 1. The control system 120 of Figure 1 responds to receiving the data representing a lockout request by displaying an alert in both the view updates and alert command 770 of Figure 7 and the alert data box 880 of Figure 8.

[00107] In operation, the electrical power system 130 of Figure 1 is restored in a series of steps. First, the power toggle 1030 is electrically connected to the electric plug 145 of Figure 1. When the communication link 1060 receives a signal data representing a restore command from the control system 120 of Figure 1, the communication link 1060 passes the data representing a restore command to the electrical power system central processing unit 1020. After the electrical power system central processing unit 1020 receives the restore command, the electrical power system central processing unit 1020 sends a restore instruction, which is preferably implemented by suitable machine code, to the user interface 1070. The user interface 1070 responds to receiving the restore instruction by displaying a string of alphanumeric characters on the display device 1072 for a predetermined time period. The string of alphanumeric characters on the display device 1072 is preferably "RESTORE" (as shown below in Figure 16). The predetermined time period is preferably sixty seconds. The user interface also responds by enabling the input button 1074. The input button 1074 is preferably enabled when the input button 1074 passes data representing an indentifying code to the electrical power system central processing unit 1020 in response to a user inputting an identifying code into the input button 1074.

[00108] In operation, the electrical power system 130 of Figure 1 locks the housing 1010 around the electric plug 145 of Figure 1 in a series of steps. First, the electrical outlet monitor 1050 is electrically connected to the electrical power supply 135 of Figure 1. The electrical connection is preferably implemented through an electrical cord. Next, the electrical outlet monitor 1050 passes data representing a closed circuit to the electrical power system central processing unit 1020. After receiving the data representing a closed circuit, the central processing unit 1020 sends data representing a register request to the communication link 1060. In response to receiving the signal representing a register request, the communication link 1060 transmits the data representing a register request to the control system 120 of Figure 1. Then a user electrically connects the electric plug 145 of Figure 1 to the power toggle 1030. The electrical connection is preferably implemented by inserting the prongs of electric plug 145 of Figure 1 into the power toggle 1030 which preferably includes an electrical outlet. After the electric plug 1090 is electrically connected to the power toggle 1030, the user encloses the electrical power system housing 1010, which is preferably based on the McGill LOCKBOX Electrical Plug Lockout, around the electric plug 145 of Figure 1.

[00109] In operation, the electrical power system housing 1010 is unlocked in a series of steps. First, the control system 120 of Figure 1 transmits data representing an unlock command to the communication link 1060. In response to receiving the data representing an unlock command, the communication link 1060 passes the data representing an unlock command to the electrical power system central processing unit 1020. After the central processing unit 1020 receives the signal representing an unlock command, the electrical power system central processing unit 1020 sends an unlock instruction, which is preferably implemented by suitable machine code, to the lock monitor 1040. Finally, the lock monitor 1040 responds to receiving the unlock instruction by unlocking the electrical power system housing 1010.

[00110] In an alternative embodiment, the electrical outlet monitor 1050 is based on the KillAWatt System including the KillAWatt, the KillAWattEZ, and the KillAWatt PS.

[00111] In yet another embodiment, the electrical outlet monitor 1050 is based on the Xantech AC switching system including the Xantech AC1 and the Xantech CSM1.

[00112] The display device 1072 is any suitable display device including a liquid crystal display, a plasma display, an electroluminescent display, or a vacuum fluorescent display tube.

[00113] The input button 1074 is any suitable user input device such as an electronic push button switch, a touch screen display, or a mechanical rotating dial.

[00114] The electrical power system housing 1010 may be any suitable electrical cord lockout box based on the Panduit PSL-CL110.

[00115] In an alternative embodiment, the power toggle 1030 switches to power-off mode when the switch time expires or when a user turns off the consumer electronic device 140 of Figure 1. First, when the electrical power system central processing unit 1020 determines the switch time expires, the electrical power system central processing unit 1020 transmits data representing a control instruction to the power toggle 1030. The electrical power system central processing unit 1020 preferably determines the switch time is expired by counting down the switch time. The counting is preferably performed by a suitable combination of digital logic. The power toggle 1030 switches to power-off mode in response to receiving data representing a control instruction from the electrical power system central processing unit 1020. When the power toggle 1030 switches to power-off mode, the power toggle 1030 stops electrical power flow from the electrical power supply 135 of Figure 1 to the electric plug 145 of Figure 1.

[00116] In this embodiment, when the user turns off the consumer electronic device 140 of Figure 1, the power toggle 1030 responsively switches to power-off mode. In this embodiment, the power toggle 1030 includes a current sensor which detects the electrical current the consumer electronic device 140 of Figure 1 draws from the electrical power supply. The power toggle 1030 responsively switches to power-off when the current sensor detects the consumer electronic device 140 of Figure 1 draws current from the electrical outlet which is not sufficient to power to the consumer electronic device. In this embodiment, the current which is not sufficient to power the consumer electronic device 140 of Figure 1 is preferably on the order of magnitude of Milliamps. When the power toggle 1030 switches to power-off mode, the power toggle 1030 stops electrical power flow from the electrical power supply 130 of Figure 1 to the electric plug 145 of Figure 1. Then the electrical power system central processing unit 1020 determines the remaining switch time before expiration. The central processing unit preferably determines the remaining switch time before expiration by counting down the switch time. The counting is preferably performed by a suitable combination of digital logic. After the electrical power system central processing unit 1020 determines the remaining switch time before expiration, the electrical power system central processing unit 1020 converts the remaining switch time to data representing remaining electrical power time. Then the electrical power system central processing unit 1020 passes the data representing the remaining electrical power time to the communication link 1060. Finally, the communication link 1060 transmits the data representing remaining electrical power time to the control system 120 of Figure 1. The control system 120 of Figure responds to receiving the data representing remaining electrical power time by passing the data representing remaining electrical power time to the credit user profile logic 646. Then the credit user profile logic 646 passes the data representing electrical power time to a user profile, which is preferably stored on control system storage component 680, corresponding to the first user.

[00117] In yet another embodiment, the power toggle 1030 switches to power-off mode when the switch time expires or when a user turns off the consumer electronic device 150 of Figure 1. First, when the electrical power system central processing unit 1020 determines the switch time expires, the central processing unit sends data representing a control instruction to the power toggle 1030. The electrical power system central processing unit 1020 preferably determines the switch time is expired by counting down the switch time. The counting is preferably performed by a suitable combination of digital logic. The power toggle 1030 switches to power-off mode in response to receiving data representing a control instruction from the central processing unit 1020. When the power toggle 1030 switches to power-off mode, the power toggle 1030 stops electrical power flow from the electrical power supply 130 to the electric plug 145 of Figure 1.

[00118] In this embodiment, when the user turns off the consumer electronic device 140 of Figure 1, the power toggle 1030 switches to power-off mode. In this embodiment, the electrical outlet monitor 1050, which is preferably a current sensor, detects the electrical current the consumer electronic device 140 of Figure 1 draws from the electrical power supply 135 of Figure 1. When the electrical outlet monitor 1050 detects the consumer electronic device 140 of Figure 1 draws current from the electrical outlet which is not sufficient to power to the consumer electronic device 140 of Figure 1, the electrical outlet monitor passes data representing low current draw to the electrical power system central processing unit 1020. In this embodiment, the current which is not sufficient to power the consumer electronic device 140 of Figure 1 is preferably on the order of magnitude of Milliamps.

[00119] After the electrical power system central processing unit 1020 receives the data representing low current draw, the electrical power system central processing unit 1020 sends data representing a control instruction, which is preferably implemented by suitable machine code, to the power toggle 1030. The power toggle 1030 responds to receiving the data representing a control instruction by switching to power-off mode. When the power toggle 1030 switches to power-off mode, the power toggle 1030 stops electrical power flow from the electrical power supply 130 of Figure 1 to the electric plug 145 of Figure 1. Then the central processing unit determines the remaining switch time before expiration. The electrical power system central processing unit 1020 preferably determines the remaining switch time before expiration by counting down the switch time. The counting is preferably performed by a suitable combination of digital logic. After the electrical power system central processing unit 1020 determines the remaining switch time before expiration, the central processing converts the remaining switch time to data representing remaining electrical power time. Then the electrical power system central processing unit 1020 passes the data representing the remaining electrical power time to the communication link 1060. Finally, the communication link 1060 transmits the signal representing remaining electrical power time to the control system 120 of Figure 1. The control system 120 of Figure responds to receiving the data representing remaining electrical power time by passing the data representing remaining electrical power time to the credit user profile logic 646. Then the credit user profile logic 646 passes the data representing electrical power time to a user profile, which is preferably stored on control system storage component 680, corresponding to the first user.

[00120] Figure 11 illustrates an exploded, perspective view of the electrical power system 130 of Figure 1. The electrical power system 130 of Figure 1 includes a first housing section 1110, a second housing section 1120, and a power supply 1130. The first housing section includes a first electronic lock armature 1112, a first bore 1113, a second electronic lock armature 1114 (numbered but not shown because of perspective view), and the display device 1070 of Figure 10. The second housing section includes a first electronic lock latch 1122, a second bore 1123, a second electronic lock latch 1124, a first electrical outlet 1125, an electric cord 1129, and a second electrical outlet 1130. The cross section of the electrical power system 130 of Figure 1 defined by the line from A to A' is shown below in Figure 17.

[00121] In the electrical power system 130 of Figure 1, the first electronic lock armature 1112, the second electronic lock armature 1114, and the display device 1070 of Figure 10 are all mechanically coupled to the first housing section 1110. The first bore 1113 is positioned on the first housing section 1110. The first electronic lock latch 1122, the second electronic lock latch 1124, the electrical outlet 1125, the electrical outlet monitor 1126 are all mechanically coupled to the second housing section 1120. The second bore 1114 is positioned on the second housing section 1123. The first electrical outlet 1125 and the second electrical outlet 1030 are electrically coupled to the electric cord 1129. The electric cord 1129 is electrically connected to the electrical power supply 135 of Figure 1. When the first housing section 1110 is both mechanically and electrically connected to the second housing section 1120, the display device 1070 of Figure 10, the first electronic armature 1112, and the second electronic armature 1114 is electrically coupled to the electric cord 1127 through the second electrical outlet 1130.

[00122] In operation, the electrical power system 130 of Figure 1 encloses the electric plug 145 of Figure 1 in a series of steps. First, the electrical cord 1129 is electrically connected to the electrical power supply 135 of Figure 1. The power supply 1130 is preferably an AC electrical outlet. Next, the electrical outlet monitor 1050 passes data representing a closed circuit to communication link 1060 of Figure 10. After receiving the data representing a closed circuit, the communication link 1060 of Figure 10 which is preferably a Bluetooth Tx/Rx dongle, transmits data representing a register request to the control system 120. Then a user electrically connects the electric plug 145 of Figure 1 to the first electrical outlet 1125. The electric plug 145 of Figure 1 is preferably an electrical connection that provides electrical power to the consumer electronic device 140 of Figure 1.

[00123] After the electric plug 145 of Figure 1 is electrically connected to the first electrical outlet 1125, the user inserts the first electronic lock armature 1112 into the first electronic lock latch 1122 and the second electronic lock armature 1114 into the second electronic lock latch 1124. The first electronic lock armature 1112, the second electronic lock armature 1114, the first electronic lock latch 1112, and the second electronic lock latch 1124 preferably comprise a magnetic lock (mag lock). Accordingly, both the first electronic lock latch 1122 and the second electronic latch are preferably electro-magnets. When the first electronic lock armature 1112 is inserted into the first electronic lock latch 1122, the first electronic lock armature 1112 is magnetically coupled to the first electronic lock latch 1122. Similarly, when the second lock armature 1114 is inserted into the second electronic latch 1124, the second electronic lock armature 1114 is magnetically coupled to the second electronic lock latch. After the first electronic lock armature 1112 is inserted into the first electronic lock latch 1122 and the second electronic lock latch 1114 is inserted into the second electronic lock latch 1124, the electrical power system 130 of Figure 1 encloses the electric plug 145 of Figure 1.

[00124] Moreover, after the first electronic lock armature 1112 is inserted into the first electronic lock latch 1122 and the second electronic lock latch 1114 is inserted into the second electronic lock latch 1124, the first bore 1113 and the second bore 1114 provide an aperture. The aperture provides the electrical cord attached to the electric plug 145 of Figure 1 electrically connected to the electrical outlet 1125 to mechanically run through the first housing section 1110 and the second housing section 1120 to remain electrically connected to a consumer electronic device 140 of Figure 1. The first housing section 1110 and the second housing section 1120 preferably make up the McGill LOCKBOX Electrical Plug Lockout.

[00125] Further still, after the first electronic lock latch 1112 is inserted into the first electronic lock latch 1122 and the second electronic lock latch 1114 is inserted into the second electronic lock latch 1124, the electrical power system 130 of Figure 1 is locked.

[00126] In operation, the electrical power system 130 of Figure 1 unlocks in a series of steps. First, the control system 120 of Figure transmits data representing an unlock command to the communication link 1060 of Figure 10. In response to receiving the unlock command, the communication link 1060 of Figure 10 passes the signal representing an unlock command to both the first electronic lock latch 1122 and the second electronic lock latch 1124. In response to receiving the data representing the unlock command, the first electronic lock latch 1122 releases the first electronic lock armature 1112 and the second electronic lock latch 1124 releases the second electronic lock armature 1114. Accordingly, the electrical power system 130 of Figure 1 is unlocked.

[00127] The first electronic lock armature 1112, the second electronic lock armature 1114, the first electronic lock latch 1112, and the second electronic lock latch 1124 may also be any suitable electronic lock system including an electric strike fail-secure and an electric strike fail-safe.