PNEUMATIC EXERCISE SYSTEM, PNEUMATIC RETROFIT EXERCISE DEVICE, PNEUMATIC RETROFIT KIT SYSTEM, PROCESS, AND METHOD OF USE

Abstract

A pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use are presented. The pneumatic system is configured as a retrofit system which can be installed on a single or multiple existing gym exercise devices. The system is configured to adapt to either plate loaded or selectorized (pin weight) devices. The system is configured to adjust and/or control the weight experienced on a device by adding and/or removing pneumatic pressure. The system automatically and quickly adjusts weights when switching users, switching sets, and/or changing types of workouts. The system can assist a user experiencing strain. The system provides safety in exercise, data and automation similar to a personal trainer such that a user can be safe, experience an increased benefit from a workout and gain more insight, knowledge and control in exercise and experience.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS [0001] The present application claims priority to the U.S. Provisional Patent Application No. 63/551,723 which was filed on Feb. 9, 2024, which is hereby incorporated by reference herein in its entirety, including any figures, tables, or drawings.

FIELD OF THE INVENTION
[0002] This disclosure relates to a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use. More specifically, and without limitation, the present disclosure relates to a pneumatic system which can be installed on existing exercise devices. More specifically, and without limitation, the pneumatic system can act as a weight system, a support/spot system, a coaching/guidance system, providing resistance at varying levels.

BACKGROUND OF THE INVENTION
[0003] Exercise and wellness are well known activities and are engaged by many around the world, regularly. Exercise is any bodily activity that enhances or maintains fitness. This includes overall health and wellness. Wellness is growing in popularity and is now becoming considered important in the exercise and well-being of an individual. Wellness is consider a completion to health and exercise as it provides mental benefits. Wellness often includes meditation and/or yoga (which provides bodily exercise and benefits). Wellness is not limited to yoga and/or meditation but varies greatly in practice and varies individual to individual from emotional well-being to medicated stress release, and more.

[0004] In recent times, exercise as an intentional activity has grown as a hobby, health practice, and fitness enhancement. Exercise is most often engaged with the intention of improving one's health. Exercise, or regular physical activity comes in a variety of forms from walking to weight lifting to mobility, and the like. Generally, these activities send oxygen and nutrients to tissues, further increasing the healthy feeling one experiences. Many exercise benefits exist such as cardiovascular benefits, athletic improvements, skills improvements, heart health, lung health and much more.

[0005] Weightlifting machines are a staple in both commercial gyms and home fitness environments, offering a means for users to engage in resistance training for muscle building and strength development. Traditional weightlifting machines typically utilize a system of selectable weight plates or stacks that the user manually adjusts to set the desired resistance level. While effective for basic strength training, these conventional machines have several notable limitations.

[0006] Manual adjustment of weights can be time-consuming and is almost always disruptive to the workout flow, especially for users who prefer dynamic and rapid changes in resistance between sets or exercises. Especially, for users who desire to workout in a group with individuals of varying strength levels. This manual process also poses a challenge for beginners who may be unfamiliar with appropriate weight selection for their strength level.

[0007] Other problems plaguing the art include safety concerns. Safety concerns have been a recurring issue with traditional weightlifting equipment. Users, especially those new to weightlifting, can easily select inappropriate resistance levels, leading to strain or injury; and advanced users not being able to exercise to their full potential afraid of the risk of not being able to lift heavy weights without a spotter or drop the weights on themselves and incurring major

injuries.

[0008] Complicating matters further, conventional weightlifting machines offer limited feedback on the user's performance. Without integrated monitoring systems, users often lack detailed insight into their workout progress, muscle engagement, or consistency in form, which are crucial for effective strength training.

[0009] Recent advancements in the field have introduced some weightlifting machines with automated resistance adjustments, but these often are tailored to specific exercises, lacking the versatility needed for a comprehensive workout. Moreover, most of these advanced machines are extremely expensive and need a heavy investment not feasible for most gym owners and re designed for elite athletes or rehabilitation centers, making them less accessible for general fitness enthusiasts or home gym settings.

[0010] Furthermore, at home workouts have also become important in todays society, health and exercise has grown and increased dramatically in popularity. One of many reasons for this is the outbreak of different viruses and the like, such as the covid pandemic, other viruses and more. Other reasons include, but are not limited to, convenience and potential cost savings.

[0011] Exercise equipment is very expensive. So purchasing a variety of equipment to achieve various desired exercises, with any type of smart features is very expensive. Gym equipment and/or memberships are also very limited. These memberships are limited to whatever equipment the gym has. This exercise equipment is often extensive but requires lifting heavy metal plates and making many other adjustments, as well as hoping for availability of equipment and weights.

[0012] These problems do not only plague commercial gyms, home workout routines, for a variety of reasons, have become the trend in exercise. Worldwide, there has been a large shift toward working out at home or outside, or outside of a gym or exercise facility. While the present disclosure is not limited to at home routines, and in fact the present disclosure can be implemented in a facility, the present disclosure provides a number of incentives and new functionality for at home or remote workouts.

[0013] Home workout and gym exercise equipment is well known in the art. In recent years, home exercise equipment technology has grown and increased in popularity. Some home and gym exercise equipment includes utilizing body weight, monitoring this. Additionally, weight lifting equipment at home has become more available and improved dramatically such that a user can weight lift at home, endure cardio workouts at home, and the like.

[0014] Monitoring and tracking of diet and exercise is cumbersome. Furthermore, having knowledge of what weight to lift and when to lift a given amount is a science misunderstood by most and very complicated. This makes the decision of how much resistance to use cumbersome. Let alone the actual tasks of changing weights at the gym.

[0015] Changing weight amounts is a long-plaguing requirement of physical exercise. Making matters worse, often particular weight amounts aren't available and/or the increments of weight increases are too large as might be needed by a user. For example, a 1 pound weight increase is essentially non-existent in any gym and/or available on any gym equipment. Changing weight takes time. In the situation where more than one person is exercising together, each person should have a different weight requirement, taking time and causing other problematic issues. This is just the problem of changing and/or managing weights, let alone picking appropriate weights and/or accurately tracking.

[0016] Selecting appropriate weights is usually done in a paper and pencil fashion, at best. Selecting weights rarely involves actual strain and/or counting the sets and adjusting according to reps and the desires of a user based on science. This system will provide this weight selection, coaching, as more and more will become more apparent herein.

[0017] Thus, there is a long-felt need in the art for a data capture machine and sensory system, a personal data leveraging platform and processes of leveraging personal health information, and exercise equipment and methods of use that improves upon the state of the art. There can be uses

and benefits to such data capture, harnessing this data capture and utilizing this data and/or leveraging. The present disclosure provides new features which utilize some of the state of the art components and provides benefits for leveraging, and the like.

[0018] Thus, there is a long-felt need in the art for a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use which improves upon the state of the art and solves the above issues in a retrofit form. In this way, a user can utilize existing equipment, along with new equipment, without the extreme expenses of purchasing high end electronic equipment, but instead can add the present system to any exercise device so as to achieve a safer, healthier, faster improving environment, with coaching, smart technologies, and more. Furthermore, the present disclosure seeks to address the limitations plaguing the present state of the art. The present disclosure seeks to address these issues by providing a pneumatic adaptive weightlifting machine that combines user-friendly operation, dynamic resistance adjustment, comprehensive workout tracking, comprehensive workout planning, comprehensive workout guidance (in real-time), and enhanced safety features, making it suitable for a wide range of users in diverse training environments.

[0019] The disclosure herein provides these advantages and others as will become clear from the specification and claims provided.

SUMMARY OF THE INVENTION

[0020] A pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use are presented.

[0021] More specifically, and without limitation, the present disclosure relates to a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use. More specifically, and without limitation, the present disclosure relates to a pneumatic system which can be installed on existing exercise devices. More specifically, and without limitation, the pneumatic system can act as a weight system, a support/spot system, a coaching system, causing resistance at varying levels.

[0022] Thus, it is a primary object of the disclosure to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that improves upon the state of the art.

[0023] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides a retrofit system which turns dumb equipment into smart equipment.

[0024] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that works with plate loaded equipment.

[0025] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that works with selectorized (pin) equipment.

[0026] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that works in commercial gyms.

[0027] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that works at home gyms.

[0028] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that facilitates resistance training.

[0029] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that adjusts resistance automatically.

[0030] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that offers various resistance types such as chains and/or gradual weight additions as the repetition distance increases.

[0031] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides adaptive resistance mechanisms.

[0032] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that is adaptive.

[0033] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that increases user engagement.

[0034] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that senses a user's strength and/or strain and adapts resistance in real-time.

[0035] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that creates a workout resistance based on a user's history and tracked historical data.

[0036] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that challenges users at a safe level.

[0037] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides feedback.

[0038] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides workout progress metrics.

[0039] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that eliminates improper weight handling.

[0040] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides a state-of-the-art pneumatic retrofit kit which aids a variety of users from the lightweight users to heavy users.

[0041] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that improves on overall effectiveness, strength, and safety of a training routine.

[0042] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that improves on overall effectiveness, strength, and safety of training equipment.

[0043] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides comprehensive workout tracking.

[0044] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides enhanced safety features.

[0045] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides customized workout programs.

[0046] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic

retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides real-time coaching.

[0047] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides personal training.

[0048] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides for changing resistance by tapping on a touch screen.

[0049] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides resistance changes by voice command.

[0050] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides for a user change by voice command.

[0051] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that is easy to use.

[0052] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that is safe to use.

[0053] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides alerts.

[0054] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that tracks historical data.

[0055] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that is accurate.

[0056] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that works with various digital platforms.

[0057] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that provides a user interface.

[0058] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that is quick and efficient.

[0059] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that is easy to program to a predetermined set of rules.

[0060] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that is robust.

[0061] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that saves time for a user.

[0062] Yet another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that saves energy for a user in changing weights.

[0063] Another object of the disclosure is to provide a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use that are high

quality.

[0064] These and other objects, features, or advantages of the present disclosure will become apparent from the specification and claims.

Description

BRIEF DESCRIPTION OF DRAWINGS

[0065] The drawings accompanying and forming part of this specification are included to depict certain aspects of the disclosure.

[0066] FIG. **1** is a diagram illustrating typical operation of the pneumatic cylinder exercise system; the diagram showing a retrofit embodiment and basic utilization of resistance training utilizing the resistance system.

[0067] FIG. **2** is a diagram illustrating the database system; the diagram illustrates that various users may have various resistance settings which are recorded within the database and utilized when needed by a user interacting with a graphical user interface.

[0068] FIG. **3** is a diagram illustrating various components of the system; the diagram illustrating that the computing system interacts with various components of the system to provide various resistance levels.

DESCRIPTION

[0069] In the following detailed description, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration specific embodiments in which the disclosure may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the disclosure, and it is to be understood that other embodiments may be utilized and that mechanical, procedural, and other changes may be made without departing from the spirit and scope of the disclosure(s). The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the disclosure(s) is defined only by the appended claims, along with the full scope of equivalents to which such claims are entitled.

[0070] As used herein, the terminology such as vertical, horizontal, top, bottom, front, back, end, sides and the like are referenced according to the views, pieces and figures presented. It should be understood, however, that the terms are used only for purposes of description, and are not intended to be used as limitations. Accordingly, orientation of an object or a combination of objects may change without departing from the scope of the disclosure.

[0071] Reference throughout this specification to "one embodiment," "an embodiment," "one example," or "an example" means that a particular feature, structure, or characteristic described in connection with the embodiment or example is included in at least one embodiment of the present disclosure. Thus, the appearance of the phrases "in one embodiment," "in an embodiment," "one example," or "an example" in various places throughout this specification are not necessarily all referring to the same embodiment or example. Furthermore, the particular features, structures, databases, or characteristics may be combined in any suitable combinations and/or sub-combinations in one or more embodiments or examples. In addition, it should be appreciated that the figures provided herewith are for explanation purposes to persons ordinarily skilled in the art and that the drawings are not necessarily drawn to scale.

[0072] Embodiments in accordance with the present disclosure may be embodied as an apparatus, method, or computer program product. Accordingly, the present disclosure may take the form of an entirely hardware-comprised embodiment, an entirely software-comprised embodiment (including firmware, resident software, micro-code, etc.), or an embodiment combining software and hardware aspects that may all generally be referred to herein as a "circuit," "module," or "system." Furthermore, embodiments of the present disclosure may take the form of a computer program product embodied in any tangible medium.

[0073] Any combination of one or more computer-usable or computer-readable media may be utilized. For example, a computer-readable medium may include one or more of a portable computer removable drive, a hard disk, a random access memory (RAM) device, a read-only memory (ROM) device, an erasable programmable read-only memory (EPROM or Flash memory) device, a portable compact disc read-only memory (CDROM), an optical storage device, and a magnetic storage device. Computer program code for carrying out operations of the present disclosure may be written in any combination of one or more programming languages. Such code may be compiled from source code to computer-readable assembly language or machine code, or virtual code, or framework code suitable for the disclosure herein, or machine code suitable for the device or computer on which the code will be executed.

[0074] Embodiments may also be implemented in cloud computing environments. In this description and the following claims, "cloud computing" may be defined as a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned via virtualization and released with minimal management effort or service provider interaction and then scaled accordingly. A cloud model can be composed of various characteristics (e.g., on-demand self-service, broad network access, resource pooling, rapid elasticity, and measured service), service models (e.g., Software as a Service ("Saas"), Platform as a Service ("PaaS"), and Infrastructure as a Service ("IaaS")), and deployment models (e.g., private cloud, community cloud, public cloud, and hybrid cloud).

[0075] The flowchart and block diagrams in the attached figures illustrate the architecture, functionality, and operation of possible implementations of systems, methods, and computer program products according to various embodiments of the present disclosure. In this regard, each block in the flowchart or block diagrams may represent a module, segment, or portion of code, which comprises one or more executable instructions for implementing the specified logical function(s). It will also be noted that each block of the block diagrams and/or flowchart illustrations, and combinations of blocks in the block diagrams and/or flowchart illustrations, may be implemented by special purpose hardware-based systems that perform the specified functions or acts, or combinations of special purpose hardware and computer instructions. These computer program instructions may also be stored in a computer-readable medium that can direct a computer or other programmable data processing apparatus to function in a particular manner, such that the instructions stored in the computer-readable medium produce an article of manufacture including instruction means which implement the function/act specified in the flowchart and/or block diagram block or blocks.

System

[0076] With reference to the figures, a pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use **10** are presented. The pneumatic exercise system, a pneumatic retrofit exercise device, a pneumatic retrofit kit system, process, and method of use **10** (hereafter referred to as "pneumatic smart system", "pneumatic smart weight retrofit system", "pneumatic smart resistance system", "pneumatic system", or simply "system") is formed of any suitable size, shape and design.

[0077] In the arrangement shown, as one example, pneumatic system **10** is configured as a retrofit system which can be installed on a single or multiple existing gym exercise devices. The system **10** is configured to adapt to either plate loaded or selectorized (pin weight) devices. The system **10** is configured to adjust and/or control the weight experienced by a user on a device by adding and/or removing pneumatic pressure. The pneumatic pressure is added to the plurality of cylinders which reduces or adds to the resistance experienced by a user.

[0078] In this arrangement, system **10** is able to automatically and quickly make weight adjustments when switching users, switching sets, and changing types of workouts. The system **10** can assist a user experiencing strain, amongst many other features as will become apparent herein.

In this way, the system provides safety in exercise, data and automation similar to a personal trainer such that a user can be safe, experience an increased benefit from a workout and gain more insight, knowledge and control in exercise and experience.

[0079] Said another way, pneumatic system **10** is an advanced, pneumatic retrofit kit that revolutionizes traditional strength training equipment by introducing intelligent features, automated resistance adjustment features, comprehensive performance tracking, and enhanced safety features. Pneumatic system **10** is a user-friendly, efficient, and versatile weightlifting experience suitable for both commercial gyms and home fitness environments, providing a retrofit system for existing exercise equipment, and the like.

[0080] In the arrangement shown, as one example, system **10** may comprise remote servers, databases, application servers, application databases, product databases, mobile applications, and/or computers; all of which in continuity or as separate acts fulfill the functions disclosed herein. System **10** also includes, in the embodiment(s) depicted, a user **14**, a graphical user interface **12**, a display **13**, an exercise device **16**, a pneumatic cylinder **20**, a plurality of attachment features **30**, a plurality of proportional pressure regulators **40**, a plurality of pneumatic solenoid valves, a plurality of positional sensors **60**, a sensor system **70**, a plurality of controllers **80**, a smart training system **100**, a computing platform **200**, a communication and/or control system, an application server, and a mobile computing application, among other components, features, and functions.

Plurality of Pneumatic Cylinders

[0081] In the arrangement shown, as one example, system **10** includes a plurality of pneumatic cylinders (also referred to as "pneumatic cylinders", "pneumatic resistance", or simply "cylinders"). Cylinders **20** are formed of any suitable size, shape, and design, and are configured to provide the pneumatic resistance structure of system **10**.

[0082] In one arrangement, the pneumatic cylinder is a double acting pneumatic cylinder. In other words, the pneumatic cylinder has two ports that control the movement of the rod. The compressed air or air causes the rod to move in two directions by extending and retracting without the assistance of a spring.

[0083] In another arrangement, the pneumatic cylinder is formed of a single acting cylinder. In one arrangement utilizing a single acting cylinder, compressed air and a spring are used in the extension and retraction of the rod. In another arrangement, the pneumatic cylinder is formed of a rodless cylinder. These and other types of pneumatics are hereby contemplated for use.

Plurality of Attachment Features

[0084] In the arrangement shown, as one example, system **10** includes a plurality of attachment features. In the arrangement, the plurality of attachment features are configured to secure the plurality of pneumatic cylinders at each end to various workout accessories and to provide resistance in resisted training such as weight training, and the like.

Plurality of Proportional Pressure Regulators

[0085] In the arrangement shown, as one example, system **10** includes a plurality of proportional pressure regulators (also referred to as "pressure regulators", "proportional regulators", or simply "regulators"). Pressure regulators **40** are formed of any suitable size, shape, and design, and are configured to provide the appropriate air resistance to the cylinders to simulate a desired weight resistance.

[0086] In the arrangement shown, the plurality of proportional pressure regulators are configured to generate variable pressure and/or desired pressure at different rates in order to simulate different levels of resistance. The pressure regulators and/or back-pressure regulators provide increases and/or decreases in regulated pressure via a control valve and/or solenoid valve to create a desired value and/or a desired resistance as an output.

Plurality of Pneumatic Solenoid Valves

[0087] In the arrangement shown, as one example, system **10** includes a plurality of pneumatic solenoid valves (also referred to as "valves"). Valves **50** are formed of any suitable size, shape, and

design, and are configured to open and close to direct pneumatic pressure to either side of each of the cylinders providing actions to occur when signals are received.

[0088] In one arrangement, each of the plurality of solenoid valves are electromechanical configurations designed to control the flow of air, gas, and/or fluid into and/or from the interior of each of the plurality of cylinders and/or plurality of pneumatic cylinders. Said another way, each of the plurality of pneumatic solenoid valves are configured to control pneumatic actuators such as cylinders. In this way, the pneumatic solenoid valves are configured to provide variation in the levels of resistance to create an environment conducive to strength and/or resistance training.

[0089] In the arrangement shown, a user changes resistance, such as increasing or decreasing weight on a touch screen (or smart device). Said another way the direction from the user, or the set of signals are formed of resistance changes input into a touch screen and processed by an input processor then interpreted into a pressure change to direct pneumatic pressure to either side of each of the plurality of pneumatic cylinders.

[0090] In this way, the touch screen and devices can be used to adjust the position of the cylinders which is then detected to verify the input is working correctly as an output and/or resistance to a user for exercise training.

Plurality of Positional Sensors

[0091] In the arrangement shown, as one example, system **10** includes a plurality of positional sensors (also referred to as "positional sensors", or simply "sensors"). Positional sensors **60** are formed of any suitable size, shape, and design, and are configured to interpret the position of a user during a repetition and/or to interpret the speed and position of a bar in a set while a user is exercising and/or interpret the speed and position of a smart lifting feature such as a handle or rope while a user is exercising.

[0092] In one arrangement, each of the plurality of positional sensors utilizes motion detection to determine the position of the rod and the position of the use and/or the position of the lift and/or resistance which is occurring. In one example, this includes the distance of the lift and relative position of the user engaging in the resistance in order to determine the success and/or actual lift distance. In this way, the system can interpret the position and make adjustments, if needed, to the level of resistance of each of the pneumatic cylinders.

Controllers

[0093] In the arrangement shown, as one example, system **10** includes a plurality of controllers

[0094] **80**. In one arrangement, each of the plurality of controllers is configured as a hardware device associated with a program and/or set of signals and/or processing system which manage and direct the flow of data and/or signals between the devices. Said another way, each of the plurality of controllers provides for receiving and sending data between the plurality of pneumatic sensors and/or the plurality of pneumatic cylinders and/or the processing system and/or computing platform.

Air Pump

[0095] In one embodiment, system **10** may also include an air pump **90** for providing pressurized air to the system **10**.

User (or Plurality Thereof)

[0096] In the arrangement shown, as one example, system **10** includes a user. User **14** may be any user interacting with or utilizing the system **10** such as a person exercising and/or a plurality of people exercising. This may include viewing, controlling, analyzing, manipulating, and/or interacting with system **10**. User **14** is not limited to a single user but may be a plurality of users. This may also include people in a commercial gym which are rapidly switching equipment and/or users on a single piece of equipment.

Graphical User Interface

[0097] In the arrangement shown, as one example, system **10** may include a graphical user interface **12**. Graphical user interface **12** is formed of any suitable size shape and design and is

configured to allow a user to view interact with, manipulate, and visually access system data and information, information related thereto, and/or view various data for various exercise equipment devices and/or add information to system and/or change resistance levels and/or change the settings of the sensors and/or change the settings of operation.

[0098] Display of Graphical User Interface: In the arrangement shown, as one example, system **10** includes a graphical user interface **12**. Graphical user interface **12** may include a display, which is configured to show and display information, including data, for review and interpretation by a user or plurality of users, or a plurality of users interacting with one another.

[0099] In the arrangement shown, as one example, an interactive user display is formed of a display screen, such as that of a desktop computer, laptop computer, monitor, tablet, smart phone, smart TV, projector, virtual reality display or any other device or form of a display. In the arrangement shown, as one example, interactive user display comprises a series of interactive user display pages, however, the interactive user display may consist of a single page or any other method of displaying information on a display as could be adapted to various size screens, devices, or user preferences. The interactive user display can display various information and/or functional information which is retrieved and/or requested.

Computing Platform

[0100] In the arrangement shown, as one example, system **10** includes a computing platform **200** (or "computer", or "computer platform"). Computing platform **200** is formed of any suitable size, shape, and design and is configured to provide computing support, power, and computing processing for both onboard computing functionality as well as communication for off-board or server computing functionality. In this way, an onboard computing system, among other components and features on top of the platform.

Onboard Computing System

[0101] In one arrangement, as is shown, system **10** includes an onboard computing system (or "onboard computing device"). Onboarding computing system is formed of any suitable size, shape, and design and configured to handle onboard computing operations, as are necessary for the operation of system **10**. Onboarding computing device is connected with electronic network and/or database and/or server or cloud via communication means, bluetooth communication, bluetooth low energy chip (BLE onboard), and may include a processor, a memory, a microcontroller, a printed circuit board, a microprocessor, a receiver/transceiver, may include at least one antenna, and a global positioning system, among other components.

Remote Computing System

[0102] In one arrangement, as is shown, system **10** includes a remote computing system (or "remote computing device"). Remote computing device is formed of any suitable size, shape, and design and configured to handle onboard computing operations, as are necessary for the operation of system **10**. Remote computing device is connected with electronic network and/or database and/or server or cloud via communication means and includes a processor, a memory, a microcontroller, a printed circuit board, a microprocessor, a receiver/transceiver, may include at least one antenna, a power supply, and a communications system, among other components.

Sensor System

[0103] In the arrangement shown, as one example, system **10** includes a sensor system **70**. Sensor system **70** is a separate system from the plurality of positional sensors **60**. Sensor system is formed of any suitable size, shape, and design and may include one or more sensors and/or one or more sensing technologies. In the arrangement shown, as one example, sensor system is configured to detect and communicate information related to system **10** as well as the surroundings and/or environment of system **10**.

[0104] In the arrangement shown, as one example, various sensors are utilized within system **10** to detect system status such as distance, temperature changes, and other operating status parameters within system **10**. Sensors are also configured to detect range of motion, pauses in motion of

exercise equipment, rate of motion of exercise equipment, and the like.

Application Server

[0105] In the arrangement shown, as one example, system **10** may comprise remote servers, databases, and/or computers that fulfill the functions disclosed and described herein. In the embodiment depicted, system **10** comprises an application server **300**. Application server **300** comprises one or more computer systems adapted to transmit and receive data regarding selected datasets related to various users and/or datasets related to multiple users. Application server **300** is adapted to query databases, and may utilize unique identification codes, to retrieve information and associated information related to system **10**.

Other Features

[0106] Automated Resistance Adjustment: In the arrangement shown, as one example, system **10** also includes features for automatically adjusts the weight resistance based on the user's strength level, workout history, and specific exercise requirements. These features allow for seamless transitions between different exercises and resistance levels, promoting a more efficient and uninterrupted workout flow.

[0107] Integrated Performance Monitoring: In the arrangement shown, as one example, system **10** includes smart sensors and a digital interface that track and display real-time data on the user's performance, including reps, resistance levels, and muscle engagement. The system **10** provides valuable feedback to users, aiding in tracking progress and ensuring consistency in training.

[0108] User Safety: In the arrangement shown, as one example, system **10** also includes various safety features and/or safety mechanisms to prevent overexertion and incorrect weight selection, reducing the risk of injury commonly associated with traditional weightlifting equipment. Furthermore, system **10** automatically removes any resistance or weight in the instance sensors that detect that a bar, or the like, has been dropped on the user preventing any risk of extreme injuries.

[0109] Customizable Workout Programs: In the arrangement shown, as one example, system **10** also includes features for a range of pre-set and customizable workout programs tailored to different fitness goals and experience levels. Users can select or create programs that best fit their training needs, making the machine highly versatile and adaptable.

Smart Training

[0110] Correction While Training: In the arrangement shown, as one example, system **10** also includes features for position sensors on the pneumatic cylinders will be recording and analyzing all movements and guiding users based on the following:

Range of Movement (ROM)

[0111] In the arrangement shown, as one example, system **10** also includes features for various range of movement functionality and settings. The range of movement (ROM) during exercise refers to the extent and direction in which a joint can move. Proper ROM is essential for effective exercise as it ensures that you're engaging the muscles correctly and safely. Here are some of the range of movement features and functionality of system **10** as described in relation to the movement and/or motion type, all of these range of movement and/or motion features included in system **10**:

[0112] Full Range of Motion: In the arrangement shown, as one example, system **10** also includes features for full range of motion and encourages full range of motion for most cases.

[0113] Partial Range of Motion: In the arrangement shown, as one example, system **10** also includes features for a partial range of motion setting so that a complete range of motion need not be completed. System **10** also learns the range of motion of a user by detecting various motion ranges and improves over time. This also includes some preset determinations and/or data entry points such as height, weight, age, and the like.

[0114] Joint Health: In the arrangement shown, as one example, system **10** also includes features for improving range of movement which maintains or improves joint flexibility and function.

[0115] Personal Limitations: In the arrangement shown, as one example, system **10** also includes

features for personal limitations. Said another way, range of movement varies due to factors like age, genetics, and history of injuries. System **10** integrates these variables in creating workouts, providing guidance, and the like.

[0116] Strength and Stability: In the arrangement shown, as one example, system **10** also includes features for performing a particular exercise within a ROM. In this way, a user can maintain control and stability. In the arrangement shown, as one example, system **10** also includes features for accounting for heavier weights which often reduce ROM of a user, which is acceptable as long as the user is still working the muscle effectively and safely. In this way, system **10** can vary a range of movement for a user in a given exercise and/or environment, make recommendations, and the like.

[0117] Specific Goals: In the arrangement shown, as one example, system **10** also includes features for fitness goals (such as strength, hypertrophy, endurance, or flexibility). For example, bodybuilders might focus on a ROM that maximizes muscle tension, while athletes might focus on a ROM that mimics their sport-specific movements.

Speed and Lift Type

[0118] In the arrangement shown, as one example, system **10** also includes features for sensing and recommending speed changes. Correct speed while lifting weights is crucial for maximizing effectiveness and minimizing the risk of injury. Here are some of the features system **10** includes for speed and/or duration of an exercise.

[0119] Controlled Movement: In the arrangement shown, as one example, system **10** also includes features for moving, and/or simulating movement of the weights in a controlled, steady manner to enable a user to avoid using momentum to lift the weights, as this can lead to improper form and increased risk of injury.

[0120] Isometric Hold (Pause): In the arrangement shown, as one example, system **10** also includes features for isometric holds and/or pauses during a repetition. System **10** includes features for enabling this type of lifting, such as at the top of the lift, incorporating a brief pause to increase muscle tension.

[0121] Eccentric Phase (Lowering): In the arrangement shown, as one example, system **10** also includes features for eccentric weight lifting. Eccentric lifting is the time during a repetition when the weight is returned to a starting position (sometimes referred to as lowering).

[0122] Breathing: In the arrangement shown, as one example, system **10** also includes features for reminding a user to breathe out during the exertion phase (usually when lifting the weight) and breathe in during the less strenuous phase (usually when lowering the weight). System **10** includes this breathing reminder, along with other breath guidance and breathing exercises. These exercises are during lifting weights but also may be off machine.

Repetitions

[0123] In the arrangement shown, as one example, system **10** also includes features for guidance of speed and number of repetitions. In other words, the number of repetitions (reps) you perform while training is a key component of your exercise routine and should be tailored to your specific fitness goals.

[0124] Strength Training: In the arrangement shown, as one example, system **10** also includes features for various goals involved with exercise. As one example, a user may desire to strength build and/or gain strength and muscle. In this type of selection, by a user, system **10** typically starts with fewer reps with heavier weights, adjusting as needed based on the exercises performed by a user.

[0125] Hypertrophy (Muscle Building): Similarly, and in the arrangement shown, as one example, system **10** also includes features for muscle building. For muscle growth, the rep range generally increases. Most guidelines suggest 8-12 reps per set. This range is believed to be optimal for muscle hypertrophy, as it balances weight lifted with time under tension.

[0126] Endurance Training: Similarly, and in the arrangement shown, as one example, system 10

also includes features for endurance training. If a user selects focusing on muscle endurance, higher reps at a lower weight are standard. This can range from 15 to 20+ reps per set. Such training enhances the muscle's ability to perform for a longer duration.

[0127] Toning and General Fitness: In the arrangement shown, as one example, system **10** also includes features for toning and general fitness. For users who select this goal, a moderate rep range of about 10-15 can be effective. This range provides a balance between muscle endurance and strength.

[0128] Power Training: In the arrangement shown, as one example, system **10** also includes features for power training. Users selecting the goal for power (speed plus strength), such as for sports, reps are typically lower (about **1**-**5**), often focusing on explosive movements. The weight used can vary depending on the specific training purpose.

[0129] Levels: In the arrangement shown, as one example, system **10** also allows a user to select goals at a level. Similarly, system **10** provides for specific goals and specific levels in addition to exercising based on a level alone. For example, beginners may have a particular recommendation and guidance. Beginners: For users new to weight training, it's often recommended to start with a moderate rep range (about 8-12 reps per set). This allows you to focus on proper form and muscle engagement without the risk of injury from heavier weights.

[0130] Rest Periods: In the arrangement shown, as one example, system **10** also includes features for the type of training the user has opted for and accordingly controls the rest periods. In one example, lower reps (strength training) typically require longer rest, whereas higher reps (endurance training) require shorter rest periods.

Weights

[0131] In the arrangement shown, as one example, system **10** also includes features for choosing the right weight for a user which is effective and safe workouts. This selection may be based on a test workout a user performs upon starting system **10**. System **10** incorporates a number of factors and variables in this selection including but not limited to fitness goals, the type of exercise desired, current strength level, and overall fitness plan.

[0132] Exercise Type: In the arrangement shown, as one example, system **10** also includes features for various exercise types. Some examples of exercise types include, but are not limited to, compound exercises and isolation exercises. Compound exercises incorporate multiple muscle groups (like squats, deadlifts, or bench presses). Furthermore, system **10** incorporates isolation exercises.

[0133] Form and Technique: In the arrangement shown, as one example, system **10** also includes features for form and technique aiding a user in performing exercises with proper form and technique. In one example, system **10** will warn a user when weight is too heavy and adjust the weight if improper form is detected in a particular way. In another example, system **10** will detect fatigue and warn a user based on fatigue and take action to either pause the exercise, adjust weights to lower, reduce reps, a combination thereof, and the like.

Progressive Overload

[0134] In the arrangement shown, as one example, system **10** also includes features for progressive overload. Said another way, progressive overload provides for improving strength and muscle size, gradually increasing the weight over time.

The Last Few Reps Rule

[0135] In the arrangement shown, as one example, system **10** also includes features for last few reps rule. Last few reps rule is that the last couple of reps should be challenging but still doable. This setting encourages a user to push and make improvements more quickly and dramatically.

Self Spotting

[0136] In the arrangement shown, as one example, system **10** also includes features for self spotting. System **10** measures and analyzes movement speed and position at all times, incorporating historical movement data from previous lifts and calculates performance

systematically decides when a spot is needed and how much spot to provide.

Drop Sets

[0137] In the arrangement shown, as one example, system **10** also includes features for drop sets. Drop sets are an advanced resistance training technique where the user performs an exercise until failure (the point at which doing another rep with good form becomes impossible), then reduces the weight and continues to do more reps until failure. This process can be repeated multiple times.

Dual-Action/Independent Motion

[0138] In the arrangement shown, as one example, system **10** also includes features for dual-action or independent motion. Dual action and/or independent motion refers to exercise machines designed to allow each limb to move independently, offering several advantages for strength training and rehabilitation.

[0139] Furthermore, and in this way, system **10** analyzes and provides feedback to both sides independently, highlighting weaknesses and/or strengths to a user.

Automatic Shutdown/Cancel Weights

[0140] In the arrangement shown, as one example, system **10** also includes features for auto shutdown/stop. System **10** constantly records and analyzes the position of the bar and automatically can shutdown or put force in the opposite direction to lift physical weights in the case of an emergency.

Medical History

[0141] In the arrangement shown, as one example, system **10** includes medical history entry and tracking. Medical history, including but not limited to, past and present injuries and adjusting various components such as resistance and position resistance, prevents unnecessary strains on joints or muscles and help users to strengthen their weaknesses and/or avoid injuries, and the like.

Momentum Effect Prevention

[0142] In the arrangement shown, as one example, system **10** includes momentum effect prevention.

Smart Integration

[0143] In the arrangement shown, as one example, system **10** includes smart integration. This includes, but is not limited to, various features such as smart technology features, an AI-powered assistant that provides real-time feedback and suggests workout adjustments, connectivity options to sync with other fitness devices and apps, a holistic view of the user's fitness journey, learning and adapting to the user's progress over time, and the like.

Register and Log Workouts with All Data

[0144] In the arrangement shown, as one example, system **10** includes a registration and historical tracking feature.

Show Accurate Weights Lifted

[0145] In the arrangement shown, as one example, system **10** includes accurate amount tracking on a lift, workout, and overall basis, among other tracking for accurate data.

Show Progress (Graphs)

[0146] In the arrangement shown, as one example, system **10** includes a show progress feature with graphing.

Suggest AI Based Training

[0147] In the arrangement shown, as one example, system **10** includes a suggestion feature with ongoing machine learning and adjustments in real time.

Accurate Calories Burnt

[0148] In the arrangement shown, as one example, system **10** includes tracking calories burned, among other metrics.

Book Next Machine

[0149] In the arrangement shown, as one example, system **10** includes a booking and/or scheduling feature for booking or tracking machines as well as planning workouts based on machine

availability. Said another way, system **10** provides recommendations for the next machine to be used and makes adjustments based on substitutions for the user's workout and/or workout plan.

Estimated Time to Finish Training

[0150] In the arrangement shown, as one example, system **10** includes time tracking, showing current projected finish times and the like.

Timer Between Sets

[0151] In the arrangement shown, as one example, system **10** includes timers for rests and the like

Gamificatio

[0152] In the arrangement shown, as one example, system **10** includes various gamification features with achievements, badges, and the like.

Messaging

[0153] In the arrangement shown, as one example, system **10** includes messaging features so a gym can message a user, a user can message other users at the same gym, friends, and the like.

Advertisements

[0154] In the arrangement shown, as one example, system **10** includes an advertisement feature for showing the user and/or gym products and/or services they may be interested in.

Daily Tips

[0155] In the arrangement shown, as one example, system **10** includes daily tip features for additional guidance and education.

Competitions

[0156] In the arrangement shown, as one example, system **10** includes competition mode for accurate weight competitions, workout metrics, and the like. This also includes tracking for insurance discounts and more.

On Screen Trainer

[0157] In the arrangement shown, as one example, system **10** provides a trainer on the screen, along with artificial intelligence and/or machine learning, which talks to and/or provides screen queues and/or voice queues to motivate and guide a user whether the user is a seeing individual, a hearing individual, or not.

[0158] In addition to the above identified features, options, controls, and components, system **10** may also include other features and functionalities, among other options, controls, and components.

[0159] It will be appreciated by those skilled in the art that other various modifications could be made to the system, process, and method of use without parting from the spirit and scope of this disclosure. All such modifications and changes fall within the scope of the claims and are intended to be covered thereby.

Claims

1. A pneumatic exercise system, comprising: a plurality of pneumatic cylinders; a plurality of attachment features; wherein the plurality of attachment features are configured to secure the plurality of pneumatic cylinders to workout accessories; wherein the plurality of attachment features are configured to secure the plurality of pneumatic cylinders to handles for resisted training; a plurality of proportional pressure regulators; wherein the plurality of proportional pressure regulators are configured to generate variable pressure at different rates in order to simulate different levels of resistance; a plurality of pneumatic solenoid valves; a set of signals; wherein each of the plurality of pneumatic solenoid valves are configured to open and close to direct pneumatic pressure to either side of each of the plurality of pneumatic cylinders providing as a set of signals are received; wherein the set of signals are formed of resistance changes input into a touch screen and processed by an input processor then interpreted into a pressure change to direct pneumatic pressure to either side of each of the plurality of pneumatic cylinders; a plurality of positional sensors; a plurality of controllers.

2. The system of claim 1, further comprising: wherein the plurality of positional sensors determines the position of each of the plurality of pneumatic cylinders.

3. The system of claim 1, further comprising: wherein the plurality of positional sensors determines the position of a user.

4. The system of claim 1, further comprising: wherein the plurality of positional sensors are configured to interpret the position of a user during a repetition; wherein the plurality of positional sensors are used to send a set of return signals to the processor for interpreting the speed and position of a bar in a set while a user is exercising.

5. The system of claim 1, further comprising: wherein the plurality of positional sensors are configured to interpret the position of a user during a repetition; wherein the plurality of positional sensors are used to send a set of return signals to the processor for interpreting the speed and position of a smart lifting feature such as a handle or rope while a user is exercising.

6. The system of claim 1, further comprising: wherein the pneumatic exercise system is a retrofit kit configured to be adapted to a piece of existing exercise equipment.

7. The system of claim 1, further comprising: wherein the pneumatic exercise system is configured to provide performance tracking over a duration of time; wherein providing performance tracking over a duration of time is providing an ability score for a user which interprets the ability of a user to perform at a particular resistance level.

8. The system of claim 1, further comprising: wherein the pneumatic exercise system is configured to provide uninterrupted flow of a workout without needing to stop to adjust resistance levels.

9. The system of claim 1, further comprising: wherein the plurality of pneumatic cylinders is a double-acting pneumatic cylinder.

10. The system of claim 1, further comprising: wherein the plurality of pneumatic cylinders is a single-acting pneumatic cylinder.

11. The system of claim 1, further comprising: wherein the plurality of pneumatic cylinders is a rodless cylinder.

12. The system of claim 1, further comprising: a smart computing platform.

13. The system of claim 1, further comprising: a smart computing platform; a plurality of data signals and databases.

14. A pneumatic exercise retrofit device, comprising: a plurality of pneumatic cylinders; a plurality of attachment features; wherein the plurality of attachment features are configured to secure the plurality of pneumatic cylinders to workout accessories; wherein the plurality of attachment features are configured to secure the plurality of pneumatic cylinders to handles for resisted training; a plurality of proportional pressure regulators; wherein the plurality of proportional pressure regulators are configured to generate variable pressure at different rates in order to simulate different levels of resistance; a plurality of pneumatic solenoid valves; a set of signals; wherein each of the plurality of pneumatic solenoid valves are configured to open and close to direct pneumatic pressure to either side of each of the plurality of pneumatic cylinders providing as a set of signals are received; wherein the set of signals are formed of resistance changes input into a touch screen and processed by an input processor then interpreted into a pressure change to direct pneumatic pressure to either side of each of the plurality of pneumatic cylinders; a plurality of positional sensors; a plurality of controllers; wherein each of the plurality of controllers is configured to send and receive the set of signals; wherein the plurality of positional sensors are configured to interpret the position of a user during a repetition; wherein the plurality of positional sensors are used to send a set of return signals to the processor for interpreting the speed and position of a smart lifting feature such as a handle or rope while a user is exercising.

15. The system of claim 14, further comprising: an air pump.

16. A method of retrofitting an existing exercise device with a pneumatic system, comprising the steps: providing a plurality of pneumatic cylinders; providing a plurality of attachment features; wherein the plurality of attachment features are configured to secure the plurality of pneumatic

cylinders to workout accessories; wherein the plurality of attachment features are configured to secure the plurality of pneumatic cylinders to handles for resisted training; providing a plurality of proportional pressure regulators; wherein the plurality of proportional pressure regulators are configured to generate variable pressure at different rates in order to simulate different levels of resistance; providing a plurality of pneumatic solenoid valves; providing a set of signals; wherein each of the plurality of pneumatic solenoid valves are configured to open and close to direct pneumatic pressure to either side of each of the plurality of pneumatic cylinders providing as a set of signals are received; wherein the set of signals are formed of resistance changes input into a touch screen and processed by an input processor then interpreted into a pressure change to direct pneumatic pressure to either side of each of the plurality of pneumatic cylinders; providing a plurality of positional sensors; providing a plurality of controllers.

17. The system of claim 16, further comprising the steps: increasing the level of resistance by increasing the gaseous pressure of at least one of the plurality of cylinders.

18. The system of claim 16, further comprising the steps: adjusting the level of resistance to a greater level of resistance when an increase signal is received.

19. The system of claim 16, further comprising the steps: adjusting the level of resistance to a lesser level of resistance when a decrease signal is received.

20. The system of claim 16, further comprising the steps: adjusting the level of resistance to a lesser level of resistance when it is determined that a user is struggling to handle the set level of resistance.