

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LULULEMON ATHLETICA CANADA INC. and LULULEMON USA INC.,
Petitioner,

v.

NIKE, INC.,
Patent Owner.

Case: IPR2023-00348
Patent No. 10,188,930

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 10,188,930**

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Inter Partes Review of USP 10,188,930

Exhibit Description	Exhibit #
Biology, 2008	

lululemon athletica canada inc. and lululemon usa inc. (“Petitioner” or “lululemon”) petitions for *inter partes* review of claims 1, 5-7, and 12 of U.S. Patent No. 10,188,930 (the “’930 patent” (Ex. 1001)) in accordance with 35 U.S.C. §§ 311-19 and 37 C.F.R. §§ 42.100 *et seq.*

I. INTRODUCTION

The ’930 patent’s challenged claims generally are directed to the simple concept of calculating a score that represents a user’s fitness and athleticism. The patent describes “monitoring a user performing an athletic movement and/or exercise and generating a combinatory fitness athleticism score.” (Ex. 1001 at Abstract.) The combinatory fitness athleticism score “comprise[s] a fitness sub-score and an athleticism sub-score” that are calculated based on data received from a sensor. (*Id.* at 1:50-51, 1:57-67.) The fitness sub-score is calculated from fitness attributes such as endurance, flexibility, and strength attributes. (*Id.* at 23:24-28.) The athleticism sub-score is calculated from athleticism attributes such as “speed, agility, reaction,” “power,” and “balance.” (*Id.* at 23:43-47.) The various fitness and athleticism attributes are measured using any number of well-known sensors while the user performs exercise drills according to provided instructions. (*Id.* at 5:35-41, 12:55-67.) The fitness and athleticism sub-scores are combined according any number of well-known arithmetic operations, such as “average” and “summed.” (*Id.* at 22:40.)

PCT Patent Publication No. WO2006111687 (“Lofi”), however, discloses exactly that. Lofi describes monitoring an individual’s exercise performance using a sensor, which the ’930 patent expressly includes as one way to implement its alleged invention. Moreover, Lofi addresses the same technical problem as the ’930 patent—encouraging an individual to exercise by helping them focus on areas of improvement—in the same way. Furthermore, like the ’930 patent, Lofi assesses the information collected by the sensor and calculates a combinatory score reflecting an individual’s fitness level. Accordingly, Lofi anticipates claims 1 and 5-7 of the ’930 patent.

European Patent Publication EP 2324762 A1 (“Maeueller”) discloses techniques for motivating an individual to exercise by monitoring and testing their fitness level and developing a combinatory score to indicate areas where the individual may improve their performance. U.S. Patent No. 7,810,392 (“Kitagawa”) likewise aims to encourage an individual to maintain or increase their exercise level and teaches simultaneous monitoring of multiple physical fitness parameters.

A person of ordinary skill in the art (“POSITA”) would have found claims 1, and 5-7 of the ’930 patent obvious in view of the combination of Lofi and Kitagawa. A POSITA also would have found claims 1, 5-7, and 12 of the ’930 patent to be obvious in view of the combination of Maeueller and Kitagawa. Thus,

and for the reasons set forth in this Petition and the Declaration of Dr. Gregory S. Fischer (Ex. 1005), lululemon requests cancelation of claims 1, 5-7, and 12 of the '930 patent.

II. BACKGROUND

A. Summary of the '930 Patent

The '930 patent describes “monitoring a user performing an athletic movement and/or exercise and generating a combinatory fitness athleticism score.” (Ex. 1001, Abstract.) The specification describes “systems and methods for estimating a combined or a combinatory fitness-athleticism score,” both of which are comprised of a fitness sub-score and an athleticism sub-score. (*Id.* at 1:49-51.) According to the '930 patent, the fitness-athleticism score is “estimated based on a user’s athletic movements, wherein the user's athletic movements are monitored by a first sensor.” (*Id.* at 1:52-54.) The '930 patent describes “athletic movement” as “movements relating to fitness, exercise, flexibility, including movements that may be part of one or more single and multiple participant athletic competitions, exercise routines, and/or combinations thereof.” (*Id.* at 4:7-11.)

The '930 patent discloses that a sensor is “worn around an appendage of the user” and “configured to capture data related to the movement of the appendage of the user.” (*Id.* at 1:56-59.) Exemplary sensors include “an accelerometer, a gyroscope, a location-determining device (*e.g.*, GPS), light sensor, temperature

sensor (including ambient temperature and/or body temperature), sleep pattern sensors, heart rate monitor, image-capturing sensor, moisture sensor and/or combinations thereof.” (*Id.* at 5:36-41.) The ’930 patent also teaches that an individual may “possess, carry, and/or wear any number of electronic devices, including sensory devices” (*Id.* at 6:7-8.) These portable electronic devices include non-fitness devices to “collect, detect, and/or measure athletic data,” such as the Apple IPOD®, IPAD®, or iPhone®. (*Id.* at 6:11-17.) Such devices contain one or more sensors or wirelessly communicate with other wearable sensors. (*Id.* at 6:27-43.) Exemplary wearable sensors according to the ’930 patent are associated with an individual’s clothing or accessories, such as a “watch, armband, wristband, necklace, shirt, shoe, or the like.” (*Id.* at 7:18-19.)

According to the ’930 patent, an individual is instructed to perform an athletic movement with predefined criteria. (*Id.* at 12:55-57.) Instructions are “audible, visual, tactile or combinations thereof” and involve “demonstrating proper form for an exercise and prompting the user to perform the exercise” (*Id.* at 22:60-65.) A display device may also “present a virtual trainer demonstrating an exercise to instruct the user on proper form” (*Id.* at 23:3-7.) The specification further describes prompting an individual user to perform a plurality of exercise drills in a single workout session. (*Id.* at 23:24-25.) The ’930 patent discloses that upon receipt of instructions, one or more sensors monitor the

individual's physical movement and a processor subsequently executes computer-executable instructions to "receive movement data captured by the sensor, and/or to estimate a combined fitness-athleticism score from the received movement data." (*Id.* at 1:61-66.)

As shown in Figure 12 below, the combined or combinatory fitness-athleticism score, *e.g.*, "76/65," is shown on a display device to the user wherein "76" represents the individual's fitness sub-score and "65" represents an athleticism sub-score. (*Id.* at 22:31-34.) The combinatory score can also be represented by a single score wherein the athleticism sub-score and the athleticism sub-score are averaged, summed, or otherwise combined. (*Id.* at 22:38-41.) The '930 patent teaches that fitness sub-scores, athleticism sub-scores, and the combinatory score "consider a plurality of parameters relating to the user's performance." (*Id.* at 23:7-9.) Exemplary parameters include an individual's form, tempo, estimated fatigue, and oxygen kinetics. (*Id.* at 23:9-11.)

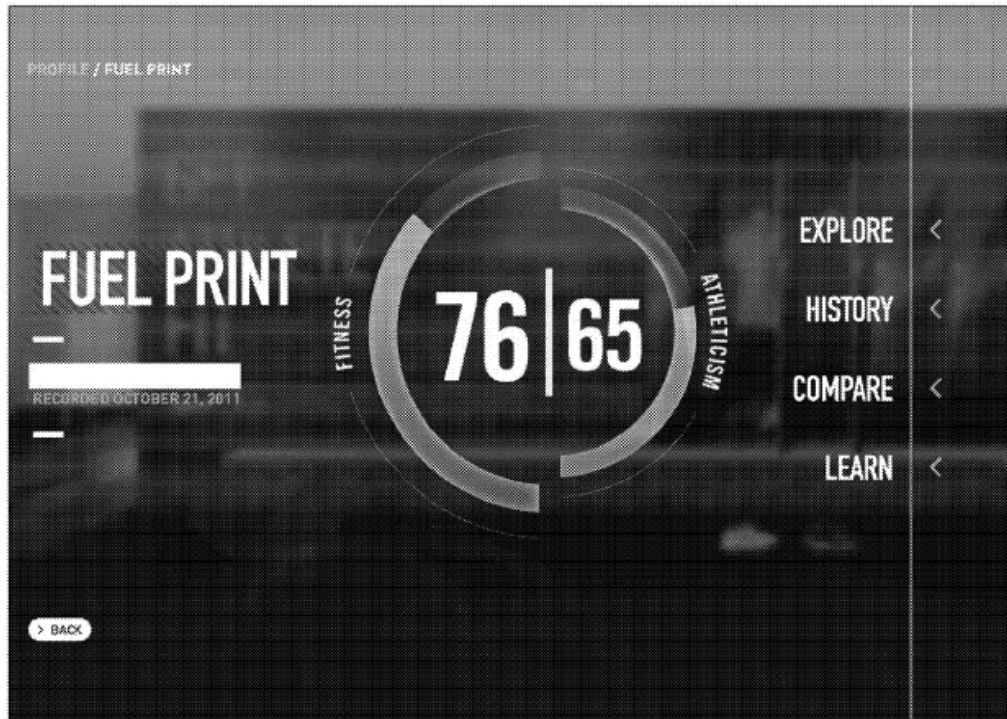


FIGURE 12

(Ex. 1001 at Fig. 12.)

The '930 patent further discloses that the combinatory score and/or the sub-scores are calculated by “combining a plurality of drill scores,” which are “summed, averaged or otherwise utilized” (*Id.* at 24:63-66.) Such drills are presented in a predefined ordering or vary among different workout sessions. (*Id.* at 24:18-21.) A plurality of drills in a single workout session “may be designed to specifically test attributes of athleticism” and “specifically test attributes of fitness.” (*Id.* at 23:27-31.) Exemplary fitness attributes include “endurance, flexibility, strength and combinations thereof” while exemplary athleticism attributes include “speed, agility, reaction, power, balance, and combinations thereof.” (*Id.* at 23:36-41.) In order to determine sub-scores and a combinatory

score, “[o]ne or more attribute values may be detected, measured, and/or calculated” (*Id.* at 23:33-35.) According to the ’930 patent, “a single exercise may be utilized to measure at least one athleticism attribute and at least one fitness attribute.” (*Id.* at 23:31-33.)

The ’930 patent finally describes how various exemplary fitness and athleticism attributes are measured. For example, an endurance fitness attribute is “determined from drills comprising or consisting of vertical jumps” based on “the quantity of vertical jumps the user conducts within a predetermined time period” (*Id.* at 23:48-51.) A flexibility fitness attribute is “determined from reps of leg raises and/or reverse reaches.” (*Id.* at 23:52-53.) A strength fitness attribute is calculated by evaluating an individual’s “performance of reps of static lunges and/or push-ups” or “ability to maintain their performance within a predetermined range of tempo during the activities” (*Id.* at 23:55-59.) A power athleticism attribute is “determined from drills comprising or consisting of vertical jump” by measuring the vertical distance the individual achieves achieved. (*Id.* at 23:60-66.) A balance athleticism attribute is calculated based on “hop and sticks” drills wherein an individual’s stability may be measured. (*Id.* at 23:66-24:1.) Finally, speed, agility, and reaction athleticism attributes are determined from “drills comprising or consisting of cone sprints” by measuring an individual’s “reaction and/or target return” (*Id.* at 24:1-5.)

B. Prosecution History of the '930 Patent

As originally filed, the application that would become the '930 patent included 20 claims. (Ex. 1006, at 45-48.) The Examiner issued a Non-Final Rejection on June 19, 2018 due to nonstatutory double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 9,744,428. (Ex. 1007.) In a response on September 13, 2018, the Patent Owner submitted a terminal disclaimer. (Ex. 1008.) The Examiner subsequently allowed the claims on October 30, 2018. (Ex. 1009.) Importantly, none of Lofi, Maeueller, or Kitagawa were before the Examiner during prosecution.

C. The Prior Art

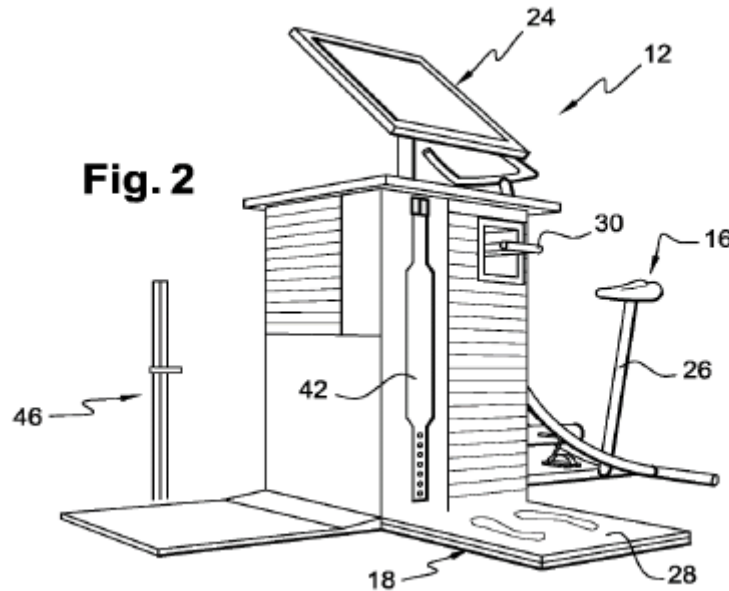
Personal fitness assessment by evaluating various physical attributes using sensors and calculating numerical scores reflecting these attributes was well known well before June 2012, the earliest priority date claimed on the face of the '930 patent.

1. Lofi

Lofi is directed to a “Device for Evaluating a Person’s Physical Fitness.” (Ex. 1002 at¹ Title.) As shown in Figure 2 below, Lofi discloses a terminal device (12) for “evaluating the physical fitness of a person comprising an endurance

¹ Lofi (Ex. 1002) includes a certified English translation. Citations to Ex. 1002 in this Petitioner are for the English translation.

measuring means (16), body composition measuring means (18), muscular strength measuring means (20),” as well as means (22) for measuring flexibility and means (28) for measuring balance. (*Id.*, Abstract, 3:21-26.)



(*Id.* at Fig. 2.)

Lofi teaches a variety of fitness tests to assess endurance, strength, balance, and flexibility. To test endurance, for example, Lofi teaches that a “person is asked to pedal for a period of 8 minutes and the workload is increased progressively.” (*Id.* at 4:4-8.) To test strength, for example, “the person is asked to pedal as fast as possible for a short period of approximately 10 seconds” while the resistance on the bicycle is increased. (*Id.* at 5:13-16.) To test strength, for example, an individual is then instructed to “contract their abdominal muscles voluntarily.” (*Id.* at 7:4-5.) In an exemplary test designed to test flexibility, an individual is instructed to bring the pallet (46) shown in Figure 2 above “as low as

possible, bending forwards without giving way to their legs.” (*Id.* at 8:1-3.) To test balance, for example, Lofi teaches that an individual is instructed to step onto a scale (28) shown in Figure 2 above, then stand while being supported on both feet with eyes open, followed by standing while being supported on both feet with eyes closed, followed by standing while being supported on one foot. (*Id.* at 8:25-27.)

For each fitness test, Lofi describes a means for monitoring the individual using one or more sensors. The sensors may be worn in an abdominal belt or may be located in the device. (Ex. 1002 at 6:24-25.) Lofi teaches that the terminal device receives measurement data from the sensors corresponding to the physical activity for each test. The terminal also contains a “means of processing” to determine a score for each test by comparing the collected measurement data to a distribution curve corresponding to the person’s population group. (Ex. 1002 at 2:23-25.) The terminal then presents the user with an overall score, corresponding to a weighted average of multiple fitness tests, as well as scores for each individual fitness test. (*Id.* at 10:16-19, 11:20-22.)

2. Maeueler

Maeueler is directed to a “Fitness test system.” (Ex. 1003, Title.) Maeueler acknowledges that “[t]here is widespread agreement among experts that there are five crucial components of physical fitness as far as it relates to health: endurance,

strength, flexibility, balance, and body composition.” (*Id.* at [0004].) Accordingly, the Specification teaches calculating a numerical score, called a “fitness test result,” which is “indicative of a user’s fitness, for a plurality of components of physical fitness such as endurance, strength, flexibility, balance, and body composition.” (*Id.* at Abstract.) The fitness test result may be calculated by performing a series of fitness tests, each of which is “associated with a group of input parameters to be determined” (*Id.* at [0007].)

Maeueller teaches a peripheral device (*e.g.*, an exercise mat or wearable monitor) containing one or more sensors collects activity data about an individual during a fitness test. (*Id.* at [0047]-[0048].) Exemplary wearable monitors include an accelerometer, an oximeter, and a pulse rate meter worn as a belt or as a strap attached to the chest. (*Id.* at [0048]-[0049].) Based on “analysis of the received sensor signals,” Maeueller teaches that the “correctness of the performed movement” may be assessed and instructions may be given regarding “how to perform a given test in the event it is detected that the user’s movements are incorrect.” (*Id.* at [0050].) According to Maeueller, a computing module is “programmed for automatic coordination” with peripheral devices to receive sensor data and “calculate the fitness test result.” (*Id.* at [0011].) The fitness test result may be represented as a “numerical score value, such as a value ranging from 0 to 5” for each physical component assessed (*e.g.*, endurance, strength,

flexibility, balance, and body composition) or as a “combined (average or weighted average) aggregate fitness index.” (*Id.* at [0051].)

3. Kitagawa

Kitagawa is directed to a “System for Measuring Age on Basis of Physical Strength.” (Ex. 1004, Title.) The Specification teaches calculating a numerical score, called physical-strength age, by having an individual complete “various types of exercise courses that may have in them some elements of amusement so as to encourage the user” (*Id.* at 1:19-23.) Kitagawa discloses that each user is monitored by a pulse meter and “records his/her pulse rates when starting and finishing each course” on a scorecard. (*Id.* at 8:43-47.) At the end of the series of courses, the user again measures both their blood pressure and pulse rate and subsequently records these numbers on the scorecard. (*Id.* at 8:49-52.) Kitagawa teaches that the physical-strength age score may also take into account “the total amount of time that the user takes to complete all of the exercise courses.” (*Id.* at 4:5-7.) A computer analyzes the scorecard to calculate a user’s physical-strength age score. (*Id.* at 8:58-65.)

The exercise courses taught by Kitagawa are designed to assess various physical attributes. The courses are “structured such that a user utilizes a variety of physical abilities, including muscle strength in multiple parts of his/her body, flexibility of the body, balance of the body, and agility of the body” (*Id.* at

2:28-31.) Kitagawa discloses that “the extent to which a user utilizes each of his/her various physical abilities is used as an index of the amount of the exercise performed” (*Id.* at 2:31-33.) Kitagawa further discloses multiple combinatory numerical indices specific to each exercise course, reciting that “the combination of the values of the indexes for each exercise course is different from the combination of values in each of the other exercise courses” (*Id.* at 2:33-36.) Specific exercises within each exercise course are arranged so that a user “needs to memorize their order and specific features.” (*Id.* at 2:41-43.)

III. LEVEL OF ORDINARY SKILL

A POSITA for the technology of the '930 patent would have had (1) a bachelor's degree in engineering, computer science, industrial design, biomechanics, or a related field, and (2) at least two years of experience researching, developing, designing, and/or testing fitness or physiological sensors, wearable devices, physiological or biomechanical devices, remotely-controlled systems or interfaces, and/or network-based applications and/or equipment, or the equivalent experience or education. (Ex. 1005, ¶ 44.)

IV. CLAIM CONSTRUCTION

Petitioner does not propose any terms for construction because no constructions are necessary to resolve any disputes identified in this Petition. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).²

V. PRECISE REASONS FOR RELIEF REQUESTED

Pursuant to 37 C.F.R. § 42.104(b), Petitioner requests cancellation of claims 1, 5-7, and 12 of the '930 patent based on the following references:

Prior Art Reference	Abbreviation
PCT Patent Publication No. WO 2006/111687	"Lofi" (Ex. 1002)
European Patent Publication No. EP 2324762 A1	"Maeueler" (Ex. 1003)
U.S. Patent No. 7,810,392	"Kitagawa" (Ex. 1004)

The statutory grounds for the challenge to each claim are set forth below.

All statutory citations are pre-AIA.

² If trial is instituted, Petitioner reserves its right to address construction of any terms raised at trial, or in the related district court action. Petitioner believes that the '930 patent claims are invalid under 35 U.S.C. §§ 101 and 112. Because those issues cannot be raised in an IPR, Petitioner has raised or reserves the right to raise those issues in the related district court action, *Nike, Inc. v. lululemon usa inc.*, No. 1:22-cv-00082-RA-OTW (S.D.N.Y.).

Lofi was published on October 26, 2006. Lofi therefore qualifies as prior art under Section 102(b) based on the '930 patent's earliest possible priority date of June 4, 2012.

Kitagawa issued on October 12, 2010. Kitagawa therefore likewise qualifies as prior art under Section 102(b) based on the '930 patent's earliest possible priority date of June 4, 2012.

Maeueller was filed on November 20, 2009, and published on May 25, 2011. Maeueller therefore likewise qualifies as prior art under Section 102(b) based on the '930 patent's earliest possible priority date of June 4, 2012.

Ground	35 U.S.C. §	Claims	Prior Art References
1	102(b)	1 and 5-7	Lofi
2	103	1 and 5-7	Lofi and Kitagawa
4	103	1, 5-7 and 12	Maeueller and Kitagawa

VI. Ground 1: Lofi Anticipates Claims 1 and 5-7

1. Claim 1

a. Element 1[pre]

A computer-implemented method comprising:

If limiting, Lofi discloses a computer-implemented method. Lofi discloses a method implemented on an apparatus that “make[s] it possible for a person to evaluate their physical fitness autonomously and reliably.” (Ex. 1002 at 2:10-12.)

The method relies on a processing means in the apparatus that calculates scores based on data received from sensors. (*Id.* at 11:20.)

b. Element 1[a]

providing first instructions to a user to perform a first athletic movement;

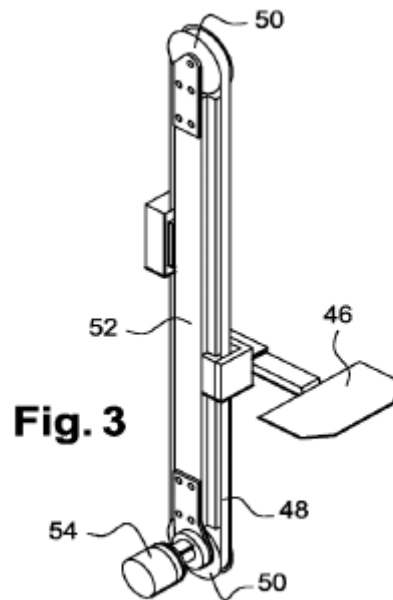
Lofi discloses providing first instructions to a user to perform a first athletic movement in various fitness tests. Lofi's tests include a variety of fitness and athleticism tests, described below. Each of these tests qualify as a first athletic movement.

One test is for endurance and evaluates sustained effort on a bicycle, a "person is asked to pedal for a period of 8 minutes and the workload is increased progressively." (Ex. 1002 at 4:4-8.) In this example, pedaling represents a first athletic movement.

In another test designed to test strength, "the person is asked to pedal as fast as possible for a short period of approximately 10 seconds" while the resistance on the bicycle is increased. (*Id.* at 5:13-16.) Pedaling at an individual's highest speed represents a first athletic movement.

In a different strength test, an individual wears an abdominal belt that contains one or more pressure sensors that can "measure the action of abdominal muscles" (*Id.* at 6:24-7:1.) The individual is then instructed to "contract their abdominal muscles voluntarily," which is a first athletic movement. (*Id.* at 7:4-5.)

In another test designed to test flexibility, as shown in Figure 3 below, a portable pallet (46) is used and connected to a belt (48). (*Id.* at 7:20-24.) After standing on a pedestal, an individual is instructed to “bring the pallet to as low as possible, bending forwards without giving way to their legs.” (*Id.* at 8:1-3.) This test is a first athletic movement.



(Ex. 1002 at Fig. 3)

Lofi also discloses a balance test where a user will be “required to stand on one foot, and then on the other, with closed eyes, given that the quality of balance is a function of the maintained balance time.” (*Id.* at 1:13-15.) This test measures “the average position of the center of gravity” during different phases of the test. (*Id.* at 8:8-9:2.) This balance test is a first athletic movement.

Lofi also includes a reaction test that is a first athletic movement. This test “measure[s] the reaction times of the person [and] correspond[s] to the period between transmission of the signal and the action generated by the person in response.” (*Id.* at 7:16-18.)

The above tests are performed in response to instructions from Lofi’s terminal, which includes a screen/display 24 that allows the tests to be performed “autonomously.” (*Id.* at 2:10-12, 9:18-20.) For example, the user being tested “is asked” to perform the procedure for each test. (*Id.* at 1:7, 4:7, 5:4, 5:13, 6:18, 7:2-4, 7:14, 8:1, 8:25, 11:13.)

c. Element 1[b]

receiving, from a sensor, first activity data representing the first athletic movement;

Lofi discloses that the bicycle tests use a sensor to measure “the person’s heart rate” (*Id.* at 1:4-6.) At several progressively increasing workloads on the bicycle, the user’s “cardiac rhythm is measured” (*Id.* at 4:7-13.) Additionally, “the speed of pedaling” is also measured using a sensor. (*Id.* at 5:15-16.)

Lofi discloses that in order to test strength of abdominal muscles, an individual may wear an abdominal belt (42) as shown in Figure 6 below. (*Id.* at 6:24-25.) The belt contains “one or more pressure sensors 44” which can “measure the action of abdominal muscles” (*Id.* at 6:24-7:1.) The belt is

positioned at waist level and first transmits a baseline signal “without contraction of the abdominal muscles” (*Id.* at 7:3-4.)

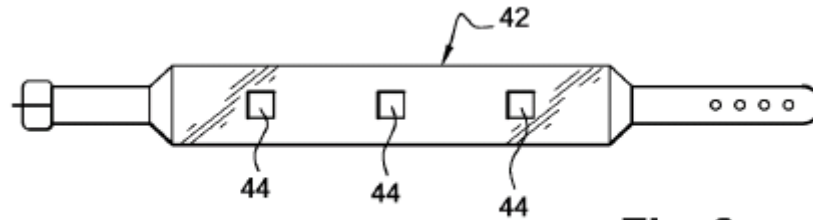
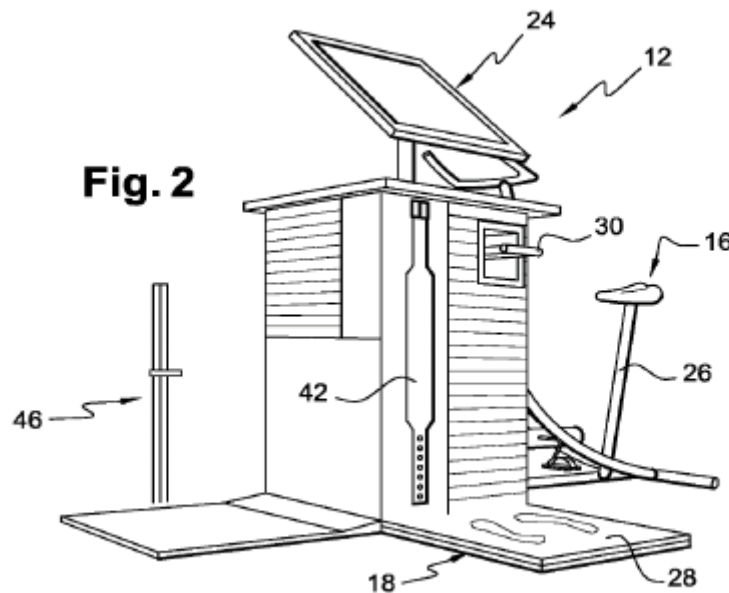


Fig. 6

(*Id.* at Fig. 6.) As explained above, the individual is instructed to contract their abdominal muscles. The belt subsequently “transmits a signal proportionate to the effort exerted by the abdominal muscles on belt 42.” (*Id.* at 7:5-6.) The signal is received by a processing means, such as a terminal (12) shown in Figure 2 below. (*Id.* at 7:8-9.)



(Ex. 1002 at Fig. 2.)

For Lofi's flexibility test, an "encoder" sensor is used "to measure the displacement of portable pallet 46." (*Id.* at 8:3-4.) The encoder is "linked to 1 of the pulleys 50, makes it possible to measure the displacement of the portable pallet 46." (*Id.* at 7:22-24.)

Lofi's balance test uses a scale "fitted with pressure sensors" (*Id.* at 8:9.) Lofi's system determines balance by "the values measured by different sensors" that sense the "distribution of reactive forces to the foot supports." (*Id.* at 8:13-14.)

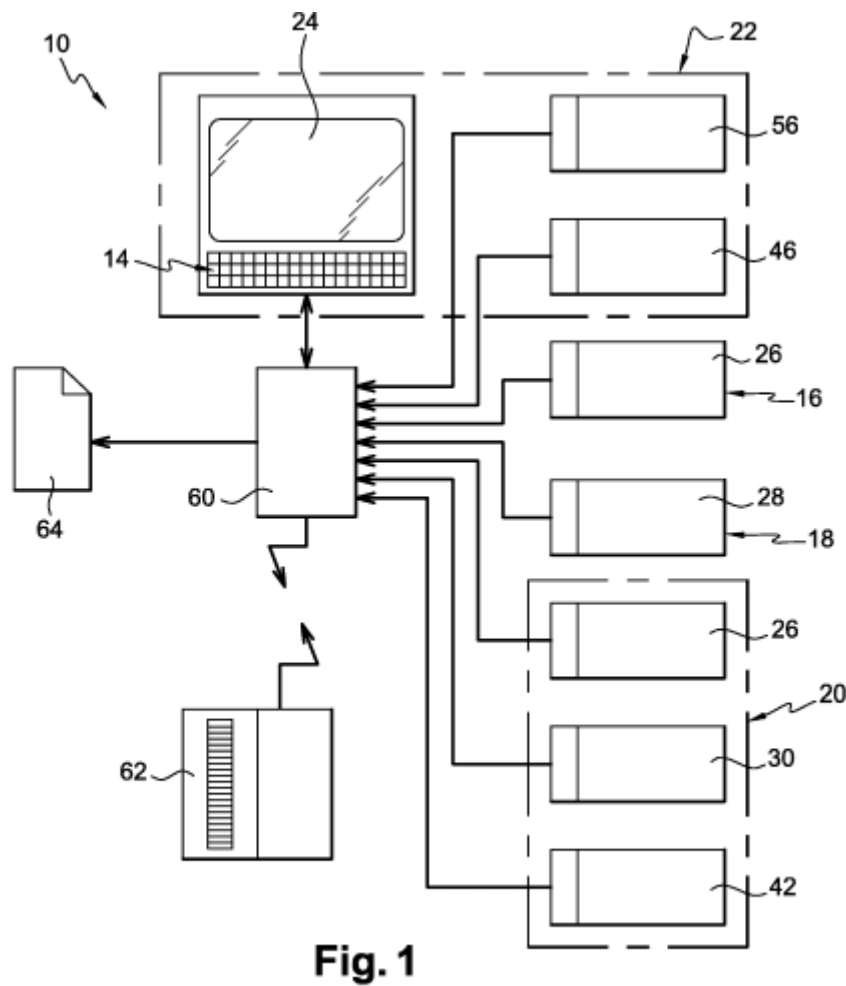
Lofi describes that the reaction test uses sensor output that represents the time "period between transmission of the signal and the action generated by the person in response." (*Id.* at 7:16-18.) The measure time period is provided to the processor. (*Id.* at 7:18-19.)

d. Element 1[c]

calculating with a processor, based on the first activity data, a first combinatory fitness-athleticism score;

Lofi discloses a means for processing (60) as shown in Figure 1 below. (*Id.* at 10:24-25.) Lofi further teaches a terminal as a means for processing the measurements associated with a fitness test (*e.g.*, endurance, strength, balance, reaction time, and flexibility) and returning the result to the user. (*Id.* at 3:17-20.) Lofi's terminal thus represents a processor. The terminal enables collection of "different measurements" corresponding to an individual's performance on each

test (e.g., activity data) “to facilitate the evaluation of their physical fitness, autonomously and with reliability.” (*Id.* at 9:18-20.) The terminal also contains “for each measurement a distribution curve for different populations characterized, each at least with regard to an age range, height range and gender of persons (a curve for each different population).” (*Id.* at 9:21-24.)



(Ex. 1002 at Fig. 1.)

In order to calculate a score for each fitness test, “the means of processing determine[s] a score comparing the measured value with the distribution curve

corresponding to the person's population group.” (*Id.* at 10:7-15.) Lofi further teaches that the means of processing allocates an aggregate combined score to the person. This aggregate score corresponding to an individual's overall physical fitness may be equivalent to the weighted average of each fitness test score “with a coefficient 1 for the measurement of body composition, a coefficient 1 for measurement of endurance, a coefficient 1 for measurement of the muscular strength” (*Id.* at 10:16-19.) According to Lofi, “the processing means 60 analyse[s] the measurements and decide[s] on the scores.” (*Id.* at 11:20.) The user is then presented with a display of “the overall score of physical fitness together with scores for each measure.” (*Id.* at 11:20-22.)

e. Element 1[d]

providing, in response to a triggering event, second instructions to the user to perform a second athletic movement;

As noted above, Lofi discloses providing instructions to a user to perform an athletic movement corresponding to several tests. (*See supra* VI.1.b.) Lofi teaches a collection of tests related to endurance, muscular strength, balance, reaction time, flexibility, and body composition. (Ex. 1002 at 2:15-19, 7:20-24.) Lofi further teaches that these tests are administered as part of a series in a single workout session.

After a score is calculated, it is displayed to the user along with “comments and/or recommendations regarding the score or scores achieved.” (*Id.* at 11:22-23.)

The user's information (e.g., "data relating to scores, age, gender and height") are stored and "associated with a username" so that a user can access the results from a different terminal. (*Id.* at 12:1-5.) Lofi also discloses that the user can repeat the tests to "revise their [] results." (*Id.* at 12:3-5.) Accordingly, Lofi discloses this element because it discloses that a user will repeat the same tests discussed above with respect to elements 1[a]-1[c].

Additionally, the second instructions are provided in response to a triggering event. Specifically, Lofi discloses that a user can revise the result (i.e., score) of a previous test by entering a username and password at a terminal and repeating the test. (*Id.* at 12:1-7.) The user entering a username and password is the triggering event.

f. Element 1[e]

receiving, from the sensor, second activity data representing the second athletic movement;

As explained above with respect to elements 1[a] and 1[b], Lofi's tests are measured using various sensors. When a user repeats the tests to "revise their [] results," second activity data representing the second athletic movements will be received by the processing unit for the same reasons as explained above with respect to elements 1[a] and 1[b].

g. Element 1[f]

calculating, with the processor, based on the second activity data, a second combinatory fitness-athleticism score,

As explained above with respect to elements 1[c], Lofi discloses calculating a second combinatory fitness-athleticism score based on the second activity data. When a user repeats the tests to “revise their [] results,” a new combinatory fitness-athleticism score is calculated based on the second activity data received as part of the new test. Accordingly, Lofi discloses this element for the same reasons as explained above for element [1c].

h. Element 1[g]

wherein the first and the second combinatory fitness-athleticism scores each comprise a fitness sub-score and a separate athleticism sub-score of the user,

As noted above, Lofi teaches first and second combinatory scores that are calculated in the same manner. The combinatory scores are the result of a user completing an endurance, strength, flexibility, balance and reaction time tests. An aggregate score is presented to the user as well as individual scores for each test. (*Id.* at 11:20-24.) The scores for Lofi’s strength, flexibility, and endurance tests each correspond to the claim’s fitness sub-score while Lofi’s scores for its balance and reaction time tests corresponds to the claim’s athleticism sub-score.

i. Element 1[h]

wherein the fitness sub-score is calculated, by the processor, using one or more of an endurance fitness attribute, a flexibility fitness attribute and a strength fitness attribute of the user, and

As explained above, Lofi teaches individual fitness tests each resulting in corresponding scores for endurance, flexibility, and strength.

j. Element 1[i]

wherein the athleticism sub-score is calculated, by the processor, using one or more of a speed athleticism attribute, an agility athleticism attribute, a reaction athleticism attribute, a power athleticism attribute and a balance athleticism attribute of the user.

As explained above, Lofi teaches individual fitness tests each resulting in corresponding scores for balance and reaction.

2. Claim 5

The method of claim 1, wherein the first athletic movement comprises predefined criteria, the method further comprising: providing the first instructions to the user to perform, during a first time period, the first athletic movement.

Lofi teaches a strength test of the lower limbs on a bicycle wherein the individual is instructed to pedal as fast as possible for a short period of approximately 10 seconds while the resistance on the bicycle is increased. (*Id.* at 5:13-16.) Pedaling at an individual's highest speed represents a first athletic movement of predefined criteria, and 10 seconds represents a first time period.

In a series of fitness tests, Lofi teaches that the evaluation is carried out as follows: “measurement of abdominal strength, measurement of flexibility,

measurement of strengths of lower limbs and measurement of endurance” wherein each test has a “duration of approximately 15 minutes.” (*Id.* at 11:16-19.) The first athletic movement of predefined criteria thus corresponds to the exercises associated with the abdominal strength test (*e.g.*, contracting abdominal muscles), and 15 minutes represents a first time period.

3. Claim 6

The method of claim 1, wherein the first instructions and the second instructions include a plurality of drills configured to test a plurality of fitness attributes of the user and a plurality of athleticism attributes of the user.

As explained above for elements 1[a] and 1[d], Lofi provides instructions for a plurality of tests, such as strength, flexibility, endurance, reaction time, and balance tests. Parts of these tests include various repetitive exercises (*e.g.*, running, bicycling, repetitive movements by contraction of the abdominal muscles). (*Id.* at 1:7-10.) Thus, each test represents a drill.

4. Claim 7

The method of claim 1, wherein the first instructions and the second instructions include a predefined ordering of drills that are configured to be provided to the user during a single workout session.

As explained above with respect to elements 1[a]-1[f], a user is instructed to complete tests, and Lofi’s terminal subsequently calculates and presents to the user a first combinatory score. Lofi teaches a series of tests in a single workout session wherein the “following tests are carried out: measurement of reflexes,

measurement of the strength of upper limbs, measurement of abdominal strength, measurement of flexibility, measurement of strengths of lower limbs and measurement of endurance” wherein each stage has a “duration of approximately 15 minutes.” (*Id.* at 11:15-19.) Lofi also teaches various repetitive exercises (*e.g.*, running, bicycling, repetitive movements by contraction of the abdominal muscles) corresponding to each of these tests. (*Id.* at 1:7-10.) Thus, each fitness test represents a drill, and the order of the tests is determined prior to commencing the workout session.

VII. Ground 2: Lofi in View of Kitagawa Renders Obvious Claims 1 and 5-7

The combination of Lofi and Kitagawa renders claims 1 and 5-7 obvious. Specifically, it would have been obvious to combine Lofi’s monitoring of an individual’s athletic activity using sensors with Kitagawa’s exercises that simultaneously assess multiple physical activity attributes with a reasonable expectation of success. (Ex. 1005, ¶ 122.) Both Lofi and Kitagawa relate to systems and methods for personal fitness monitoring, generating a numerical value to help an individual understand their fitness level, and encouraging an individual to perform athletic activity to promote a healthy lifestyle. (*Id.*) Indeed, incorporating Kitagawa’s teachings into that of Lofi is simply the combination of familiar elements according to known methods to yield predictable results. (*Id.*)

1. Claim 1

a. Elements 1[pre]

A computer-implemented method comprising:

If limiting, Lofi discloses a computer-implemented method. Lofi discloses a method implemented on an apparatus that “make[s] it possible for a person to evaluate their physical fitness autonomously and reliably.” (Ex. 1002 at 2:10-12.) The method relies on a processing means in the apparatus that calculates scores based on data received from sensors. (*Id.* at 11:20.)

b. Element 1[a]

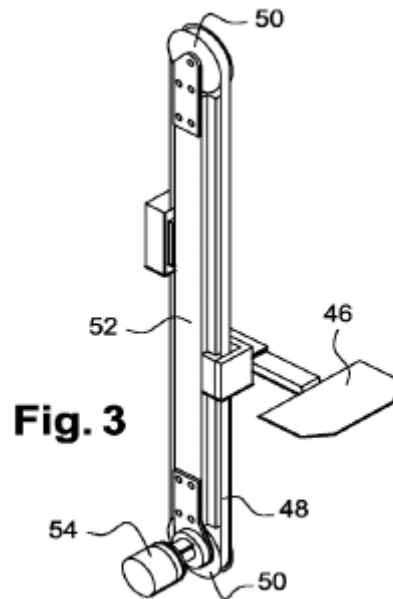
providing first instructions to a user to perform a first athletic movement;

Lofi teaches providing first instructions to a user to perform a first athletic movement in various fitness tests. In a test designed for endurance that uses sustained effort on a bicycle, a “person is asked to pedal for a period of 8 minutes and the workload is increased progressively.” (Ex. 1002 at 4:4-8.) In this example, pedaling represents a first athletic movement. (Ex. 1005, ¶ 54.)

In another exemplary test designed to test strength, “the person is asked to pedal as fast as possible for a short period of approximately 10 seconds” while the resistance on the bicycle is increased. (Ex. 1002 at 5:13-16.) Pedaling at an individual’s highest speed represents a first athletic movement. (Ex. 1005, ¶ 55.) In a different strength test, an individual wears an abdominal belt that contains one or more pressure sensors that can “measure the action of abdominal muscles”

(Ex. 1002 at 6:24-7:1.) The individual is then instructed to “contract their abdominal muscles voluntarily.” (*Id.* at 7:4-5.)

In an exemplary test designed to test flexibility, as shown in Figure 3 below, a portable pallet (46) is used and connected to a belt (48). (*Id.* at 7:20-24.) After standing on a pedestal, an individual is instructed to “bring the pallet to as low as possible, bending forwards without giving way to their legs.” (*Id.* at 8:1-3.)



(Ex. 1002 at Fig. 3)

In an exemplary test designed to test balance, a user is “required to stand on one foot, and then on the other, with closed eyes, given that the quality of balance is a function of the maintained balance time.” (*Id.* at 1:14-15.) This test measures “the average position of the center of gravity” during different phases of the test. (*Id.* at 8:8-9:2.)

In an exemplary reflex test designed to assess reaction time, a person is asked to press a button or touch a screen if they hear or see a signal. (*Id.* at 7:13-14.) The reaction test “measures the reaction times of the person [and] correspond[s] to the period between transmission of the signal and the action generated by the person in response.” (*Id.* at 7:16-18.)

c. Element 1[b]

receiving, from a sensor, first activity data representing the first athletic movement;

Lofi discloses that in order to test strength of abdominal muscles, an individual may wear an abdominal belt (42) as shown in Figure 6 below. (Ex. 1002 at 6:24-25.) The belt contains “one or more pressure sensors 44” which can “measure the action of abdominal muscles” (*Id.* at 6:24-7:1.) The belt is positioned at waist level and first transmits a baseline signal “without contraction of the abdominal muscles” (*Id.* at 7:3-4.)

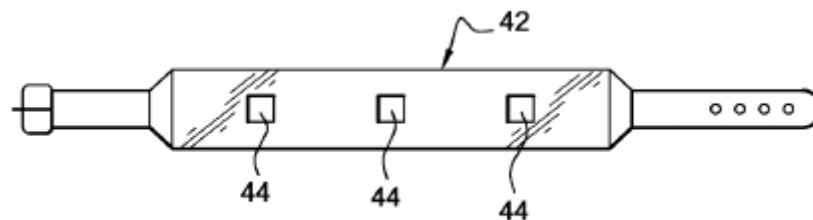
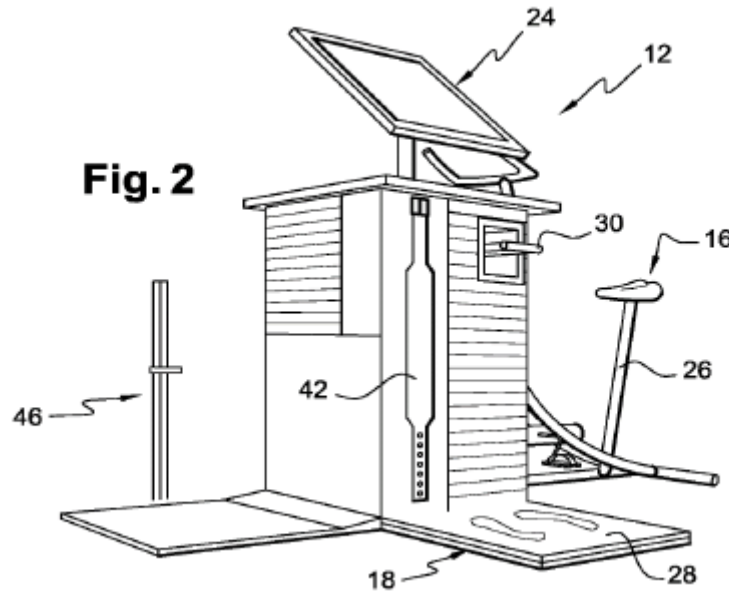


Fig. 6

(Ex. 1002 at Fig. 6.)

As explained above, the individual is instructed to contract their abdominal muscles. (*See supra* VII.1.b.) The belt subsequently “transmits a signal

proportionate to the effort exerted by the abdominal muscles on belt 42.” (Ex. 1002 at 7:5-6.) The signal is received by a processing means, such as a terminal (12) shown in Figure 2 below. (*Id.* at 7:8-9.)



(Ex. 1002 at Fig. 2.)

d. Element 1[c]

calculating with a processor, based on the first activity data, a first combinatory fitness-athleticism score;

Lofi discloses a means for processing (60) as shown in Figure 1 below. (Ex. 1002 at 10:24-25.) Lofi further teaches a terminal as a means for processing the measurements associated with a fitness test (*e.g.*, endurance, strength, balance, and flexibility) and returning the result to the user. (*Id.* at 3:17-19; Ex. 1005, ¶ 62.) Lofi’s terminal thus represents a processor. (Ex. 1005, ¶ 62.) The terminal enables collection of “different measurements” corresponding to an individual’s

performance on each test (e.g., activity data) “to facilitate the evaluation of their physical fitness autonomously and with reliability.” (Ex. 1002 at 9:18-20; Ex. 1005, ¶ 62.) The terminal also contains “for each measurement a distribution curve for different populations characterized, each at least with regard to an age range, height range and gender of persons (a curve for each different population).” (Ex. 1002. at 9:21-24.)

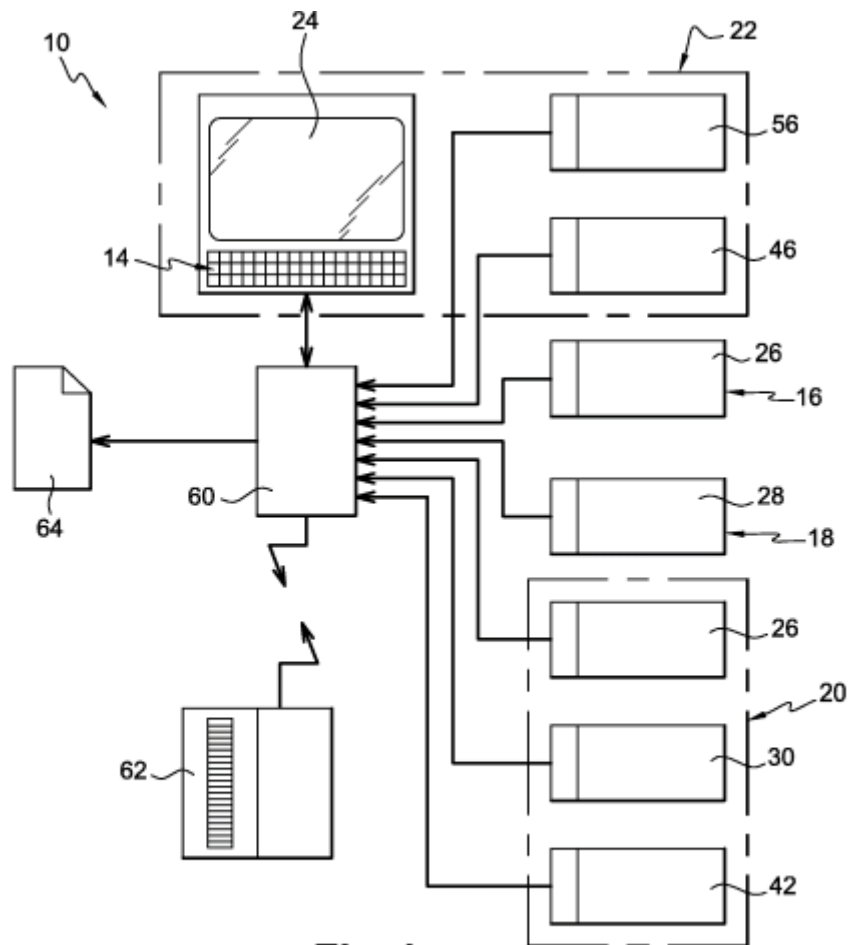


Fig. 1

(Ex. 1002 at Fig. 1.)

In order to calculate a score for each fitness test, “the means of processing determine[s] a score comparing the measured value with the distribution curve corresponding to the person’s population group.” (*Id.* at 10:7-9.) Lofi further teaches that the means of processing allocates an aggregate combined score to the person. (Ex. 1005, ¶ 63.) This aggregate score corresponding to an individual’s overall physical fitness may be equivalent to the weighted average of each fitness test score “with a coefficient 1 for the measurement of body composition, a coefficient 1 for measurement of endurance, a coefficient 1 for measurement of the muscular strength” (Ex. 1002 at 10:16-19; Ex. 1005, ¶ 63.) According to Lofi, “the processing means 60 analyse[s] the measurements and decide[s] on the scores.” (Ex. 1002 at 11:20.) The user is then presented with a display of “the overall score of physical fitness together with scores for each measure.” (*Id.* at 11:20-22.)

If Patent Owner contends that Lofi does not teach a combinatory fitness-athleticism score based on the first activity data, Kitagawa discloses this element. Kitagawa is likewise in the field of personal fitness monitoring and teaches a variety of exercise courses designed to assess various physical abilities, such as muscle strength in multiple parts of the body, flexibility, balance, and agility. (Ex. 1004 at 2:28-31.) Kitagawa discloses that each exercise course is designed such that “a user utilizes a variety of physical abilities” (*Id.* at 2:25-29.) Kitagawa

teaches that “the extent to which a user utilizes each of his/her various physical abilities is used as an index of the amount of the exercise performed” (*Id.* at 2:31-33.)

Kitagawa further describes a pulse meter as a means of a personal monitoring sensor wherein an individual measures their pulse at the beginning and end of each exercise course. (*Id.* at 8:43-47.) Kitagawa teaches that the user’s pulse data is recorded on a scorecard, which is subsequently analyzed along with other information (*e.g.*, blood pressure) to output a combinatory score. (*Id.* at 8:43-61.) Kitagawa also discloses multiple combinatory scores specific to each exercise course, reciting that “the combination of the values of the indexes for each exercise course is different from the combination of values in each of the other exercise courses” (*Id.* at 2:33-36.) As shown in Table 3 below, flexibility, balance, and agility are physical attributes measured for each course, and a user thus receives a combinatory score upon execution of each course the user is instructed to complete. (*Id.* at Table 3 (annotated red inlay); Ex. 1005, ¶ 123.)

TABLE 3

Course	Legs	Arms	Flexi- bility	Balance	Agility	Intelli- gence
Log Range	6	4	9	10	4	6
Climb of Grief	7	6	6	6	8	6
Divided Pathway	7	2	9	9	9	2
Road of Torsion	7	3	6	10	5	3
Wall of Stagnation	4	8	7	7	4	4
Cave of Bones	4	5	10	7	4	4
Stretch with Hanging Rings	4	6	10	3	5	2

Prior to the earliest priority date of the '930 patent, there were already numerous examples of sensing systems that monitored users while they instructed to perform various physical activities and subsequently provided quantitative metrics. (Ex. 1005, ¶¶ 25-35 (citing Exs. 1011 [Motorola DROID PRO XT610 Description], Ex. 1012 [Wearable Systems for Monitoring Mobility-Related Activities in Chronic Disease: A Systematic Review], Ex. 1013 [Personal Digital Exercise Trainer for Managing, Monitoring and Recording the Exercise], Ex. 1014 [Nike + iPod webpage], Ex. 1015 [Nike + iPod manual], Ex. 1016 [Mechanics and Energetics of Level Walking with Powered Ankle Exoskeletons])). A POSITA familiar with these fitness-monitoring devices and systems would have readily identified a multitude of ways in which to monitor and quantitatively report the overall physical activity of a user as well as specific sub-components. (*Id.* at ¶ 125.) Moreover, Both Lofi and Kitagawa teach methods of personal fitness monitoring. (*Id.* at ¶ 126.) Thus, it would have been obvious to a POSITA to look

to Kitagawa to incorporate simultaneous monitoring of multiple physical abilities (e.g., flexibility, balance, agility) into Lofi's fitness tests and include Kitagawa's pulse meter to achieve this goal. (*Id.* at ¶ 128.) Incorporating the simultaneous monitoring of Kitagawa into Lofi's fitness tests would yield the predictable result of generating combinatory scores for every fitness test, allowing a user to more comprehensively understand various aspects of their state of fitness. (*Id.*)

e. Element 1[d]

providing, in response to a triggering event, second instructions to the user to perform a second athletic movement;

The user entering a username and password is a triggering event. Lofi discloses that the user can repeat the tests to “revise their [] results.” (*Id.* at 12:3-5.) In response to a triggering event, Lofi discloses that second instructions are provided and a user will repeat the same tests discussed above with respect to elements 1[a]-1[c]. (*See supra* VI.1.e.) Specifically, Lofi discloses that a user can revise the result (i.e., score) of a previous test by entering a username and password at a terminal and repeating the test. (Ex. 1002 at 12:1-7.)

Alternatively, completing a fitness test serves as a “triggering event.” (Ex. 1005, ¶ 69.) As noted above, Lofi discloses providing instructions to a user to perform an athletic movement corresponding to each fitness test. (*See supra* VII.1.b.) Lofi also teaches a collection of fitness tests related to endurance, muscular strength, balance, reaction time, flexibility, and body composition. (Ex.

1002 at 2:15-19, 7:13-24.) Lofi further teaches that these tests are administered as part of a series in a single workout session. (Ex. 1005, ¶ 69.) A user completes a strength test followed by a balance test. (*Id.*, ¶ 70.) Upon completion of the first strength test, a user is subsequently instructed to perform a balance test as a second athletic movement. (Ex. 1002 at 8:25-9:2; Ex. 1005, ¶ 70.) Exemplary instructions for a balance test are described above. (*See supra* VII.1.b.)

The “following tests are carried out: measurement of reflexes, measurement of the strength of upper limbs, measurement of abdominal strength, measurement of flexibility, measurement of strengths of lower limbs and measurement of endurance,” wherein each stage has a “duration of approximately 15 minutes.” (Ex. 1002 at 11:15-19.) The completion of each 15-minute fitness test in this series serves as a triggering event upon which instructions are provided to the user to perform an athletic movement associated with the next test. (Ex. 1005, ¶ 69.) Exemplary instructions for various fitness tests are described above. (*See supra* VII.1.b.)

f. Element 1[e]

receiving, from the sensor, second activity data representing the second athletic movement;

As explained above, Lofi discloses a means of processing (*e.g.*, terminal) that receives signals from a sensor corresponding to measurements for a fitness

test. (*See supra* VII.1.d.) The collected measurements for a fitness test (*e.g.*, abdominal strength) represent activity data. (Ex. 1005, ¶ 71.)

Lofi teaches that when a user repeats the tests to “revise their [] results,” second activity data representing the second athletic movements will be received by the processing unit for the same reasons as explained above with respect to elements 1[a] and 1[b]. (*See supra* VI.1.f.)

As explained above in Section VII.1.e., Lofi teaches that a user completes a strength test followed by a balance test. A user is provided with a first set of instructions to complete the strength test (*e.g.*, to contact abdominal muscles) and corresponding activity data related to this movement is collected. (*See supra* VII.1.b – VII.1.c.) Upon completion of the strength test, a user is subsequently instructed to commence a balance test. (Ex. 1002 at 8:25-9:2.) To measure balance, Lofi discloses that “the preference is to use a statokinesimeter 56,” which is illustrated in Figure 5 below. (*Id.* at 8:8.)

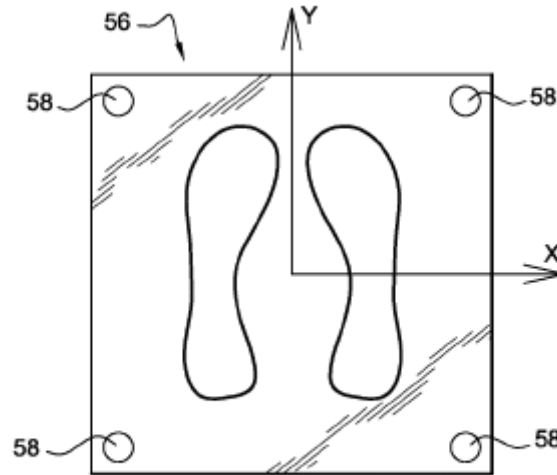


Fig. 5

(Ex. 1002 at Fig. 5.)

The scales (28) are “fitted with pressure sensors 58 distributed over the scales pan” (*Id.* at 8:8-10.) These pressure sensors “sense fluctuations” in physical effort generated due to displacement “of the center of gravity of the person positioned on the scales pan.” (*Id.* at 8:11-13.) Lofi teaches that the values measured by different sensors reflect the “distribution of reactive forces” to each foot. (*Id.* 8:13-14.) As with each of Lofi’s fitness tests, the collected measurement data is subsequently transmitted to a means for processing (*e.g.*, terminal), which receives the data for further analysis. (Ex. 1005, ¶ 71.)

g. Element 1[f]

calculating, with the processor, based on the second activity data, a second combinatorial fitness-athleticism score,

Lofi teaches that a means for processing (*e.g.*, terminal) calculates a score for each fitness test. (*See supra* VII.1.d.) As noted above, when a user repeats the tests to “revise their [] results,” Lofi teaches first and second combinatory scores that are calculated in the same manner. (*See supra* VI.1.g.) The combinatory scores are the result of a user completing an endurance, strength, flexibility, balance and reaction time tests. An aggregate score is presented to the user as well as individual scores for each test. (Ex. 1002 at 11:20-24.) The scores for Lofi’s strength, flexibility, and endurance tests each correspond to the claim’s fitness sub-score while Lofi’s scores for its balance and reaction time tests corresponds to the claim’s athleticism sub-score.

As explained above in Sections VII.1.e – VII.1.f, Lofi teaches that a user completes a strength test followed by a balance test. Upon completion of the balance test, Lofi teaches that a means for processing calculates a result score reflecting the “average position of the center of gravity” based on the “values measured by the sensors” (Ex. 1002 at 8:15-19.)

If Patent Owner contends that Lofi does not teach a second combinatory fitness-athleticism score, Kitagawa discloses this element. As explained above, (*see supra* VII.1.c), Kitagawa discloses multiple combinatory scores specific to each exercise course, reciting that “the combination of the values of the indexes for each exercise course is different from the combination of values in each of the

other exercise courses” (Ex. 1004 at 2:33-36.) Flexibility, balance, and agility are physical attributes measured for each course and a user thus receives a combinatory score upon execution of each course the user is instructed to complete. (Ex. 1005, ¶¶ 123-128.) In order to more comprehensively understand which physical attributes need improvement, it would have been obvious to a POSITA to incorporate Kitagawa’s simultaneous monitoring of multiple physical abilities (*e.g.*, flexibility, balance, agility) into Lofi and include Kitagawa’s pulse meter to achieve this goal. (*Id.*, ¶ 128.) Lofi already contemplates an individual being monitored by one or more sensors during a fitness test. (Ex. 1002 at 8:8-10; Ex. 1005, ¶ 128.) Incorporating the simultaneous monitoring of Kitagawa into Lofi’s fitness tests would yield the predictable result of generating combinatory scores for every fitness test. (Ex. 1005, ¶ 128.)

h. Element 1[g]

wherein the first and the second combinatory fitness-athleticism scores each comprise a fitness sub-score and a separate athleticism sub-score of the user,

As noted above, Lofi teaches first and second combinatory scores that are calculated in the same manner when a user repeats the tests to “revise their [] results”. (*See supra* VI.1.h.) The combinatory scores are the result of a user completing an endurance, strength, flexibility, balance and reaction time tests. An aggregate score is presented to the user as well as individual scores for each test.

(Ex. 1002 at 11:20-24.) The scores for Lofi's strength, flexibility, and endurance tests each correspond to the claim's fitness sub-score while Lofi's scores for its balance and reaction time tests corresponds to the claim's athleticism sub-score.

As explained above in Sections VII.1.e – VII.1.g wherein a user completes a series of fitness tests in one session, Lofi teaches a first combinatory score is the result of a user completing a strength test and a balance test. (Ex. 1005, ¶ 66.) An aggregate score is presented to the user as well as scores for each test. (Ex. 1002 at 11:20-24.) The score for the strength test represents a fitness sub-score while the score for the balance test corresponds to an athleticism sub-score. (Ex. 1005, ¶ 66.)

Lofi in combination with Kitagawa teaches a second combinatory score. (*See supra* VII.1.g.) For example, in Lofi's endurance test, a user is simultaneously monitored and assessed for agility by incorporating the teaching of Kitagawa. (Ex. 1005, ¶ 128.) Upon completion of the endurance test, a user thus receives a score corresponding to endurance and a score corresponding to speed or agility. (*Id.*) The score for the endurance test represents a fitness sub-score while the score for agility corresponds to an athleticism sub-score. (*Id.*)

i. Element 1[h]

wherein the fitness sub-score is calculated, by the processor, using one or more of an endurance fitness attribute, a flexibility fitness attribute and a strength fitness attribute of the user, and

As explained above, Lofi teaches individual fitness tests each resulting in corresponding scores for endurance, flexibility, and strength. (*See supra* VII.1.b – VII.1.g.)

j. Element 1[i]

wherein the athleticism sub-score is calculated, by the processor, using one or more of a speed athleticism attribute, an agility athleticism attribute, a reaction athleticism attribute, a power athleticism attribute and a balance athleticism attribute of the user.

As explained above, Lofi teaches individual fitness tests each resulting in corresponding scores for balance and reaction. (*See supra* VII.1.c – VII.1.g.)

Likewise, Kitagawa teaches exercise courses and corresponding index scores for agility. (Ex. 1004 at 2:25-40, Table 3.) As explained above, it would have been obvious to incorporate the simultaneous monitoring of physical abilities described by Kitagawa into Lofi's fitness tests to yield the predictable result of generating combinatory scores for every fitness test, thus enabling the user to comprehensively understand various aspects of their state of fitness. (*See supra* VII.1.g.) Moreover, it would have been obvious to incorporate a specific assessment of agility into Lofi's fitness tests with a corresponding score based on the user's collected activity data, which would have been a simple addition with a high likelihood of success, to provide a more comprehensive fitness evaluation for the individual. (Ex. 1005, ¶ 128.)

2. Claims 5-6

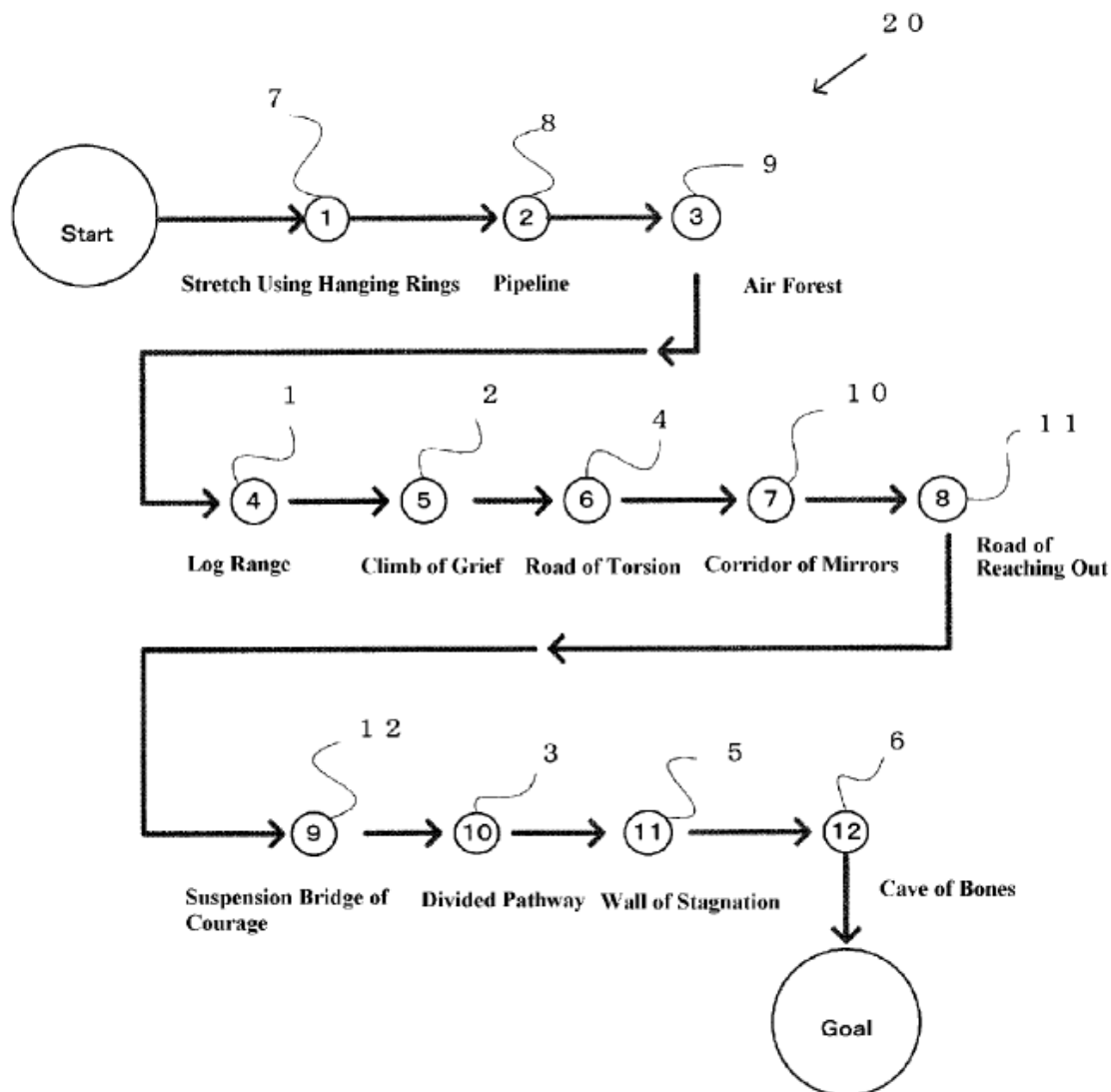
As explained above with respect to Ground 1, Lofi discloses the additional limitations of claims 5-6. Accordingly, the combination of Lofi and Kitagawa render obvious these claims for the same reasons explained above.

3. Claim 7

The method of claim 1, wherein the first instructions and the second instructions include a predefined ordering of drills that are configured to be provided to the user during a single workout session.

If Patent Owner contends that Lofi fails to disclose a predefined ordering of drills (as explained above), Kitagawa teaches this limitation. Kitagawa discloses an exemplary ordering of the exercise course as shown in Figure 1 below:

Fig. 1



(Ex. 1004 at Fig. 1.)

Kitagawa's exercise courses constitute a set of drills wherein each of them involves similar exercises that challenge the same physical abilities, such as strength, flexibility, and agility. (Ex. 1005, ¶¶ 129-130.) Incorporating Kitagawa's teaching of a predefined ordering of exercises that repeatedly challenge the same

physical abilities into Lofi's fitness tests for endurance, strength, flexibility, and balance is a simple substitution. (*Id.*)

VIII. Ground 3: Maeueller in View of Kitagawa Renders Obvious Claims 1, 5-7, and 12

The combination of Maeueller and Kitagawa renders claims 1, 5, and 7 obvious. Specifically, it would have been obvious to combine Maeueller's monitoring of an individual's athletic activity using sensors with Kitagawa's exercises that simultaneously assess multiple physical activity attributes with a reasonable expectation of success. Both Kitagawa and Maeueller relate to systems and methods for personal fitness monitoring, generating a numerical value to help an individual understand their fitness level, and encouraging an individual to perform athletic activity to promote a healthy lifestyle. Indeed, substituting Kitagawa's teachings into that of Maeueller is simply the combination of familiar elements according to known methods to yield predictable results.

1. Claim 1

a. Element 1[pre]

A computer-implemented method comprising:

If limiting, both Maeueller discloses a "fitness test system for determining a fitness test result that is indicative of a user's physical fitness." (Ex. 1003 at 2:5-6.) The fitness test system includes a computer-based method that implements a

“collection of fitness tests comprises fitness tests related to a plurality of components of physical fitness.” (*Id.* at [0007], [0010].)

b. Element 1[a]

providing first instructions to a user to perform a first athletic movement;

Maeueler teaches providing first instructions to a user to perform a first athletic movement in a fitness test. According to Maeueler, a “user receives instructions on how to perform the [fitness] test [using], *e.g.*, via visuals and sound” (Ex. 1003. at [0023].) In order to commence a fitness test, “the user runs a computer program implemented by the handheld computing device.” (*Id.* at [0029].) The computing device “stores instructions associated with the tests and presents the instructions to the user to orchestrate the tests.” (*Id.*) These instructions may include “how to do warm up exercise(s), which tests are to be performed as well as how to perform the tests.” (*Id.*)

To evaluate endurance, for example, the fitness test according to Maeueler is “performed by instructing the user to find an area suitable for running 12 minutes. When this is done, the computing module instructs the user to start running.” (*Id.* at [0032].)

To evaluate strength, Maeueler teaches that this attribute is tested “by counting the number of push-ups that can be performed according to a prescribed rhythm.” (*Id.* at [0038].) To initiate the test, the user positions their hands on an

exercise mat and with the “use of audio or visual feedback, the user can be instructed as to the rhythm of the push-ups.” (*Id.*)

c. Element 1[b]

receiving, from a sensor, first activity data representing the first athletic movement;

Maeueller teaches a peripheral device containing one or more sensors to collect activity data about an individual during a fitness test. (Ex. 1003 at [0047]-[0048].) A peripheral device is an exercise mat “which contains one or more sensors.” (*Id.* at [0013].) Exemplary sensors include pressure or proximity sensors in the exercise mat. (*Id.* at [0037].) A pressure sensor or proximity sensor is used to count the number or repetitions of an exercise (*e.g.*, curl-ups). (*Id.* at [0039].) Maeueller also teaches that a pressure sensor collects data related to movement, such as when “a foot is lifted and put down again” (*Id.* at [0040].)

Maeueller discloses a peripheral device is a “distance detecting device” worn between the user’s wrists or between their hand and foot as shown in Figure 4 below that contains an oximeter sensor, which collects data related to the user’s heart rate. (*Id.* at [0034], [0048].)

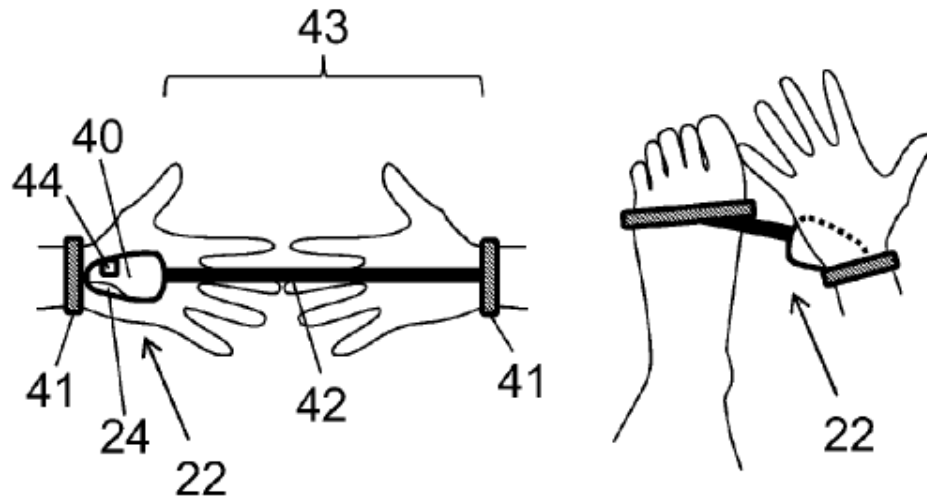


FIG. 4

(Ex. 1003 at Fig. 4)

Maeueller's computing module receives activity data corresponding to the user's movement from the peripheral device. Maeueller discloses that a "computing module is programmed for automatic coordination of and interaction with peripheral devices to determine the input parameters and calculate the fitness test result." (*Id.* at [0011].) Maeueller teaches that "[b]y ensuring that data is collected automatically and that the collected data is automatically used by the computing module, it can be ensured that data is registered correctly and that the result is calculated correctly." (*Id.*) The computing module receives data from the pressure sensor about when a leg is lifted and put down again. (*Id.* at [0040].) Moreover, based on "analysis of the received sensor signals," the computing module is "programmed to check the correctness of the performed movement, as

well as to give instructions on how to perform a given test in the event it is detected that the user's movements are incorrect.” (*Id.* at [0050].)

d. Element 1[c]

calculating with a processor, based on the first activity data, a first combinatorial fitness-athleticism score;

Maeueller teaches a computing module that calculates a fitness test result based on collected activity data. The computing module is “programmed for upon selection of a fitness test to determine the group of input parameters associated with the fitness tests and based on the determined input parameters to calculate and/or present a fitness test result indicative of a user's fitness related to the associated component” (Ex. 1003 at Abstract.) An exemplary computing module is a handheld computing device. (*Id.* at [0017].) A computer program product is implemented onto a “handheld computing device, *e.g.* in the form of a mobile or cellular phone” to create the computing module functionality. (*Id.* at [0020].) Maeueller teaches that “[a] single processor or other unit” fulfills the computing module functions recited in the claims. (*Id.* at [0053].) Maeueller's computing module is thus a processor.

As noted above, Maeueller's computing module receives activity data corresponding to the user's movement from the peripheral device. (*See supra* VIII.1.d.) Maeueller further teaches that “the collected data is automatically used

by the computing module,” thereby ensuring that “the result is calculated correctly.” (Ex. 1003 at [0011].)

Maeueller teaches a combinatory score. The specification discloses that “the user may also select one or more components of physical fitness and the computing module handles the selection of suitable, representative fitness tests associated to each selected component.” (*Id.* at [0023].) According to Maeueller, “the execution of the test is monitored by the system through the use of sensors” and “upon execution of the test, the user is presented with the test result.” (*Id.*) The fitness tests relate to various components of physical fitness, including cardiovascular endurance, muscle strength, flexibility, balance, and body composition. (*Id.* at [0027].) Maeueller teaches that “[t]he result of a fitness test may be represented by a fitness index in the form of a numerical score value, such as a value ranging from 0 to 5 for each of the components of physical fitness, as well as a combined (average or weighted average) aggregate fitness index.” (*Id.* at [0051].) Maeueller further discloses that the fitness test result is displayed graphically as shown in Figure 5 below wherein each sub-score pertaining to an individual test (cardiovascular endurance 50, muscle strength 51, flexibility 52, balance 53, body composition 54) as well as an aggregate fitness index 55 may be visualized.

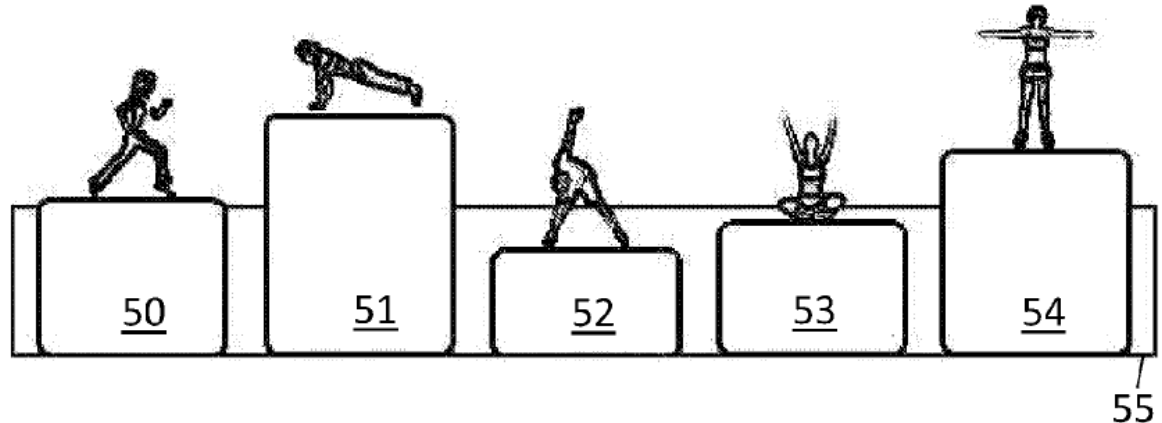


FIG. 5

(Ex. 1003 at Fig. 5)

Thus, using Maeueler's computing module, a user can select two components of physical fitness to assess (*e.g.*, flexibility and balance), perform the exercises associated with each test while being monitored with sensors, and ultimately receive a numerical fitness test result reflecting a combination of the flexibility and balance attributes being evaluated. (Ex. 1005, ¶ 94.)

e. Element 1[d]

providing, in response to a triggering event, second instructions to the user to perform a second athletic movement;

As noted above, Maeueler discloses providing instructions to a user to perform an athletic movement. (*See supra* VIII.1.b.) Maeueler also teaches a "collection of fitness tests" comprises tests related to the following components of physical fitness: cardiovascular endurance, muscle strength, flexibility, balance, and body composition. (Ex. 1003 at [0010].) A user receives instructions on how

to perform each fitness test using via visuals and/or sound. (*Id.* at [0023].)

Maeueller discloses that “[b]y testing all five components, a comprehensive test which reflects the level of physical fitness of the user can be provided.” (*Id.* at [0010].) In order to commence each fitness test, “the user runs a computer program implemented by the handheld computing device.” (*Id.* at [0029].) The computing device “stores instructions associated with the tests and presents the instructions to the user to orchestrate the tests.” (*Id.*) The completion of the first test in a series of five total fitness tests serves as a triggering event, prompting the computing device to provide the user with a second set of instructions pertaining to the second fitness test. (Ex. 1005, ¶ 100.)

Maeueller also teaches that based on “analysis of the received sensor signals, the system may further be programmed to check the correctness of the performed movement, as well as to give instructions on how to perform a given test in the event it is detected that the user’s movements are incorrect.” (Ex. 1003 at [0050].) The evaluation of the incorrectness of a user’s form while performing a specific test also serves as a triggering event to issue a second set of instruction to the user. (Ex. 1005, ¶ 102.)

Additionally, Maeueller discloses that the fitness test is repeated “so that the user can monitor the progress over time or see a trend.” (Ex. 1003 at [0024].) A user choosing to repeat the fitness test is also a triggering event.

f. Element 1[e]

receiving, from the sensor, second activity data representing the second athletic movement;

As noted above, Maeueller teaches a computing module receiving activity data from a peripheral device containing one or more sensors wherein the activity data corresponds to the user's movement. (*See supra* VIII.1.c.) The specification discloses that the user selects "one or more components of physical fitness and the computing module handles the selection of suitable, representative fitness tests associated to each selected component." (Ex. 1003. at [0023].) According to Maeueller, "the execution of the test is monitored by the system through the use of sensors" and "upon execution of the test, the user is presented with the test result." (*Id.*) Thus, a user can select two components of physical fitness to assess and perform the exercises associated with each test while being monitored with sensors. (Ex. 1005, ¶ 103.) Maeueller's computing module receives both the collected first activity data corresponding to the first test (*e.g.*, flexibility) as well as second activity data corresponding to the second test (*e.g.*, balance). (*Id.*)

Additionally, Maeueller discloses that the fitness test is repeated "so that the user can monitor the progress over time or see a trend." (Ex. 1003 at [0024].) When a user repeats the tests described above with respect to Elements 1[a]-1[d], second activity data representing the second athletic movement (performance of the tests the second time) is received.

g. Element 1[f]

calculating, with the processor, based on the second activity data, a second combinatory fitness-athleticism score,

As noted above, Maeueller teaches a computing module calculating a combinatory score based on the received activity data. (*See supra* VIII.1.d.) A user is instructed to complete two tests (*e.g.*, related to flexibility and balance) and Maeueller's computing module subsequently calculates and presents to the user a first combinatory score. (Ex. 1005, ¶ 94.) A user further receives instructions for another fitness test. (*See supra* VIII.1.d.) According to Maeueller, the fitness tests are associated with a health-related component of physical fitness (*e.g.*, endurance, strength, flexibility, balance, and body composition), or a performance-related component of physical fitness (*e.g.*, speed). (Ex. 1003 at [0004], [0008].) Maeueller discloses that one or more peripheral devices each having one or more sensors are used at a time during a fitness test. (*Id.* at [0013], [0024].) Indeed, "typically two, three or more peripheral devices" are used at a time during a fitness test. (*Id.* at [0024].) Thus, in an exemplary endurance test described by Maeueller wherein a user is instructed to run for 12 minutes, the user is monitored by one or more peripheral devices collect heart rate data and speed data. (Ex. 1005, ¶ 105.) Upon completion of the test, Maeueller's computing module calculates a fitness

index numerical score that is a combination of the endurance and speed attributes being assessed. (*Id.*)

Additionally, Maeueller discloses that the fitness test is repeated “so that the user can monitor the progress over time or see a trend.” (*Id.* at [0024].) When a user repeats the tests described above with respect to Elements 1[a]-1[d], a second combinatory fitness-athleticism score is calculated.

If Patent Owner contends that Maeueller does not teach a second combinatory fitness-athleticism score, Kitagawa discloses this element. Kitagawa is likewise in the field of personal fitness monitoring and teaches a variety of exercise courses designed to assess various physical abilities, such as muscle strength in multiple parts of the body, flexibility, balance, and agility. (Ex. 1004 at 2:29-31.) According to Kitagawa, the exercise courses are designed such that “a user utilizes a variety of physical abilities” (*Id.* at 2:25-29.) Kitagawa teaches that “the extent to which a user utilizes each of his/her various physical abilities is used as an index of the amount of the exercise performed” (*Id.* at 2:31-33.) Kitagawa also discloses multiple combinatory scores specific to each exercise course, reciting that “the combination of the values of the indexes for each exercise course is different from the combination of values in each of the other exercise courses.” (*Id.* at 2:33-36.) As shown in Table 3 below, flexibility, balance, and agility are physical attributes measured for each course and a user thus receives a

combinatory score upon execution of each course the user is instructed to complete. (*Id.* at Table 3 (annotated red inlay); Ex. 1005, ¶¶ 132-136.)

TABLE 3

Course	Legs	Arms	Flexi- bility	Balance	Agility	Intelli- gence
Log Range	6	4	9	10	4	6
Climb of Grief	7	6	6	6	8	6
Divided Pathway	7	2	9	9	9	2
Road of Torsion	7	3	6	10	5	3
Wall of Stagnation	4	8	7	7	4	4
Cave of Bones	4	5	10	7	4	4
Stretch with Hanging Rings	4	6	10	3	5	2

Both Maeueller and Kitagawa teach methods of personal fitness monitoring and acknowledge the importance role of physical fitness in adopting a healthy lifestyle. (Ex. 1003 at [0002]; Ex. 1004 at 2:13-19.) Both disclosures recognize the same motivational problem associated with fitness, seek to encourage an individual to exercise, and provide a numerical assessment of the individual's fitness level to help them improve. (Ex. 1003 at [0003]; Ex. 1004 at 2:13-24.) Maeueller teaches that “[b]y testing a plurality of different components of physical fitness a multi-dimensional test result may be obtained which assists the user in identifying components which are at satisfactory level as well as components which need improvement.” (Ex. 1003 at [0010].) In order to more comprehensively understand which components need improvement, it would have been obvious to a POSITA to look to Kitagawa and incorporate Kitagawa's

simultaneous monitoring of multiple physical abilities (*e.g.*, flexibility, balance, agility) into Maeueller. (Ex. 1005, ¶ 136.) As noted above, Maeueller already contemplates an individual being monitored by one or more peripheral devices each having one or more sensors during a fitness test. (Ex. 1003 at [0013], [0024].) Incorporating the simultaneous monitoring of Kitagawa into Maeueller's fitness tests would yield the predictable result of generating combinatory scores for every fitness test.

h. Element 1[g]

wherein the first and the second combinatory fitness-athleticism scores each comprise a fitness sub-score and a separate athleticism sub-score of the user,

As noted above, Maeueller teaches a first combinatory score. (*See supra* VIII.1.d.) Maeueller discloses that a first combinatory score is the result of a user completing a flexibility test and a balance test. (Ex. 1005, ¶ 94.) A user receives an index score for each test, which represent separate sub-scores. (Ex. 1003 at [0051]; Ex. 1005, ¶ 94.) The index score for the flexibility test represents a fitness sub-score while the index score for the balance test corresponds to an athleticism sub-score. (Ex. 1005, ¶ 94.)

Maeueller alone and in combination with Kitagawa teach a second combinatory score. (*See supra* VIII.1.f.) For example, in Maeueller's endurance test, a user is simultaneously monitored and assessed for speed or agility. (Ex.

1005, ¶ 136.) Upon completion of the endurance test, a user thus receives an index score corresponding to endurance and an index score corresponding to speed or agility. (*Id.*) The index score for the endurance test represents a fitness sub-score while the index score for the speed or agility test corresponds to an athleticism sub-score. (*Id.*)

i. Element 1[h]

wherein the fitness sub-score is calculated, by the processor, using one or more of an endurance fitness attribute, a flexibility fitness attribute and a strength fitness attribute of the user, and

As explained below, Maeueler teaches fitness tests and corresponding index scores for endurance, flexibility, and strength.

To evaluate endurance, for example, the fitness test according to Maeueler is be “performed by instructing the user to find an area suitable for running 12 minutes. When this is done, the computing module instructs the user to start running.” (Ex. 1003 at [0032].)

To evaluate flexibility, for example, the fitness test according to Maeueler is conducted “by averaging the test result of two flexibility tests: a sit-and-reach test and a shoulder flexibility test.” (*Id.* at [0041].) The sit-and-reach test measures lower body flexibility and “involves sitting on the floor with legs out straight ahead and toes pointing up.” (*Id.* at [0042].) The peripheral device is attached to the user’s wrist and a foot and measures the distance between the toes and finger tips

when the user reaches forward. (*Id.*) Maeueller also teaches a shoulder flexibility to measure upper body flexibility “by putting both hands behind one’s back, one over the shoulder and one under the shoulder and reaching towards each other.” (*Id.* at [0043].) The peripheral device is attached between the user’s wrists and “the input to the test is the minimum distance between the finger tips reached during the test.” (*Id.*)

To evaluate strength, Maeueller teaches that this attribute is tested “by counting the number of push-ups that can be performed according to a prescribed rhythm.” (*Id.* at [0038].) To initiate the test, the user positions their hands on an exercise mat and with the “use of audio or visual feedback, the user can be instructed as to the rhythm of the push-ups.” (*Id.*)

j. Element 1[i]

wherein the athleticism sub-score is calculated, by the processor, using one or more of a speed athleticism attribute, an agility athleticism attribute, a reaction athleticism attribute, a power athleticism attribute and a balance athleticism attribute of the user.

Maeueller teaches exercise tests and corresponding index scores for speed and balance. (Ex. 1003 at [0008], [0044].) To evaluate balance, for example, the fitness test according to Maeueller involves “standing on the ball of one foot while the hands are kept on the hips and the foot of the non-supporting leg touches the knee of the supporting leg.” (*Id.* at [0044].) Maeueller discloses that the input for this test is “the time during which this position is maintained statically or without

much movement,” which may be determined through pressure sensors in an exercise mat. (*Id.*) Similarly, Kitagawa teaches exercise courses and corresponding index scores for agility. (Ex. 1004 at 2:25-40, Table 3.) As explained above, it would have been obvious to incorporate the simultaneous monitoring of physical abilities described by Kitagawa into Maeueller’s fitness tests to yield the predictable result of generating combinatory scores for every fitness test. (*See supra* VIII.1.f.) Moreover, it would have been obvious to incorporate an assessment of agility into Maeueller’s fitness tests with a corresponding index score based on the user’s collected activity data, which would have been a simple addition with a high likelihood of success, to provide a more comprehensive fitness evaluation for the individual. (Ex. 1005, ¶¶ 132-136.)

2. Claim 5

The method of claim 1, wherein the first athletic movement comprises predefined criteria, the method further comprising: providing the first instructions to the user to perform, during a first time period, the first athletic movement.

Maeueller teaches that to evaluate endurance, for example, the fitness test is a “run test.” (Ex. 1003 at [0031].) According to Maeueller, an exemplary run is initiated by “instructing the user to find an area suitable for running 12 minutes. When this is done, the computing module instructs the user to start running.” (*Id.* at [0032].) The first athletic movement thus includes the predefined criteria of running and 12 minutes constitutes a first time period. (Ex. 1005, ¶ 109.)

3. Claim 6

The method of claim 1, wherein the first instructions and the second instructions include a plurality of drills configured to test a plurality of fitness attributes of the user and a plurality of athleticism attributes of the user.

As explained above for elements 1[a] and 1[d], Maeueller provides instructions for a plurality of drills, such as strength, flexibility, endurance, and balance drills.

4. Claim 7

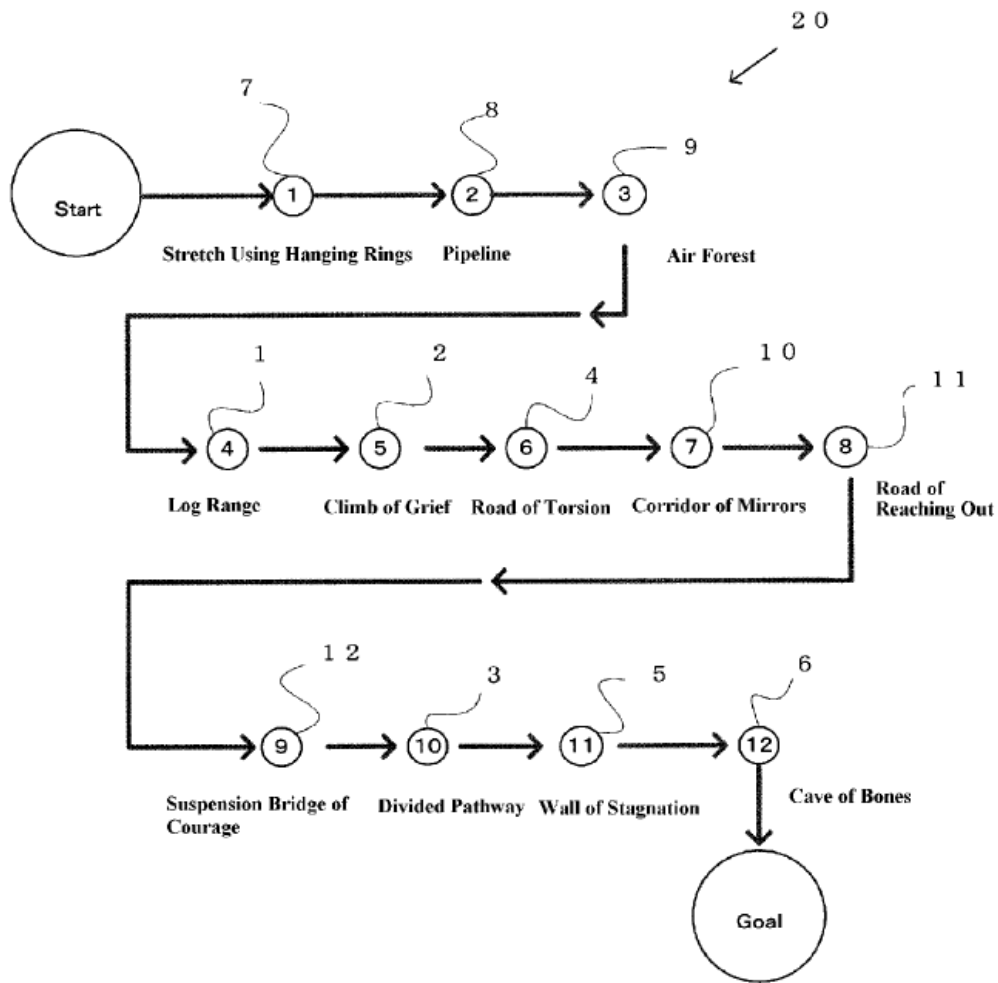
The method of claim 1, wherein the first instructions and the second instructions include a predefined ordering of drills that are configured to be provided to the user during a single workout session.

As explained above, a user is instructed to complete two tests (e.g., related to flexibility and balance) and Maeueller's computing module subsequently calculates and presents to the user a first combinatory score. (*See supra* VIII.1.b-VIII.1.d.) A user further receives instructions for additional fitness tests in the same workout session (e.g., endurance and strength). (*See supra* VIII.1.e.) Maeueller teaches various exercises corresponding to each of these tests. (*See supra* VIII.1.i – VIII.1.j.) According to Maeueller, the fitness tests are performed in the following order: “cardiovascular endurance, muscle strength, flexibility, balance and body composition.” (Ex. 1003 at [0030].) Maeueller teaches that the order of tests depends on which test “require that the user is not too tired,” which “may be performed early in the succession of tests” (*Id.*) Additionally, “the balance

test may be performed first, then the muscle strength tests, then flexibility tests and next the endurance test.” (*Id.*) Each fitness test represents a drill, and the order of the tests is determined prior to commencing the workout session. (Ex. 1005, ¶ 113.)

If Patent Owner contends that Maeucler fails to disclose a predefined ordering of drills, Kitagawa teaches this limitation. Kitagawa discloses an exemplary ordering of the exercise course as shown in Figure 1 below:

Fig. 1



(Ex. 1004 at Fig. 1.)

Kitagawa's exercise courses constitute a set of drills wherein each of them involves similar exercises that challenge the same physical abilities, such as strength, flexibility, and agility. (Ex. 1005, ¶ 137.) Incorporating Kitagawa's teaching of a predefined ordering of exercises that repeatedly challenge the same physical abilities into Maeueller's fitness tests for endurance, strength, flexibility, and balance is a simple substitution. (*Id.* at ¶ 138.)

5. Claim 12

The method of claim 1, wherein the sensor comprises an accelerometer.

Maeueller discloses the additional limitation of this claim. Specifically, Maeueller discloses that a user's "[r]un or walk distance may be measured by use of an accelerometer or other motion detection devices" (Ex. 1003 at [0049].)

IX. MANDATORY NOTICES

A. Real Party-in-Interest

Pursuant to 37 C.F.R. § 42.8(b)(1), the real parties-in-interest in this proceeding are lululemon athletica inc., lululemon athletica canada inc., lululemon usa inc., and Curiouser Products, Inc. Only Petitioner has funded this Petition and has full and exclusive control over this proceeding.

B. Related Matters

Pursuant to 37 C.F.R. § 42.8(b)(2), Petitioner identifies the following related matter: *Nike, Inc. v. lululemon usa inc., et al.*, S.D.N.Y. Case No. 1:22-cv-00082-RA-OTW. Patent Owner is asserting the '930 patent against Petitioner in that case.

Pursuant to 37 C.F.R. § 42.104(a), Petitioner certifies that the '930 patent is available for *inter partes* review. Petitioner also certifies that it is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in this Petition.

C. Lead and Back-Up Counsel and Service Information

Pursuant to 37 C.F.R. § 42.8(b)(3), Petitioner identifies the following counsel (and a power of attorney accompanies this Petition).

Lead Counsel for Petitioner	Backup Counsel for Petitioner
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Pursuant to 37 C.F.R. § 42.8(b)(4), service information for lead and back-up counsel is provided above. Petitioner consents to electronic service by email to lululemon-Nike-IPR@mofo.com.

The USPTO is authorized to charge any required fees, including the fee as set forth in 37 C.F.R. § 42.15(a) and any excess claim fees, to Deposit Account No. 03-1952 referencing Docket No. 57931-00000.09.

X. CONCLUSION

Because there is a reasonable likelihood that lululemon will prevail on at least one asserted ground with respect to at least one claim, lululemon requests that the Board institute *inter partes* review of claims 1, 5-7, and 12 of the '930 patent.

Dated: January 4, 2023

Respectfully submitted,

/s/ Diek O. Van Nort

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Certification of Word Count (37 C.F.R. §42.24)

I hereby certify that this Petition for *Inter Partes* Review has 12,320 words (as counted by the “Word Count” feature of the Microsoft Word™ word-processing system), exclusive of “a table of contents, a table of authorities, mandatory notices under §42.8, a certificate of service or word count, or appendix of exhibits or claim listing.”

Dated: January 4, 2023

By: /s/ Diek O. Van Nort

Diek O. Van Nort

Certificate of Service (37 C.F.R. §42.6(e)(4) and 42.205(a))

I hereby certify that the attached Petition for *Inter Partes* Review and supporting materials were served as of the below date by UPS, on the Patent Owner at the correspondence address indicated for U.S. Patent No. 10,188,930.

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Dated: January 4, 2023

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