

26(e) based on information developed in the course of discovery, additional factual investigation, in view of the Court's claim construction rulings, or as other circumstances may require.

This disclosure is made solely for the purpose of this action.

OF COUNSEL:

David R. Wright
Alexis K. Juergens
MASCHOFF BRENNAN GILMORE ISRAELSEN &
WRIGHT PLLC
111 South Main Street, Suite 600
Salt Lake City, Utah 84111
(801) 297-1850

Sterling A. Brennan
MASCHOFF BRENNAN GILMORE ISRAELSEN &
WRIGHT PLLC
100 Spectrum Center Drive, Suite 1200
Irvine, California 92618
(949) 202-1900

Kirk R. Harris
MASCHOFF BRENNAN GILMORE ISRAELSEN &
WRIGHT PLLC
1389 Center Drive, Suite 300
Part City, Utah 84098
(435) 252-1360

Dated: August 6, 2021

/s/ Christine D. Haynes

Frederick L. Cottrell, III (#2555)
Christine D. Haynes (#4697)
Richards, Layton & Finger, P.A.
920 N. King Street
Wilmington, DE 19801
(302) 651-7700
cottrell@rlf.com
haynes@rlf.com

*Attorneys for Plaintiff ICON Health &
Fitness, Inc.*

CERTIFICATE OF SERVICE

I hereby certify that on August 6, 2021, true and correct copies of the foregoing document were served, via e-mail, on the following:

Michael J. Flynn
Andrew M. Moshos
Morris, Nichols, Arsht & Tunnel LLP
1201 N. Market Street
P.O. Box 1347
Wilmington, DE 19801

Steven N. Feldman
Stephen D. O'Donohue
LATHAM & WATKINS LLP
1271 Avenue of the Americas
New York, NY 10020

Lawrence J. Gotts
Gabriel K. Bell
LATHAM & WATKINS LLP
555 Eleventh Street, NW
Suite 1000
Washington, D.C. 20004-1304

William J. Trach
LATHAM & WATKINS LLP
200 Clarendon Street
Boston, MA 02116

Gabriel S. Gross
Ben Alred
LATHAM & WATKINS LLP
140 Scott Drive
Menlo Park, CA 94025

Marc N. Zubick
Karen D. Klass
LATHAM & WATKINS LLP
300 North Wabash Avenue, Suite 2800
Chicago, IL 26048

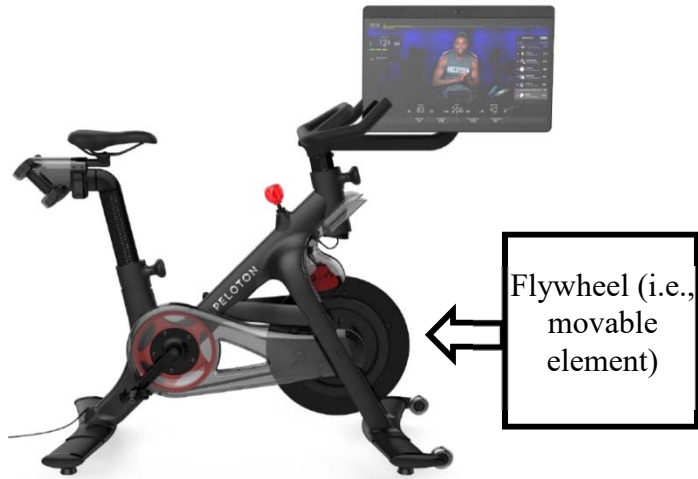
David F. Kowalski
Patrick C. Justman
LATHAM & WATKINS LLP
12670 High Bluff Drive
San Diego, CA 92130

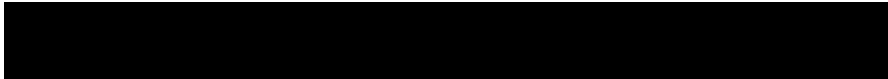
/s/Christine D. Haynes

Christine D. Haynes (#4697)

haynes@rlf.com



<u>U.S. Patent No. 7,166,062</u>	
Claim 1	Peloton Bike+
An exercise device configured to enable the interaction of a user, the exercise device comprising:	To the extent the preamble is limiting, Peloton's Bike+ is an exercise device configured to enable the interaction of a user through a touch screen and through the utilization of the resistance knob.
(a) An exercise mechanism comprising a movable element for movement in performance of exercise by a user, the exercise mechanism having one or more operating parameters;	The Bike+ is an exercise mechanism that comprises a moveable element, for example a flywheel, that moves in the performance of an exercise by the user, for example pedaling the Bike+.  (PELOTON_ICON2_000223) The Bike+ has one or more operating parameters, for example, cadence, which is measured in revolutions per minute ("RPM") and is measured at the flywheel by the hall effect sensor and resistance, measured as a percentage.



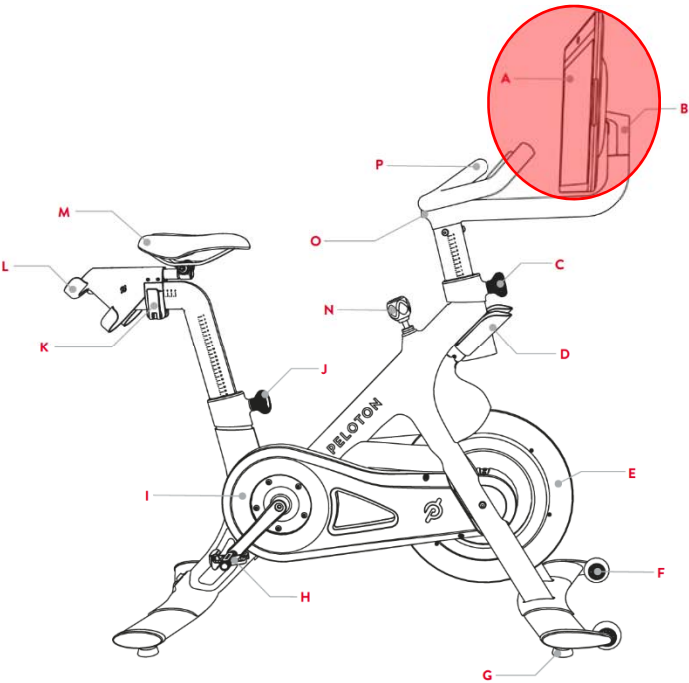
Each Bike is equipped with hall effect sensors for measuring flywheel rotational speed (to capture cadence) and resistance. The sensors reference the Output values on the sensor control board and communicate these values to the Peloton HD touchscreen multiple times per second during a ride.

(<https://support.onepeloton.com/hc/en-us/articles/208776926-How-The-Peloton-Bike-Calculates-Power-Output-Watts->)

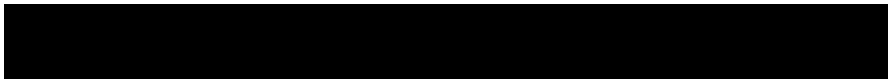
(b) Interface means, communicating with the exercise mechanism, for gathering a first signal from the user;

The Bike+ includes, for example, a touch screen interface means.

- A TOUCHSCREEN
- B SWIVEL
- C HANDLEBAR HEIGHT ADJUSTMENT KNOB
- D WATER BOTTLE HOLDER
- E FLYWHEEL
- F WHEELS
- G FEET
- H PEDALS
- I BELT GUARD
- J SEAT HEIGHT ADJUSTMENT KNOB
- K SEAT SLIDER LATCH
- L WEIGHT HOLDERS
- M SADDLE
- N RESISTANCE KNOB/EMERGENCY BRAKE
- O AUDIO JACK
- P HANDLEBARS

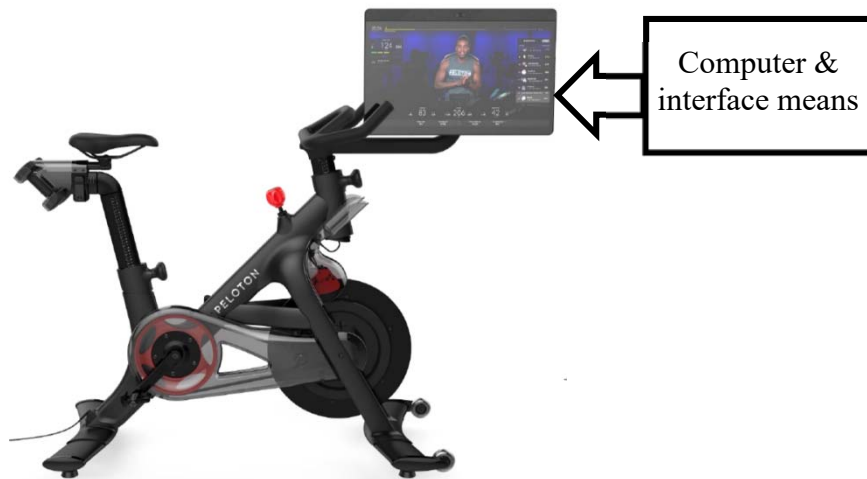


Peloton Bike+ Manual, p. 10–11 (PELOTON_ICON2_007903)



	The touch screen user interface communicates with the exercise mechanism through the embedded microprocessor (i.e., 2.5 GHz Qualcomm QCS605 Processor) within the Bike+. <u>PELOTON BIKE+ TECHNOLOGY</u> Touchscreen: 23.8" Full HD 1080p PCAP Multitouch w/reduced-reflective coating & anti-smudge coating. Hardware: 2.5 GHz Qualcomm QCS605 Processor / 4 GB RAM / 3.5 mm TRRS headphone and MIC connector (located on the handlebar). Sound: Front-Facing Stereo Speakers, 2.2 Channel w/rear-facing woofers. Camera: 8-megapixel front-facing camera with privacy slider. Connections: WiFi 802.11 a/b/g/n/ac - 2.4GHz & 5GHz / ANT+ wireless / Bluetooth 5.0 / 100 Mbps - USB-C to Ethernet Adapter ONLY (not included) / Apple Gymkit. Power Requirements: 100 V to 240 V; 50 Hz to 60 Hz; 3.25 A Max. https://support.onepeloton.com/hc/en-us/articles/360048724271-Peloton-Bike-Dimensions The touch screen user interface gathers, for example, a first signal from the user, the first signal being generated in response to the user selecting an on-demand class. “Once a user selects an on-demand class and before the class starts, the Bike+ requests the class’s information including Target Metrics (i.e., including the time stamps and suggested ranges for speed and resistance) through an Application Programming Interface (API).” (Vivori Declaration dated November 23, 2020 (“Vivori Decl.”), ¶ 6)
(c) Communicating means, communicating with the interface means, for receiving a packetized second signal	The Bike+ includes, for example, a touch screen user interface means, and a computer equipped with a network interface (i.e., Wi-Fi) for receiving packetized signals from the remote servers. This computer’s transmitter and receiver is the communicating means.

from a remote source over a network, the packetized second signal including one or more packetized control signals; and

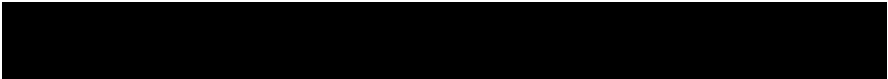


(PELOTON_ICON2_000223)

For example, once a user selects an on-demand class, a first signal is sent to a remote server and then in response, the remote server sends a packetized second signal over an internet network:

“Once a user selects an on-demand class and before the class starts, the Bike+ requests the class’s information including Target Metrics (i.e., including the time stamps and suggested ranges for speed and resistance) through an Application Programming Interface (API).”

(Vivori Decl., ¶ 6)



This second signal is packetized because it is sent over the internet. More specifically, the second packetized signal is being sent using a TCP/IP protocol, which by definition, is a packetized protocol. An example of these is set forth below:

```
Frame 1: 143 bytes on wire (1144 bits), 143 bytes captured (1144 bits) on interface \Device\NPF_{B874C064-7DCE-4795-836C-8CDEA9EE28B7}, id 0
Ethernet II, Src: b6:69:21:6c:03:b8 (b6:69:21:6c:03:b8), Dst: IPv4mcast_7f:ff:fa (01:00:5e:7f:ff:fa)
Internet Protocol Version 4, Src: 192.168.137.1, Dst: 239.255.255.250
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
  > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
    Total Length: 129
    Identification: 0x9332 (37682)
  > Flags: 0x0000
    Fragment offset: 0
    Time to live: 4
    Protocol: UDP (17)
    Header checksum: 0xe995 [validation disabled]
    [Header checksum status: Unverified]
    Source: 192.168.137.1
    Destination: 239.255.255.250
  User Datagram Protocol, Src Port: 50724, Dst Port: 1900
  Simple Service Discovery Protocol
```

(Easttom Declaration, dated December 14, 2020 (“Easttom II Decl.”), ¶ 30; *see also* Easttom Declaration, dated Oct. 15, 2020 (“Easttom I Decl.”), ¶¶ 86–101.)

In order to receive this second packetized signal, the communicating means communicates with the interface means for receiving the packetized second signal from the remote server.

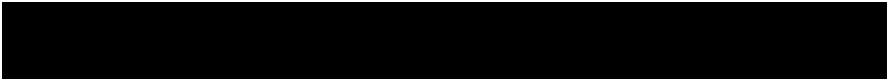
The packetized second signal takes the form of JSON information. This packetized JSON information includes the desired resistance for the next portion of the ride along with the timestamp as to when that resistance will be implemented using auto-follow:

When a user selects a class and before the class video starts to play, the Peloton Bike+ requests class information from Peloton via an Application Programming Interface (API). The class information is returned via JSON and includes the mapping between the timestamps and resistance as shown in the screenshot below:



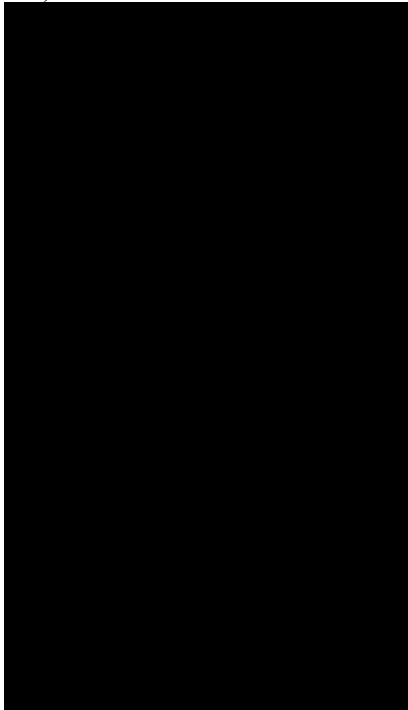
(Almeroth I Decl., ¶ 72)

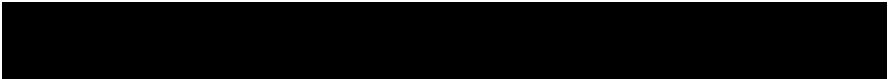
For example, as highlighted in yellow, the JSON information contains the resistance ranges and the auto-follow software implements these resistance ranges at particular times (portion highlighted in green) during an auto-follow workout. The mapping between timestamps and resistance in the JSON information is what “auto-follow uses to adjust the resistance.” (Almeroth I Decl., ¶ 72; Vivori Decl. ¶¶ 6–7.)



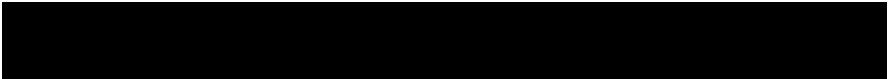
(d) Means, responsive to the packetized second signal, for controlling the operating parameters of the exercise mechanism.	The Bike+ includes a means that consists of, for example, a microprocessor, supporting hardware circuitry, and software, that controls the magnetic braking system. It is this magnetic braking system that provides resistance for the Bike+. <u>PELOTON BIKE+ CONSTRUCTION</u> Frame: Welded steel frame for best durability and longevity. ED & Powder coated. Resistance: Neodymium rare-earth magnet system with dynamic (software-controlled) resistance control w/load cell (direct power measurement). Drive: Poly V® power transmission belt drive. Seat: Sports series saddle with ergonomic center channel. Pedals: Delta-compatible aluminum pedals. Crank Arms: 170 mm forged steel. Bottom Bracket: Industrial grade bearings with ISIS splined spindle. https://support.onepeloton.com/hc/en-us/articles/360048724271-Peloton-Bike-Dimensions
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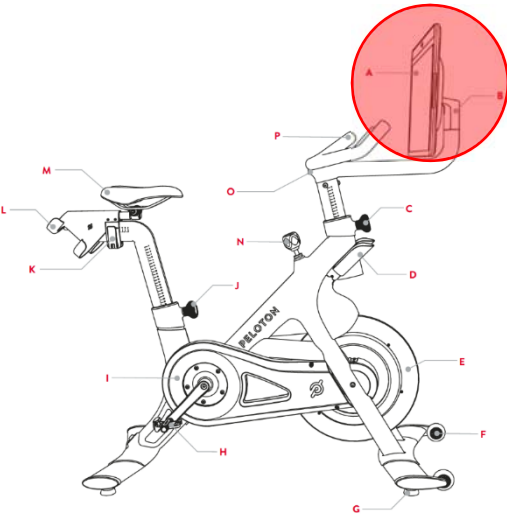


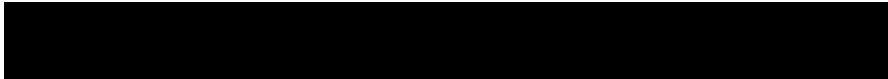
	For example, the means is responsive to the packetized second signal and the packetized second signal controls the operating parameters, specifically resistance, of the Bike+. “[T]he mapping between timestamps and resistance is what auto-follow uses to adjust the resistance.” (Almeroth I Decl., ¶ 72; <i>see also</i> Vivori Decl. at ¶¶ 6–7.)  Highlighted in green and yellow, for example, are the timestamps and resistance (respectively) that auto-follow uses to adjust resistance of the Bike+.
Claim 3	
An exercise device as recited in claim 1, wherein the packetized second signal comprises a signal selected from the group consisting of	The packetized second signal comprises, for example, a signal from the Peloton instructor. The Peloton instructor audibly calls out resistance ranges, which comprises an audio signal. The packetized second signal further comprises, for example, a control signal. The control signal, for example, contains information such as the timestamps and resistance ranges, that controls the



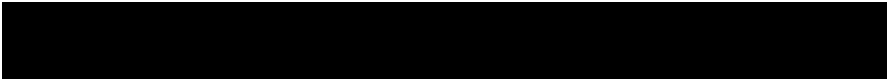
an audio signal, a visual signal, and a control signal.	resistance on the Bike+. (“The mapping between timestamps and resistance is what auto-follow uses to adjust the resistance.” (Almeroth I Decl., ¶ 72; <i>see also</i> Vivori Decl., ¶¶ 6–7.))
Claim 4	
An exercise device as recited in claim 3, wherein the control signal is synchronized with at least one of the audio signal and the visual signal.	The control signal is synchronized with the audio signal from the instructor, as the instructor tells the user that the resistance is going to change, and then the synchronized resistance changes. Further, the control signal is synchronized with the visual signal. For example, when the control signal changes the resistance, the resistance in the lower right hand corner of the user’s screen is synchronized to also change and visually illustrate to the user that the resistance is changing. Examples of this visual change is illustrated below:  The four screenshots illustrate the resistance change process. In each, the resistance value is highlighted in a red box in the bottom right corner of the screen. The values are 30, 32, 38, and 34, respectively, showing a sequence of adjustments.



Claim 5		
	An exercise device as recited in claim 3, wherein a trainer promulgates the control signal.	The trainer is, for example, the Peloton instructor. The Peloton instructor audibly calls out resistance ranges that are happening by the control signal.
Claim 8		
	An exercise device as recited in claim 1, wherein the interface means is selected from the group consisting of:	The Bike+ has an interface means in, for example, the form of a touchscreen. A TOUCHSCREEN B SWIVEL C HANDLEBAR HEIGHT ADJUSTMENT KNOB D WATER BOTTLE HOLDER E FLYWHEEL F WHEELS G FEET H PEDALS I BELT GUARD J SEAT HEIGHT ADJUSTMENT KNOB K SEAT SLIDER LATCH L WEIGHT HOLDERS M SADDLE N RESISTANCE KNOB/EMERGENCY BRAKE O AUDIO JACK P HANDLEBARS  Peloton Bike+ Manual, p. 10–11 (PELTON_ICON2_007903)
(i)	One or more audio input devices; and	For example, the Bike+ has a touchscreen with an audio input device in the form of a digital microphone array located on the touchscreen:



		TOUCHSCREEN SPECIFICATIONS 23.8" 1080P HD Touchscreen WiFi 802.11 a/b/g/n/ac MIMO 2x2 antenna 1 Gbps Ethernet (via network port) 4 GB Memory 16 GB Internal Flash Storage ANT+™ Wireless Bluetooth® 5.0 8MP Still Photo/1080P Video Camera with Privacy Cover 4 Digital Microphone Array 3.5mm Headphone Port 2x10 Watt Woofers with 2x3W Front-Facing Tweeters Stereo Speakers with 80Hz to 20KHz Frequency Response Peloton Bike+ Manual, p. 15 (PELOTON_ICON2_007905)
(ii)	One or more video output devices.	For example, the Bike+ has a touchscreen with a video output device in the form of a 8MP Still Photo/1080P video camera with privacy cover located on the touchscreen:



TOUCHSCREEN SPECIFICATIONS

23.8" 1080P HD Touchscreen

WiFi 802.11 a/b/g/n/ac MIMO 2x2 antenna

1 Gbps Ethernet (via network port)

4 GB Memory

16 GB Internal Flash Storage

ANT+™ Wireless

Bluetooth® 5.0

8MP Still Photo/1080P Video Camera with Privacy Cover

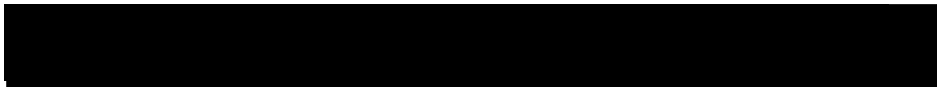
4 Digital Microphone Array

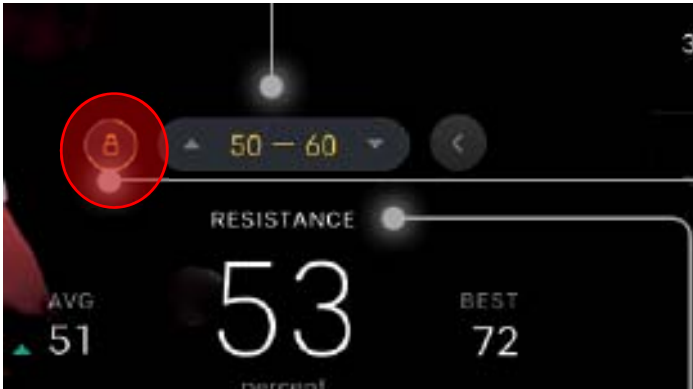
3.5mm Headphone Port

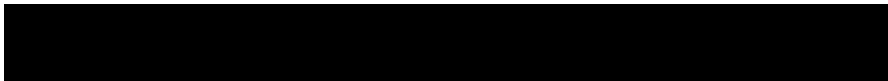
2x10 Watt Woofers with 2x3W Front-Facing Tweeters

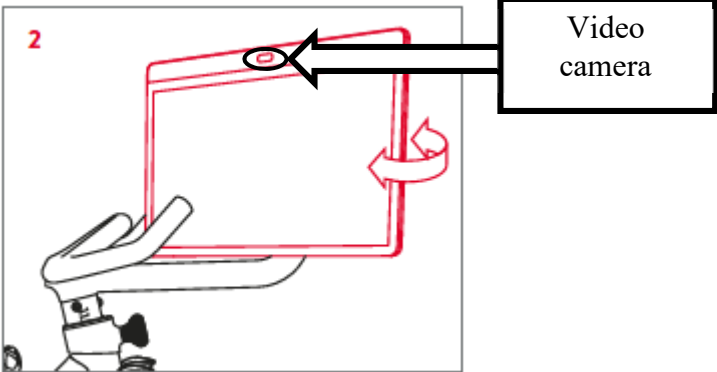
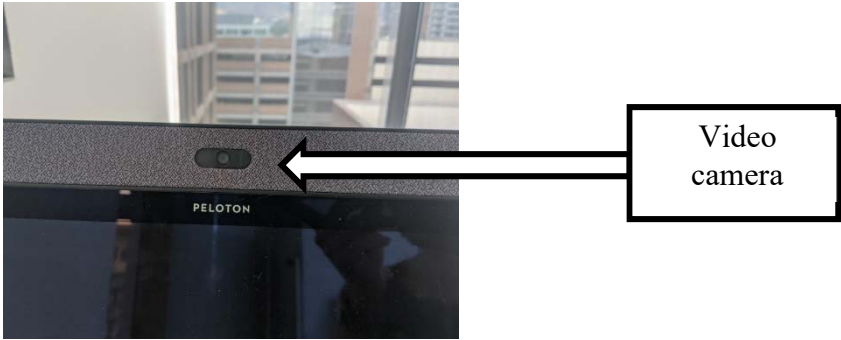
Stereo Speakers with 80Hz to 20KHz Frequency Response

Peloton Bike+ Manual, p. 15 (PELOTON_ICON2_007905)



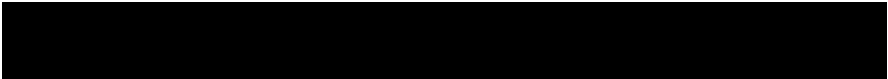
Claim 9		
	An exercise device as recited in claim 1, wherein the interface means comprises one or more controllers.	For example, the Bike+ has a touchscreen (i.e., interface means) that comprises a controller. The touchscreen will display a lock symbol on the bottom right hand side of the touchscreen:  Peloton Bike+ Manual, p. 32–33 (PELTON_ICON2_007914) When the user taps the lock symbol, the resistance of the Bike+ is controlled: AUTO-FOLLOW Tap the lock symbol to automatically adjust resistance to match the target resistance range Peloton Bike+ Manual, p. 32–33 (PELTON_ICON2_007914)

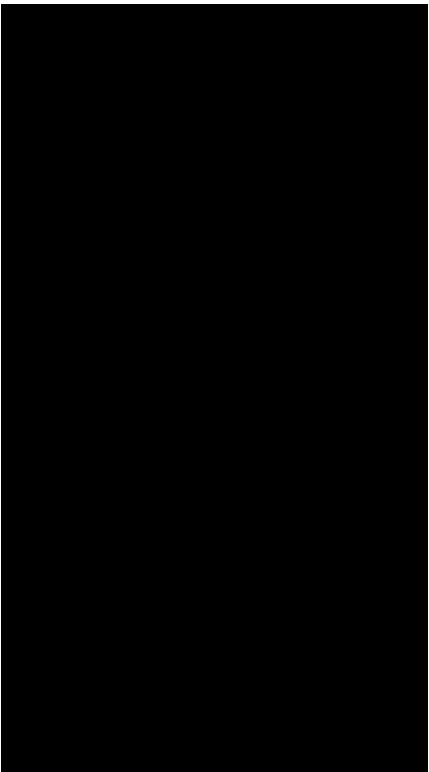


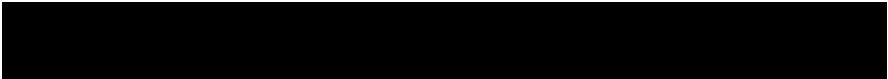
Claim 10	
An exercise device as recited in claim 1, wherein the interface means comprises a video camera integrally formed with the exercise device.	For example, the Bike+ has an interface means in the form of a touchscreen with an 8MP Still Photo/1080P video camera integrally formed with the Bike+.  Peloton Bike+ Manual, p. 23 (PELTON_ICON2_007909) 



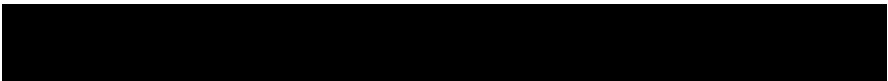
Claim 11		
	An exercise device as recited in claim 1, wherein the communicating means enables transmission of the first signal.	For example, the Bike+ includes a computer equipped with a transmitter and receiver (the communicating means). The first signal is generated, for example, in response to a user selecting an on-demand class that is auto-follow compatible and this communication means enables transmission of this first signal to a remote server. “Once a user selects an on-demand class and before the class starts, the Bike+ requests the class’s information including Target Metrics (i.e., including the time stamps and suggested ranges for speed and resistance) through an Application Programming Interface (API).” (Vivori Decl., ¶ 6)
Claim 15		
	An exercise device as recited in claim 1, wherein the communicating means communicates with a communication system that is configured to generate one or more second signals.	For example, the Bike+ has communicating means that is, for example, the Bike+ computer’s transmitter and receiver, that communicates with a communication system (a remote server) and the communication system is configured to generate one or more second signals (i.e. JSON information). The communicating means on the Bike+ receives at least one second signal (i.e., JSON information) from a remote server via an Application Programming Interface. When a user selects a class and before the class video starts to play, the Peloton Bike+ requests class information from Peloton via an Application Programming Interface (API). The class information is returned via JSON and includes the mapping between the timestamps and resistance as shown in the screenshot below:



			
		(Almeroth I Decl., ¶ 72)	
Claim 16			
	An exercise device as recited in claim 15, wherein the communication system comprises memory configured to store the second signal.	The Bike+ has a communication system, for example, the remote server, and on information and belief, the communication system comprises memory configured to store the second signal (i.e., JSON information). The Bike+ receives the packetized second signal from the remote server, thus on information and belief, the remote server comprises memory that is configured to store said packetized second signal at least prior to it being sent to the Bike+.	



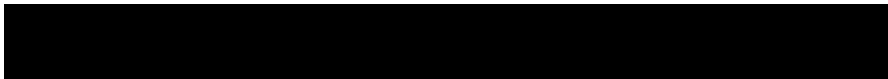
	When a user selects a class and before the class video starts to play, the Peloton Bike+ requests class information from Peloton via an Application Programming Interface (API). The class information is returned via JSON and includes the mapping between the timestamps and resistance as shown in the (Almeroth I Decl., ¶ 72)
Claim 21	
An exercise device as recited in claim 1, further comprising means for reproducing the second signal.	The Bike+ further comprises, for example, a means for reproducing the second signal in the form of the Bike+'s touchscreen.
Claim 22	
An exercise device as recited in claim 21, wherein the means for reproducing the second signal comprises one or more audio output devices and one or more video output devices.	For example, the Bike+'s touchscreen comprises an audio output, for example, in the form of stereo speakers with 80Hz to 20KHz frequency response. The Bike+'s touchscreen further comprises a video output device, for example, in form of a 23.8" 1080P HD Touchscreen: TOUCHSCREEN SPECIFICATIONS 23.8" 1080P HD Touchscreen WiFi 802.11 a/b/g/n/ac MIMO 2x2 antenna 1 Gbps Ethernet (via network port) 4 GB Memory 16 GB Internal Flash Storage ANT+™ Wireless Bluetooth® 5.0 8MP Still Photo/1080P Video Camera with Privacy Cover 4 Digital Microphone Array 3.5mm Headphone Port 2x10 Watt Woofers with 2x3W Front-Facing Tweeters Stereo Speakers with 80Hz to 20KHz Frequency Response



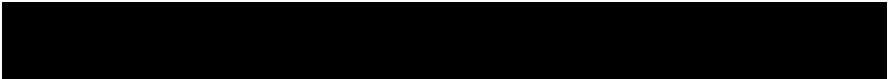
		Peloton Bike+ Manual, p. 15 (PELOTON_ICON2_007905)
Claim 23		
An exercise device as recited in claim 21, wherein the means for reproducing the second signal comprises an output device selected from the group consisting of an audio output device and a video output device.	For example, the Bike+'s means for reproducing the second signal comprises an output device selected from the group consisting of an audio output device and a video output device. The audio output device being, for example, the stereo speakers with 80Hz to 20KHz frequency response and the video output device being, for example, the 23.8" 1080P HD Touchscreen: TOUCHSCREEN SPECIFICATIONS 23.8" 1080P HD Touchscreen WiFi 802.11 a/b/g/n/ac MIMO 2x2 antenna 1 Gbps Ethernet (via network port) 4 GB Memory 16 GB Internal Flash Storage ANT+™ Wireless Bluetooth® 5.0 8MP Still Photo/1080P Video Camera with Privacy Cover 4 Digital Microphone Array 3.5mm Headphone Port 2x10 Watt Woofers with 2x3W Front-Facing Tweeters Stereo Speakers with 80Hz to 20KHz Frequency Response Peloton Bike+ Manual, p. 15 (PELOTON_ICON2_007905)	
Claim 26		
An exercise device as recited in claim 1, wherein the packetized second signal comprises	For example, the packetized second signal (i.e., JSON information), comprises a signal selected from a group that consists of (i) a packetized control signal (i.e., JSON information); and (ii) a packetized control signal (i.e., JSON information) and a signal from a communication system (i.e., signal from remote server).	



a signal selected from the group consisting of: (i) a packetized control signal; and (ii) a packetized control signal and a signal from a communication system.	
Claim 27	
An exercise device as recited in claim 1, wherein the packetized second signal comprises a packetized control signal and a signal from a trainer, the signal from the trainer comprising a signal selected from the group consisting of an audio signal and a visual signal.	The packetized second signal comprises, for example, a packetized control signal (e.g., JSON information). The JSON information includes both timestamps and resistance, and auto-follow uses this information to adjust the resistance of the Bike+. (<i>See Almeroth I Decl.</i>, ¶ 72 “This mapping between timestamps and resistance is what auto-follow uses to adjust the resistance.”) The packetized second signal comprises, for example, a signal from the trainer. The Peloton instructor (trainer) audibly calls out resistance ranges which comprises an audio signal.
Claim 28	
An exercise device as recited in claim 27, wherein receipt of said packetized second signal is substantially uninterrupted during receipt of said control signal.	On information and belief, the packetized second signal (i.e., JSON information) is substantially uninterrupted during the receipt of said control signal.



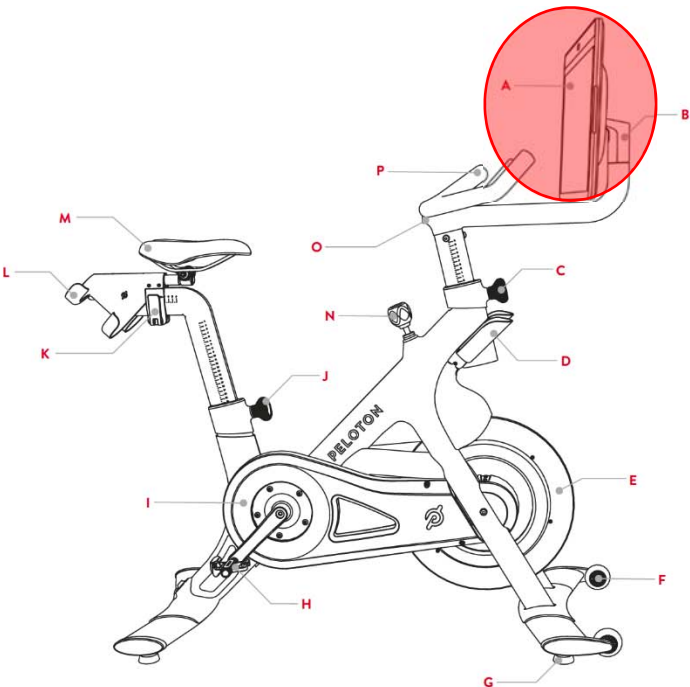
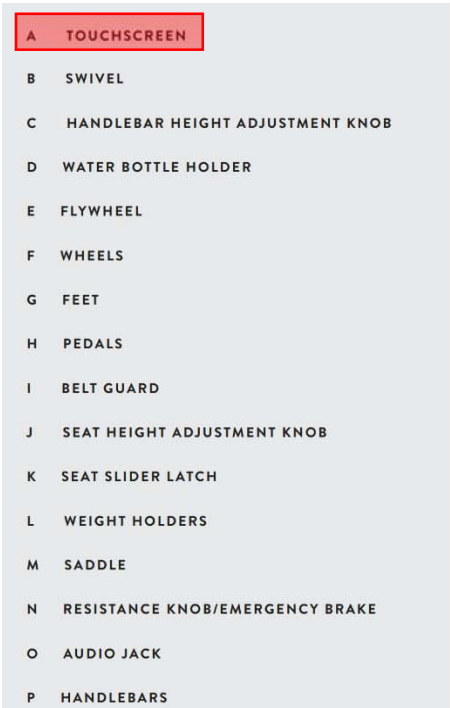
Claim 29	
An exercise device configured to enable interaction of a user, the exercise device comprising:	To the extent the preamble is limiting, Peloton's Bike+ is an exercise device configured to enable the interaction of a user through a touch screen and through the utilization of the resistance knob.
(a) An exercise mechanism comprising a movable element for movement in performance of exercise by a user, the exercise mechanism having one or more operating parameters;	The Bike+ is an exercise mechanism that comprises a movable element, for example, a flywheel, that moves based on the peddling of a user.  (PELOTON_ICON2_000223) Parameters measured by the Bike+ include, for example, cadence, which is measured in revolutions per minute ("RPM") and is measured at the flywheel by the hall effect sensor and resistance, measured as a percentage. Each Bike is equipped with hall effect sensors for measuring flywheel rotational speed (to capture cadence) and resistance. The sensors reference the Output values on the sensor control board and communicate these values to the Peloton HD touchscreen multiple times per second during a ride.



<https://support.onepeloton.com/hc/en-us/articles/208776926-How-The-Peloton-Bike-Calculates-Power-Output-Watts->

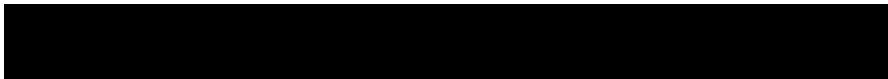
(b) At least one user interface device, communicating with the exercise mechanism, the at least one interface device gathering a first signal from the user;

The Bike+ includes, for example, a user interface device in the form of a touchscreen.



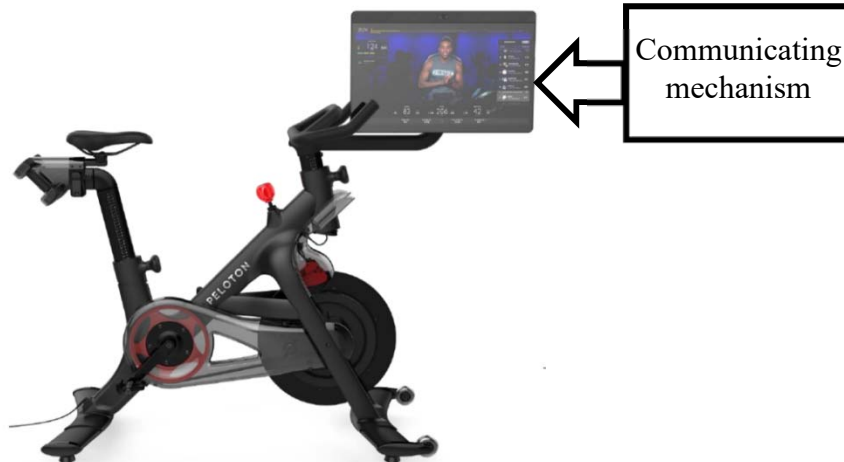
Peloton Bike+ Manual, p. 10–11 (PELOTON_ICON2_007903)

The user interface device communicates with the Bike+ through, for example, the embedded microprocessor (i.e., 2.5 GHz Qualcomm QCS605 Processor) within the Bike+.



	<u>PELOTON BIKE+ TECHNOLOGY</u> Touchscreen: 23.8" Full HD 1080p PCAP Multitouch w/reduced-reflective coating & anti-smudge coating. Hardware: 2.5 GHz Qualcomm QCS605 Processor / 4 GB RAM / 3.5 mm TRRS headphone and MIC connector (located on the handlebar). Sound: Front-Facing Stereo Speakers, 2.2 Channel w/rear-facing woofers. Camera: 8-megapixel front-facing camera with privacy slider. Connections: WiFi 802.11 a/b/g/n/ac - 2.4GHz & 5GHz / ANT+ wireless / Bluetooth 5.0 / 100 Mbps - USB-C to Ethernet Adapter ONLY (not included) / Apple Gymkit. Power Requirements: 100 V to 240 V; 50 Hz to 60 Hz; 3.25 A Max. https://support.onepeloton.com/hc/en-us/articles/360048724271-Peloton-Bike-Dimensions The user interface device gathers, for example, a first signal from the user, the first signal being generated in response to the user selecting an on-demand class. “Once a user selects an on-demand class and before the class starts, the Bike+ requests the class’s information including Target Metrics (i.e., including the time stamps and suggested ranges for speed and resistance) through an Application Programming Interface (API).” (Vivori Decl., ¶ 6)
(c) A communicating mechanism, communicating with the user interface device, the communicating mechanism receiving a	The Bike+ includes, for example, a user interface device, and a computer, equipped with a network interface (e.g., Wi-Fi) for receiving packetized signals from the remote servers. The computer’s transmitter and receiver is the communicating mechanism.

packetized second signal from a remote source over a network, the packetized second signal including one or more packetized control signals; and



(PELOTON_ICON2_000223)

For example, once a user selects an on-demand class, a first signal is sent to the remote server and then in response, the remote server sends a packetized second signal to the communicating mechanism over an internet network:

“Once a user selects an on-demand class and before the class starts, the Bike+ requests the class’s information including Target Metrics (i.e., including the time stamps and suggested ranges for speed and resistance) through an Application Programming Interface (API).”

(Vivori Decl., ¶ 6)

This second signal is packetized because it is sent over the internet. More specifically, the second packetized signal is being sent using a TCP/IP protocol, which by definition, is a packetized protocol. An example of these is set forth below.

```
Frame 1: 143 bytes on wire (1144 bits), 143 bytes captured (1144 bits) on interface \Device\NPF_{B874C064-7DCE-4795-836C-8CDEA9EE28B7}, id 0
Ethernet II, Src: b6:69:21:6c:03:b8 (b6:69:21:6c:03:b8), Dst: IPv4mcast_7f:ff:fa (01:00:5e:7f:ff:fa)
Internet Protocol Version 4, Src: 192.168.137.1, Dst: 239.255.255.250
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
  > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
    Total Length: 129
    Identification: 0x9332 (37682)
  > Flags: 0x0000
    Fragment offset: 0
    Time to live: 4
    Protocol: UDP (17)
    Header checksum: 0xe995 [validation disabled]
    [Header checksum status: Unverified]
    Source: 192.168.137.1
    Destination: 239.255.255.250
User Datagram Protocol, Src Port: 50724, Dst Port: 1900
Simple Service Discovery Protocol
```

(Easttom II Decl., ¶ 30; *see also* Easttom I Decl., ¶¶ 86–101.)

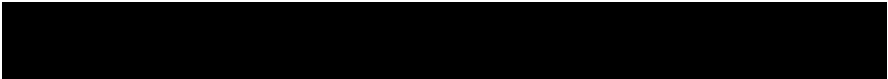
In order to receive this second packetized signal, the communicating mechanism communicates with the interface device for receiving the packetized second signal from the remote server.

The packetized second signal takes the form of JSON information. This JSON information includes the desired resistance for the next portion of the ride along with the timestamp as to when that resistance will be implemented using auto-follow:

When a user selects a class and before the class video starts to play, the Peloton Bike+ requests class information from Peloton via an Application Programming Interface (API). The class information is returned via JSON and includes the mapping between the timestamps and resistance as shown in the screenshot below:



		 (Almeroth I Decl., ¶ 72) As highlighted in yellow, the JSON information contains the resistance ranges and the auto-follow software implements these resistance ranges at particular times (portion highlighted in green) during an Auto Follow workout. The mapping between timestamps and resistance in the JSON information is what “auto-follow uses to adjust the resistance.” (Almeroth I Decl., ¶ 72; Vivori Decl. ¶¶ 6–7.)
	(d) A controller, responsive to the packetized second signal, configured to control the	The Bike+ includes a controller that consists of, for example, a microprocessor, supporting hardware circuitry, and software, that controls the magnetic braking system. It is this magnetic braking system that provides resistance for the Bike+.



operating parameters of the exercise mechanism.

PELOTON BIKE+ CONSTRUCTION

Frame: Welded steel frame for best durability and longevity. ED & Powder coated.

Resistance: Neodymium rare-earth magnet system with dynamic (software-controlled) resistance control w/load cell (direct power measurement).

Drive: Poly V® power transmission belt drive.

Seat: Sports series saddle with ergonomic center channel.

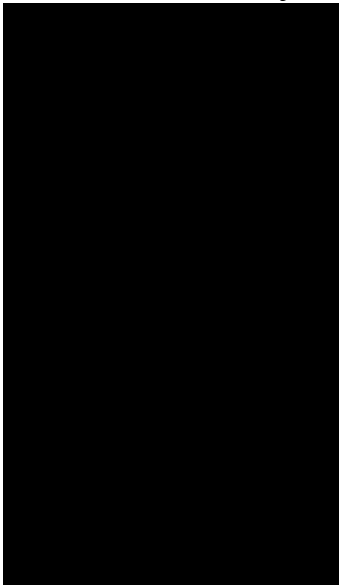
Pedals: Delta-compatible aluminum pedals.

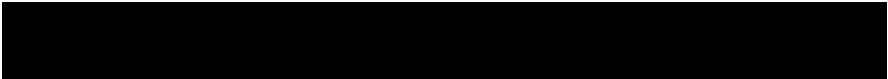
Crank Arms: 170 mm forged steel.

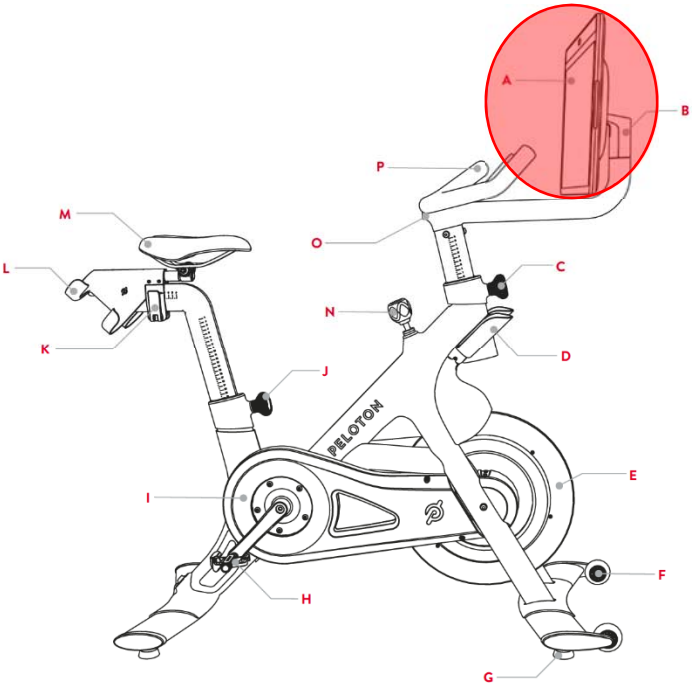
Bottom Bracket: Industrial grade bearings with ISIS splined spindle.

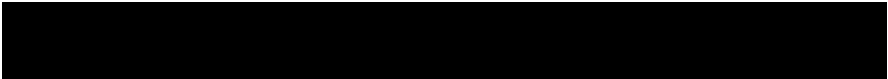
<https://support.onepeloton.com/hc/en-us/articles/360048724271-Peloton-Bike-Dimensions>

For example, the controller is responsive to the packetized second signal and the packetized second signal controls the operating parameters of the exercise mechanism. “The mapping between timestamps and resistance is what auto-follow uses to adjust the resistance.” (Almeroth I Decl., ¶ 72; *see also* Vivori Decl., ¶¶ 6–7.)





	Highlighted in green and yellow are the timestamps and resistance (respectively) that auto-follow uses to adjust resistance of the Bike+.
Claim 30	
An exercise device as recited in claim 29, wherein the at least one user interface device is selected from the group consisting of one or more audio input devices and one or more video input devices.	The Bike+ consists of a user interface device in the form of a touchscreen. A TOUCHSCREEN B SWIVEL C HANDLEBAR HEIGHT ADJUSTMENT KNOB D WATER BOTTLE HOLDER E FLYWHEEL F WHEELS G FEET H PEDALS I BELT GUARD J SEAT HEIGHT ADJUSTMENT KNOB K SEAT SLIDER LATCH L WEIGHT HOLDERS M SADDLE N RESISTANCE KNOB/EMERGENCY BRAKE O AUDIO JACK P HANDLEBARS  Peloton Bike+ Manual, p. 10–11 (PELTON_ICON2_007903) The user interface further consists of an audio input device (i.e., 4 Digital Microphone Array) and a video input device (i.e., 8MP Still Photo/1080P Video Camera with Privacy Cover).



TOUCHSCREEN SPECIFICATIONS

23.8" 1080P HD Touchscreen

WiFi 802.11 a/b/g/n/ac MIMO 2x2 antenna

1 Gbps Ethernet (via network port)

4 GB Memory

16 GB Internal Flash Storage

ANT+™ Wireless

Bluetooth® 5.0

8MP Still Photo/1080P Video Camera with Privacy Cover

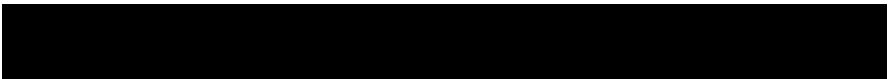
4 Digital Microphone Array

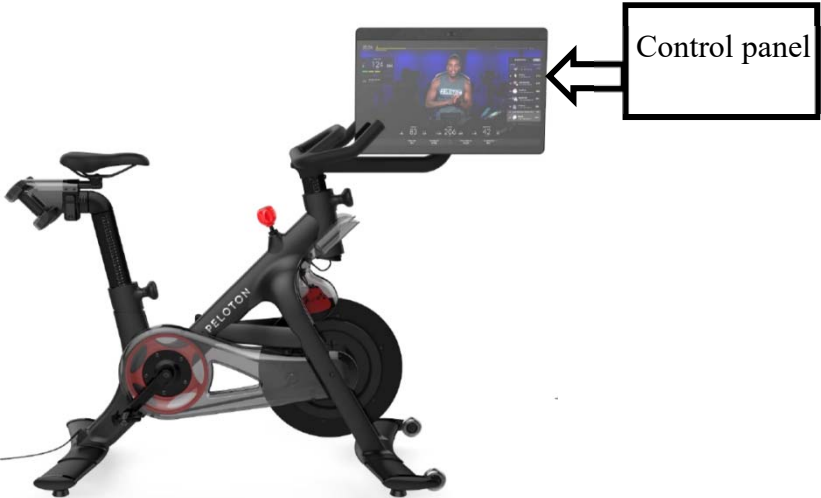
3.5mm Headphone Port

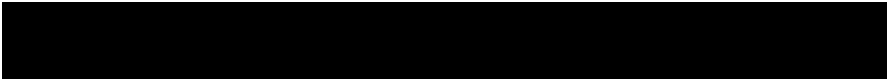
2x10 Watt Woofers with 2x3W Front-Facing Tweeters

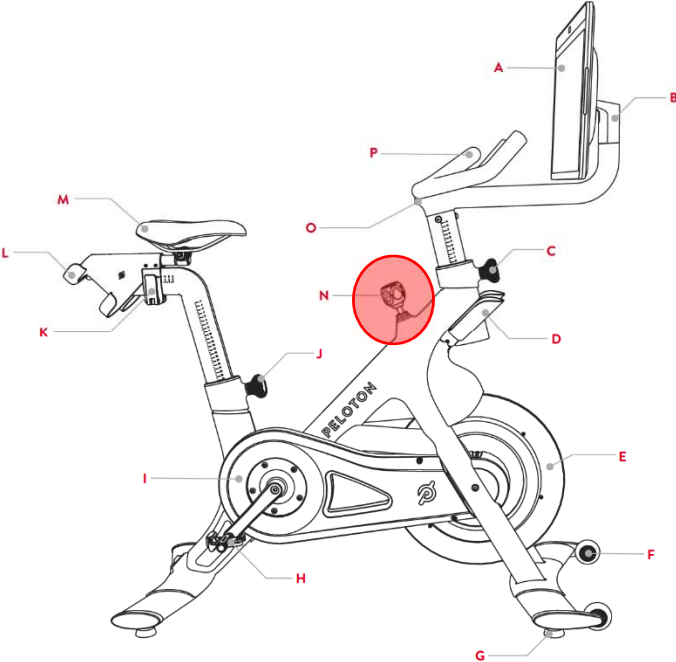
Stereo Speakers with 80Hz to 20KHz Frequency Response

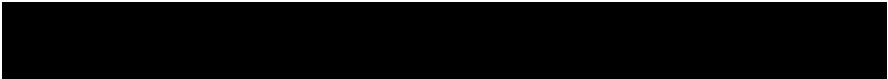
Peloton Bike+ Manual, p. 15 (PELOTON_ICON2_007905)



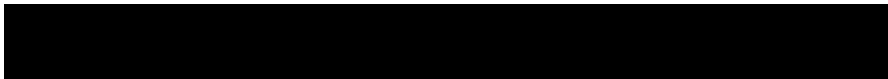
Claim 36	
An exercise device as recited in claim 29, further comprising a control panel, the control panel being configured to enable a user to input the first signal and to receive the second signal.	The Bike+ further comprises, for example, a control panel.  (PELOTON_ICON2_000223) The control panel comprising, for example, a touchscreen that is configured to enable a user to input the first signal, the first signal being generated in response to the user selecting an on-demand class. “Once a user selects an on-demand class and before the class starts, the Bike+ requests the class’s information including Target Metrics (i.e., including the time stamps and suggested ranges for speed and resistance) through an Application Programming Interface (API).” (Vivori Decl., ¶ 6) The control panel further comprising, for example, the communicating mechanism (e.g., the computer’s transmitter and receiver) that receives the second signal (e.g., JSON information).

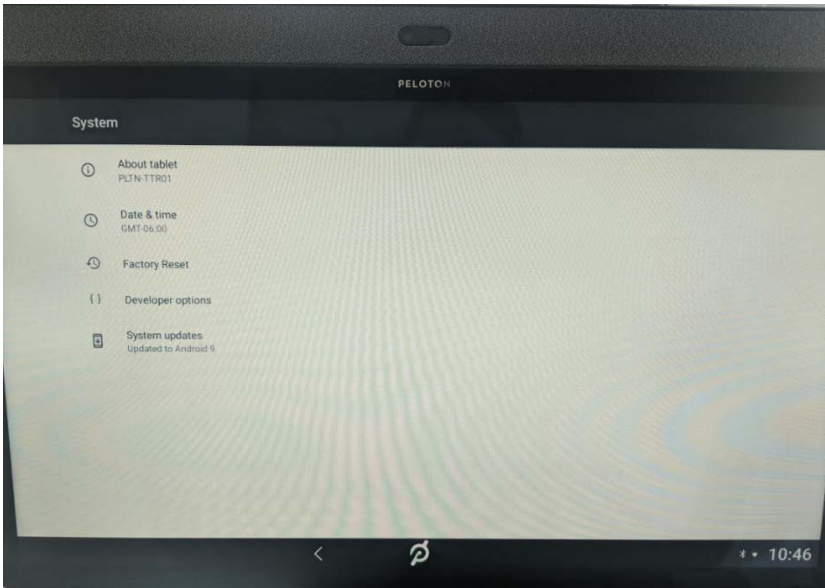


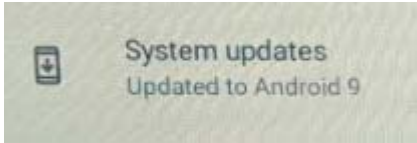
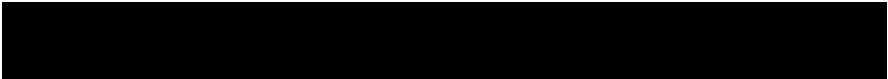
Claim 38	
An exercise device as recited in claim 29, wherein the exercise device further comprises a safety mechanism, said safety mechanism capable of manipulating the operating parameters of the exercise mechanism in the event that the packetized second control signal is interrupted.	The Bike+ further comprises a safety mechanism in the form of, for example, an emergency brake. A TOUCHSCREEN B SWIVEL C HANDLEBAR HEIGHT ADJUSTMENT KNOB D WATER BOTTLE HOLDER E FLYWHEEL F WHEELS G FEET H PEDALS I BELT GUARD J SEAT HEIGHT ADJUSTMENT KNOB K SEAT SLIDER LATCH L WEIGHT HOLDERS M SADDLE N RESISTANCE KNOB/EMERGENCY BRAKE O AUDIO JACK P HANDLEBARS  Peloton Bike+ Manual, p. 10–11 (PELOTON_ICON2_007903) The emergency brake is capable of manipulating the operating parameters by immediately stopping the flywheel upon activation of the emergency brake.



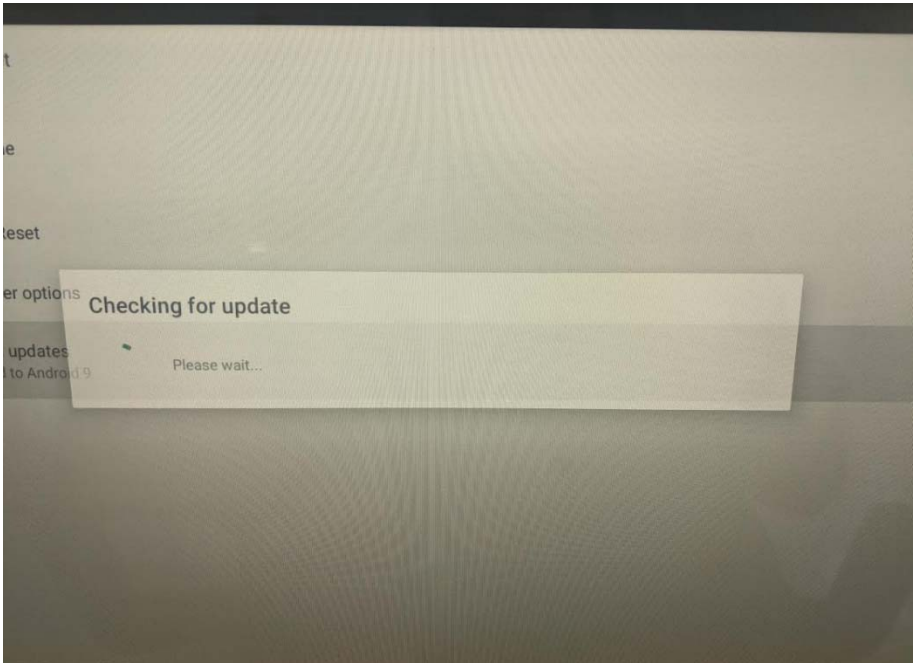
	The resistance knob can be used as an emergency brake. To stop immediately, push down on the resistance knob. This bike has a direct driven flywheel. If the flywheel is moving, the pedals are moving. Removing your feet from the pedals while they are moving can cause serious injury. Stop by reducing pedaling frequency in a controlled manner or by using the emergency brake. Do not remove your feet from the pedals until the flywheel stops moving. Peloton Bike+ Manual, p. 4 (PELOTON_ICON2_007900) • Emergency brake: Press down on the resistance knob while pedaling slowly. The flywheel should come to a complete stop immediately. If it does not, stop using the bike immediately and contact Peloton Support. Peloton Bike+ Manual, p. 40 (PELOTON_ICON2_007918) On information and belief, in the event the packetized second control signal (i.e., JSON information) is interrupted, the emergency brake is capable of immediately stopping the flywheel.
--	---



Claim 40	
An exercise device as recited in claim 29, wherein the exercise device further comprises one or more sensors, said one or more sensors being configured to sense the one or more operating parameters of the exercise mechanism.	The Bike+ comprises, for example, a hall effect sensor that measures operating parameters of the Bike+. The hall effect sensor measures the flywheel's rotational speed (to capture cadence) and resistance. Each Bike is equipped with hall effect sensors for measuring flywheel rotational speed (to capture cadence) and resistance. The sensors reference the Output values on the sensor control board and communicate these values to the Peloton HD touchscreen multiple times per second during a ride. https://support.onepeloton.com/hc/en-us/articles/208776926-How-The-Peloton-Bike-Calculates-Power-Output-Watts-)
Claim 45	
An exercise device as recited in claim 29, wherein the exercise device further comprise a diagnostic control, said diagnostic control activating a connection with a communication system to check the status of the exercise device.	The Bike+ comprises a diagnostic control, for example, in the form of the system updates button on the touchscreen. 



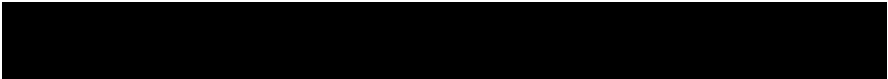
Upon pressing the system updates button, a connection is activated with the remote server (i.e., communication system) to check the status of the exercise device.

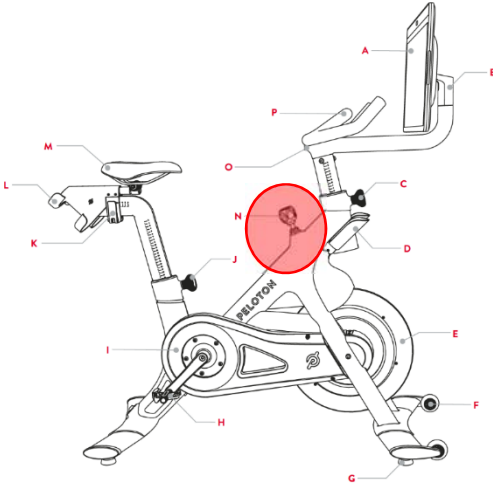


Claim 46

An exercise device as recited in claim 45, wherein the diagnostic control activates a downloading process to retrieve one or more

Upon pressing the system updates button, the downloading process to retrieve one or more system updates from the communication system is activated.



software updates from the communication system.	Step 3: Tap on 'System updates'. This will tell you whether or not you have the latest available version of software on your device. If you do not, you will be able to begin the update process in the pop-up window that displays on your screen. https://support.onepeloton.com/hc/en-us/articles/4402287359380-How-Do-I-Verify-That-I-Have-The-Latest-System-Updates-
Claim 47 An exercise device as recited in claim 29, wherein the exercise device further comprises a scaling control, the scaling control being configured to enable a user to select a value representative of the proportional change to be made to the packetized control signal received by the communicating means.	The Bike+ has, for example, a resistance knob that is used as a scaling control: A TOUCHSCREEN B SWIVEL C HANDLEBAR HEIGHT ADJUSTMENT KNOB D WATER BOTTLE HOLDER E FLYWHEEL F WHEELS G FEET H PEDALS I BELT GUARD J SEAT HEIGHT ADJUSTMENT KNOB K SEAT SLIDER LATCH L WEIGHT HOLDERS M SADDLE N RESISTANCE KNOB EMERGENCY BRAKE O AUDIO JACK P HANDLEBARS  Peloton Bike+ Manual, p. 10–11 (PELOTON_ICON2_007903) The control signal sent from the remote server to the communicating means of the Bike+ takes form of a JSON file.

[REDACTED]

When a user selects a class and before the class video starts to play, the Peloton Bike+ requests class information from Peloton via an Application Programming Interface (API). The class information is returned via JSON and includes the mapping between the timestamps and resistance as shown in the screenshot below:

(Almeroth I Decl., ¶ 72)

The JSON file contains time stamps and resistance target metrics that auto-follow uses to adjust the resistance of the Bike+. (Almeroth I Decl., ¶ 72; Vivori Decl. ¶¶ 6–7.)

The resistance knob enables the user, for example, to select a value representative of a proportional change to be made to the remote resistance value received from the remote server when auto-follow is enabled. Peloton performs a calculation or implements an algorithm using the JSON information to automatically control the resistance of the Bike+ during auto-follow:

The Bike+'s auto-follow is a feature that automatically adjusts resistance in accordance with a range. For example, when a user first turns on auto-follow, the system automatically brings the user to the middle of the resistance range at the given timestamp. Ex. 24 (Auto-Follow Requirements Logic Master.pdf) at 1; Vivori Decl. at ¶ 10. When the next resistance range is triggered, the system automatically adjusts the resistance so that it falls within the next resistance range.

(Almeroth I Decl., ¶ 75)

Dr. Almeroth testified that the language from ¶ 75 of his November declaration discloses an “algorithm” that the auto-follow features uses to automatically set the Bike+ resistance. (Almeroth December 7, 2020 Depo. 103:2–20). The automatic adjustment of resistance by auto-follow is calculated in a way that is *relative* to the middle of the current resistance range and the subsequent resistance range. (Almeroth Depo. 105:20–106:1.) Ms. Vivori’s declaration also confirms this:

[REDACTED]

If the rider's resistance is within the current resistance range, the rider's resistance is adjusted to stay at the same relative position for the next resistance range

(Vivori Decl., ¶ 10) (emphasis added)

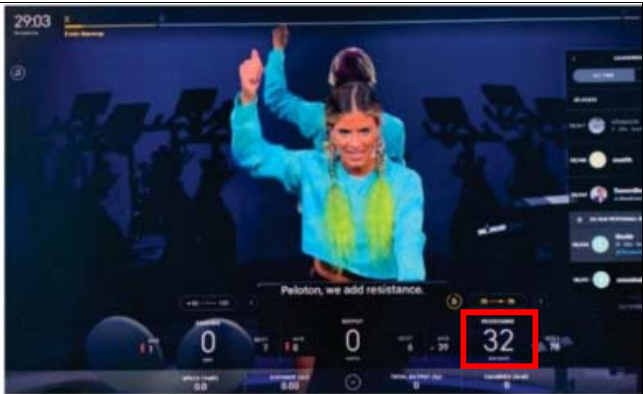
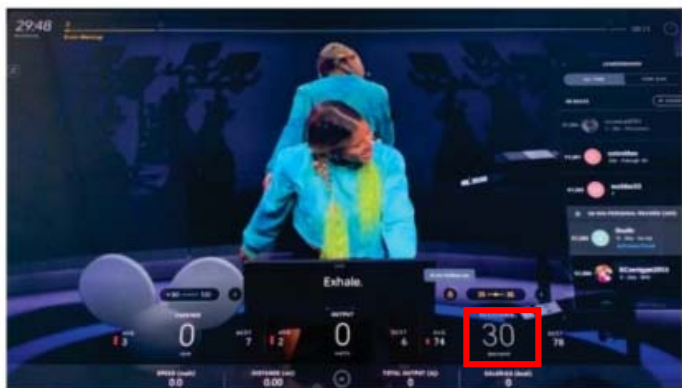
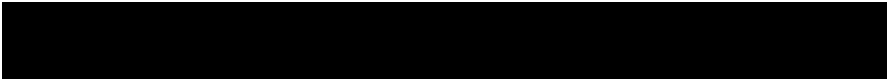
Peloton describes this calculation by auto-follow in a similar way:

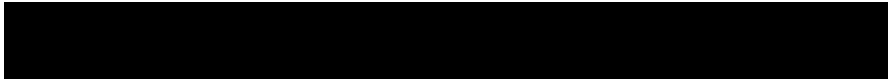
Given that I'm anywhere inside the current range once the next range starts:

- My resistance is adjusted to stay at the **same point** in the range **relative** to the middle (calculated as % from the middle, where $1\% = (\text{top-of-range} - \text{bottom-of-range})/100$)

(PELOTON_ICON2_000163) (emphasis added)

A user is able to utilize the resistance knob and select a value that is representative of the proportional (i.e., relative) change to be made to the packetized control signal that is received by the communicating means. Below are screen captures of different resistance ranges and the corresponding automatic changes to the resistance during a class utilizing auto-follow:



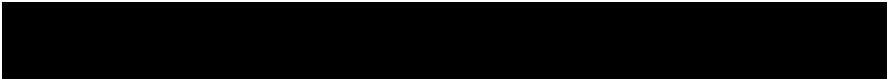


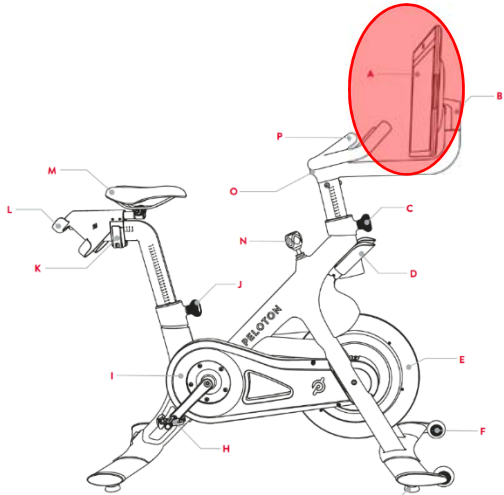
Taking the resistance ranges from the screenshot above, a summary table below details the resistance range, actual resistance, and proportion calculation:

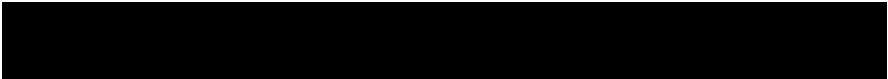
Low Limit	High Limit	Resistance	Range	Proportion Calculation
25	35	32	11	I originally selected the resistance of 32. To calculate the percentage this represents, you take the number of resistance possibilities above the Low Limit and calculate that as a percentage of the overall possible resistance range. $8/11 = 0.7272$
29	41	38	13	Take percentage calculated from first relative resistance setting, which is 0.7272; Multiply the current resistance range by that percentage $0.7272 * 13 = 9.45$ (rounded to 9) Then add that to the low limit in the resistance range to arrive at the current resistance $29 + 9 = 38$
30	35	34	6	Recalculate the relative resistance from the previous resistance setting by taking the number above the low limit (9) and divide that by the Range (13). $9/13 = 0.6923$; Multiply the current resistance range by that percentage $0.6923 * 6 = 4.15$ (rounded to 4) Then add that to the low limit in the resistance range to arrive at the current resistance $30 + 4 = 34$.



		(Easttom II Decl., ¶ 39.) This table illustrates that Peloton implements a calculation that allows a user to select a value representative of the proportional change to be made to the packetized signal received by the communicating means.
Claim 48		
	An exercise device as recited in claim 29, wherein the communicating mechanism enables transmission of the first signal.	For example, the Bike+ computer's transmitter and receiver is the communicating mechanism in the Bike+. The first signal is generated in response to the user selecting an on-demand class. “Once a user selects an on-demand class and before the class starts, the Bike+ requests the class's information including Target Metrics (i.e., including the time stamps and suggested ranges for speed and resistance) through an Application Programming Interface (API).” (Vivori Decl., ¶ 6) The communicating mechanism enables this transmission of the first signal.
Claim 49		
	An exercise device configured to enable a user to receive workout-related information, comprising:	To the extent the preamble is limiting, the Bike+ is an exercise device that is configured to enable a user to receive workout-related information such as resistance and cadence.
	(a) An exercise mechanism comprising a movable element for movement in performance of exercise by a user;	The Bike+ is an exercise mechanism that comprises, for example, a flywheel (i.e. movable element) that moves based on the performance of peddling by a user.



	 Flywheel (i.e., movable element) (PELOTON_ICON2_000223.)
(b) A user interface device communicating with the exercise mechanism and configured to gather one or more user control signals from the user;	The Bike+ includes a user interface device, for example, in the form of a touchscreen. A TOUCHSCREEN B SWIVEL C HANDLEBAR HEIGHT ADJUSTMENT KNOB D WATER BOTTLE HOLDER E FLYWHEEL F WHEELS G FEET H PEDALS I BELT GUARD J SEAT HEIGHT ADJUSTMENT KNOB K SEAT SLIDER LATCH L WEIGHT HOLDERS M SADDLE N RESISTANCE KNOB/EMERGENCY BRAKE O AUDIO JACK P HANDLEBARS 



Peloton Bike+ Manual, p. 10–11 (PELOTON_ICON2_007903)

The user interface device communicates with the Bike+ through the embedded microprocessor (i.e., 2.5 GHz Qualcomm QCS605 Processor) within the Bike+.

PELOTON BIKE+ TECHNOLOGY

Touchscreen: 23.8" Full HD 1080p PCAP Multitouch w/reduced-reflective coating & anti-smudge coating.

Hardware: 2.5 GHz Qualcomm QCS605 Processor 4 GB RAM / 3.5 mm TRRS headphone and MIC connector (located on the handlebar).

Sound: Front-Facing Stereo Speakers, 2.2 Channel w/rear-facing woofers.

Camera: 8-megapixel front-facing camera with privacy slider.

Connections: WiFi 802.11 a/b/g/n/ac - 2.4GHz & 5GHz / ANT+ wireless / Bluetooth 5.0 / 100 Mbps - USB-C to Ethernet Adapter ONLY (not included) / Apple Gymkit.

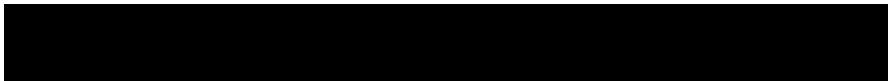
Power Requirements: 100 V to 240 V; 50 Hz to 60 Hz; 3.25 A Max.

<https://support.onepeloton.com/hc/en-us/articles/360048724271-Peloton-Bike-Dimensions>

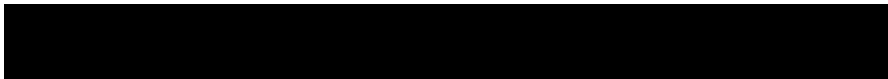
Further, the user interface device gathers a user control signal from the user. This user control signal is generated in response to the user selecting an on demand class.

“Once a user selects an on-demand class and before the class starts, the Bike+ requests the class’s information including Target Metrics (i.e., including the time stamps and suggested ranges for speed and resistance) through an Application Programming Interface (API).”

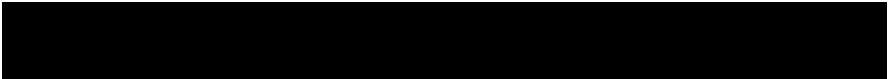
(Vivori Decl., ¶ 6)



(c) A communicating mechanism in communication with the user interface device and adapted to enable transmission of the user control signals to a remote communication system, the communicating mechanism being further adapted to receive a packetized second signal including synchronized control signals from the remote communication system;	The Bike+ includes, for example, a user interface device in the form of a touchscreen, and a computer equipped with a network interface (i.e., Wi-Fi) for receiving packetized signals from the remote servers. This computer's transmitter and receiver is the communicating mechanism. The communicating mechanism is in communication with the user interface device (i.e., touchscreen) and is adapted to enable transmission of the user control signals to a remote server (i.e., remote communication system). The communicating mechanism on the Bike+ is further adapted to receive a packetized second signal (i.e., JSON information). Below is a snapshot of the JSON information that the Bike+ is adapted to receive. (Almeroth I Decl., ¶ 72)
--	---



		Highlighted in green and yellow are the timestamps and resistance (respectively) that auto-follow uses to adjust resistance of the Bike+. Within this second packetized signal is synchronized control signals that comes from the remote communication system (i.e., remote server): When a user selects a class and before the class video starts to play, the Peloton Bike+ requests class information from Peloton via an Application Programming Interface (API). The class information is returned via JSON and includes the mapping between the timestamps and resistance as shown in the (Almeroth I Decl.. ¶ 72). And the communicating mechanism, for example, uses these timestamps and resistance to adjust the resistance and thus the communicating mechanism is adapted to receiving the packetized second signal. (<i>see</i> Almeroth I Decl., ¶ 72, “the mapping between timestamps and resistance is what auto-follow uses to adjust the resistance.”)
	(d) Means for reproducing the second signal; and	At least, the Bike+’s touchscreen and speakers comprises a means for reproducing the second signal.
	(e) Means, responsive to the synchronized control signals carried by the second signal, for controlling the operating parameters of the exercise mechanism.	The Bike+ includes means that consists of, for example, a microprocessor, supporting hardware circuitry, and software, that controls the magnetic braking system. It is this magnetic braking system that provides resistance for the Bike.



PELOTON BIKE+ CONSTRUCTION

Frame: Welded steel frame for best durability and longevity. ED & Powder coated.

Resistance: Neodymium rare-earth magnet system with dynamic (software-controlled) resistance control w/load cell (direct power measurement)

Drive: Poly V® power transmission belt drive.

Seat: Sports series saddle with ergonomic center channel.

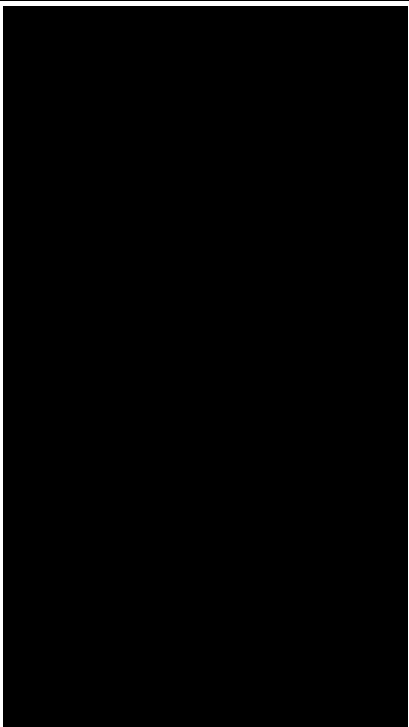
Pedals: Delta-compatible aluminum pedals.

Crank Arms: 170 mm forged steel.

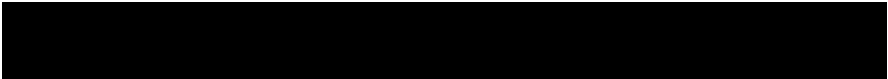
Bottom Bracket: Industrial grade bearings with ISIS splined spindle.

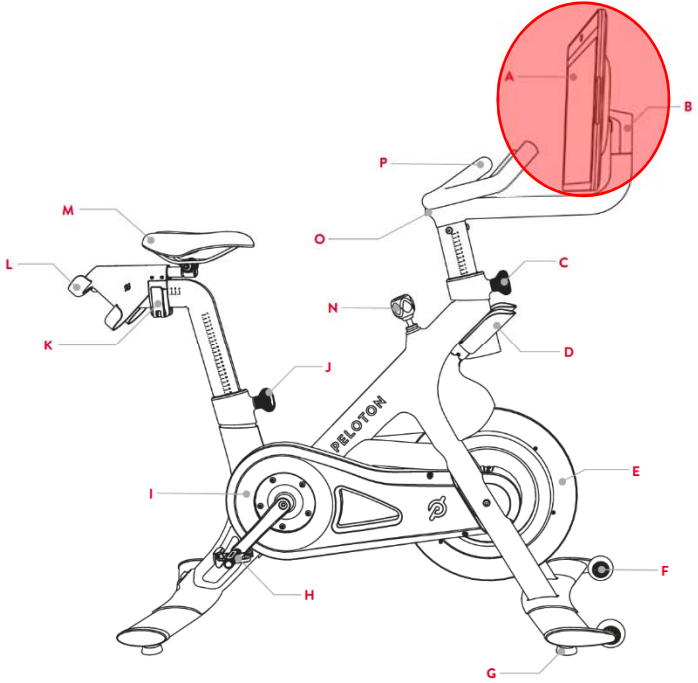
<https://support.onepeloton.com/hc/en-us/articles/360048724271-Peloton-Bike-Dimensions>

For example, the means is responsive to the synchronized control signals that is carried by the second signal (i.e., JSON information).



(Almeroth I Decl., ¶ 72). The mapping between the timestamps and resistance is what auto-follow uses to control the resistance (i.e., operating parameters) of the Bike+. (See Almeroth I Decl., ¶ 72).



Claim 50	
An exercise device as recited in claim 49, wherein the user interface device comprises one or more manually activated controls configured to generate the user control signals.	The Bike+ includes a user interface device in the form of, for example, a touchscreen. A TOUCHSCREEN B SWIVEL C HANDLEBAR HEIGHT ADJUSTMENT KNOB D WATER BOTTLE HOLDER E FLYWHEEL F WHEELS G FEET H PEDALS I BELT GUARD J SEAT HEIGHT ADJUSTMENT KNOB K SEAT SLIDER LATCH L WEIGHT HOLDERS M SADDLE N RESISTANCE KNOB/EMERGENCY BRAKE O AUDIO JACK P HANDLEBARS  A user is able to manually select a workout class via the user interface device.

CLASSES

- Select a live or on-demand ride from the home screen, or tap **Classes** to filter and search thousands of on-demand rides by length, instructor, title, and featured music.
- Toggle to **Floor** on the class selection screen to see strength, stretching, yoga, and more.
- Use the buttons along the bottom of the screen to view a **Schedule** of upcoming classes, join **Challenges**, or view **Programs** of preselected classes.
- Tap **More** for a **Scenic Ride**, or to **Just Ride** without instruction or video.

Peloton Bike+ Manual, p. 31 (PELOTON_ICON2_007913).

And when a user selects a class, that generates the user control signals:

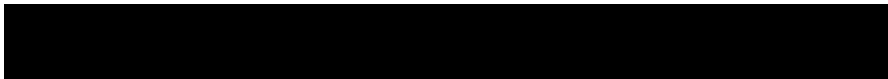
“Once a user selects an on-demand class and before the class starts, the Bike+ requests the class’s information including Target Metrics (i.e., including the time stamps and suggested ranges for speed and resistance) through an Application Programming Interface (API).”

(Vivori Decl., ¶ 6)

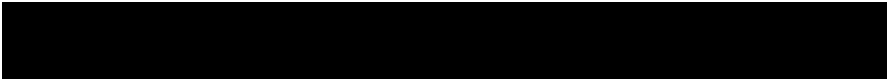
Claim 52

An exercise device as recited in claim 49 wherein the second signal comprises one or more audio and video signals and the synchronized control signal.

The second signal comprises, one or more audio and video signals and the synchronized control signal.



Claim 54	
An exercise device as recited in claim 49, wherein the communication system receives the one or more audio and video signals and the synchronized control signals from an exercise device of a trainer.	On information and belief, the remote server (i.e., communication system) receives one or more audio and video signals and the synchronized control signals from an exercise device of a trainer. The trainer on the Bike+ is in the form of, for example, the Peloton instructor.
Claim 56	
An exercise device as recited in claim 49, wherein the exercise device communicates with the communication system via a network.	The Bike+ communicates with the remote server via internet network. For example, the packetized signal sent from the remote server to the Bike+ is sent using a TCP/IP protocol (i.e., internet network). An example of this is set forth below: <pre>Frame 1: 143 bytes on wire (1144 bits), 143 bytes captured (1144 bits) on interface \Device\NPF_{B874C064-7DCE-4795-836C-8CDEA9EE26B7}, id 0 Ethernet II, Src: b6:69:21:6c:03:b8 (b6:69:21:6c:03:b8), Dst: IPv4mcast_7f:ff:fa (01:00:5e:7f:ff:fa) Internet Protocol Version 4, Src: 192.168.137.1, Dst: 239.255.255.250 0100 = Version: 4 0101 = Header Length: 20 bytes (5) > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT) Total Length: 129 Identification: 0x9332 (37682) > Flags: 0x0000 Fragment offset: 0 Time to live: 4 Protocol: UDP (17) Header checksum: 0xe995 [validation disabled] [Header checksum status: Unverified] Source: 192.168.137.1 Destination: 239.255.255.250 User Datagram Protocol, Src Port: 50724, Dst Port: 1900 Simple Service Discovery Protocol</pre> (Easttom II Decl., ¶ 30; <i>see also</i> Easttom I Decl., ¶¶ 86–101.)
Claim 57	
An exercise device as recited in claim 56, wherein the network comprises a network	The network utilized by the Bike+ comprises a network selected from the group consisting of a wide area network, a local area network, a home network, a packetized network, and the Internet. For example, the Bike+ uses a TCP/IP protocol which is an internet network. An example of this is set forth below:



selected from the group consisting of a wide area network, a local area network, a home network, a packetized network, and the Internet.

```
Frame 1: 143 bytes on wire (1144 bits), 143 bytes captured (1144 bits) on interface \Device\NPF_{B874C064-7DCE-4795-836C-8CDEA9EE2687}, id 0
Ethernet II, Src: b6:69:21:6c:03:b8 (b6:69:21:6c:03:b8), Dst: IPv4mcast_7f:ff:fa (01:00:5e:7f:ff:fa)
Internet Protocol Version 4, Src: 192.168.137.1, Dst: 239.255.255.250
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
  > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
    Total Length: 129
    Identification: 0x9332 (37682)
  > Flags: 0x0000
    Fragment offset: 0
    Time to live: 4
    Protocol: UDP (17)
    Header checksum: 0xe995 [validation disabled]
    [Header checksum status: Unverified]
    Source: 192.168.137.1
    Destination: 239.255.255.250
User Datagram Protocol, Src Port: 50724, Dst Port: 1900
Simple Service Discovery Protocol
```

(Easttom II Decl., ¶ 30; *see also* Easttom I Decl., ¶¶ 86–101.)

Another example is that the Bike+ can also use a local area network:

As an alternative, Peloton touchscreens are equipped with an Ethernet port for wired network connections.

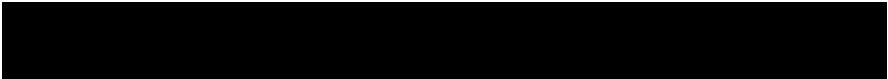
Plug your Ethernet cable into the touchscreen port and your router (or wall jack) for your Local Area Network (LAN). Your Peloton will then connect to your network automatically.

<https://support.onepeloton.com/hc/en-us/articles/208776746-Connecting-To-Your-Network>

Claim 59

An exercise device as recited in claim 49, wherein the means for reproducing the second signal comprises one or more audio output

The Bike+’s touchscreen comprises a means for reproducing the second signal. The touchscreen comprises one or more audio output devices and one or more video displays. The audio output devices on the touchscreen is in the form of a stereo speakers with 80Hz to 20KHz frequency response and the video display on the touchscreen is in the form of a 23.8” 1080P HD Touchscreen:



devices and one or more video displays.

TOUCHSCREEN SPECIFICATIONS

23.8" 1080P HD Touchscreen

WiFi 802.11 a/b/g/n/ac MIMO 2x2 antenna

1 Gbps Ethernet (via network port)

4 GB Memory

16 GB Internal Flash Storage

ANT+™ Wireless

Bluetooth® 5.0

8MP Still Photo/1080P Video Camera with Privacy Cover

4 Digital Microphone Array

3.5mm Headphone Port

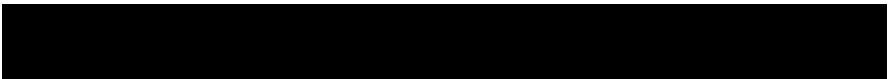
2x10 Watt Woofers with 2x3W Front-Facing Tweeters

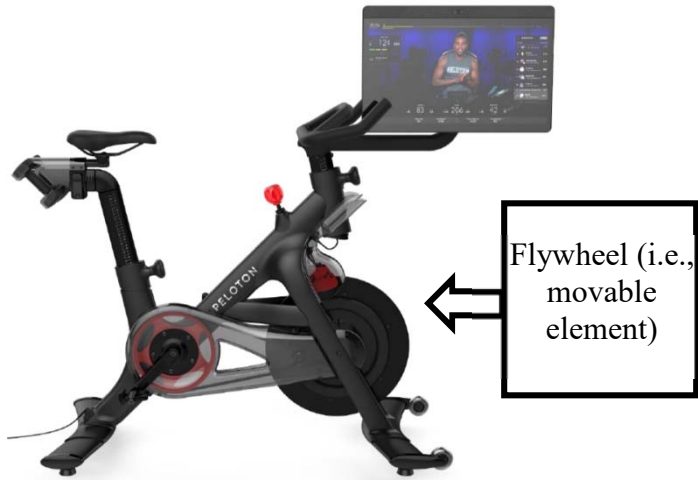
Stereo Speakers with 80Hz to 20KHz Frequency Response

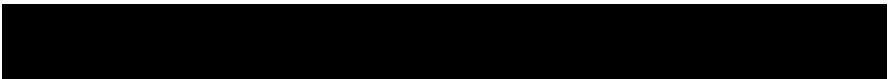
Peloton Bike+ Manual, p. 15 (PELOTON_ICON2_007905)

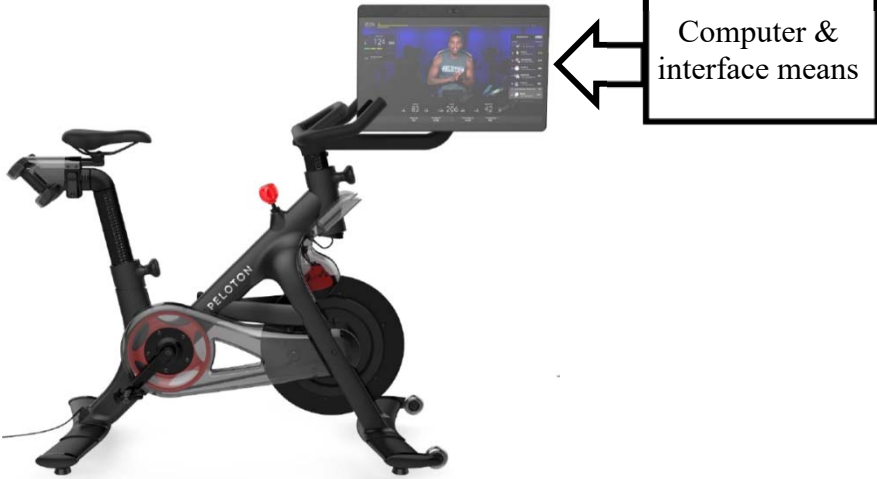


Claim 61	
An exercise device as recited in claim 49, wherein the communication system analyses the user control signals and generates the packetized second signals based upon the analysis of the user control signals.	On information and belief, the remote server (i.e., communication system) analyzes the user control signals that are generated in response to a user selecting an on-demand class. “Once a user selects an on-demand class and before the class starts, the Bike+ requests the class’s information including Target Metrics (i.e., including the time stamps and suggested ranges for speed and resistance) through an Application Programming Interface (API).” (Vivori Decl., ¶ 6) On information and belief, based off of this analysis of the user control signal, the remote server generates a packetized second signal.
Claim 78	
An exercise device for enabling one or more users to select and perform an exercise program stored on a communication system, the exercise device comprising:	To the extent the preamble is limiting, the Bike+ is an exercise device for enabling one or more users to select and perform exercise programs stored on the remote server (i.e., communication system).
(a) An exercise mechanism comprising a movable element for movement in performance of exercise by a user, the exercise	The Bike+ is an exercise mechanism that comprises, for example, a flywheel (i.e., movable element) that moves when a user is peddling.



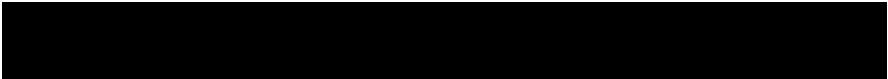
mechanism being configured to enable a user to exercise in response to an exercise program selected from one or more exercise programs stored on a remote communication system in network communication with the exercise mechanism; and	 (PELOTON_ICON2_000223) A user is able to select an exercise program from one or more exercise programs stored on a remote communication system that is in network communication (i.e., internet communication) with the Bike+. “Once a user selects an on-demand class and before the class starts, the Bike+ requests the class’s information including Target Metrics (i.e., including the time stamps and suggested ranges for speed and resistance) through an Application Programming Interface (API).” (Vivori Decl., ¶ 6)
(b) Control means, communicating with the exercise mechanism, for receiving one or	The Bike+ includes, for example, a touch screen user interface means, and a computer equipped with a network interface (i.e., Wi-Fi) for receiving packetized signals from remote servers. This computer’s transmitter and receiver is the control means.



more packetized control signals from the remote communication system indicative of the selected exercise program and for changing one or more operating parameters of the exercise mechanism based upon the selected exercise program and the one or more packetized control signals.	 (PELOTON_ICON2_000223) The control means communicates with the Bike+ for receiving one or more packetized control signals (i.e., JSON information) from the remote communication system (i.e., remote server) indicative of the selected exercise class. Peloton sends a recorded class file to the third party DataPure where the analysts manually create timestamps and metadata that represents the recommended resistance and cadence ranges called out by the instructor. Peloton calls this information “target metrics.” (<i>see</i> Vivori Decl., ¶ 5). These target metrics are then inserted into the JSON information (i.e., packetized control signal), thus the JSON information is indicative of the selected exercise class and the JSON information is also utilized for changing one or more operating parameters (i.e., resistance) of the Bike+ based on the exercise class selected by the user and one or more packetized control signals. (<i>see</i> Almeroth I Decl., ¶ 72, “This mapping between timestamps and resistance is what auto-follow uses to adjust the resistance.”)
Claim 79	
An exercise device as recited in claim 78, wherein the selected exercise signals	The selected exercise signals comprises at least one audio signal and at least one video signal.



	comprise at least one audio signal and at least one video signal.	
Claim 80		
	An exercise device as recited in claim 78, wherein the communication system comprises one or more storage devices adapted to store the one or more exercise programs.	For example, the Bike+'s, communication system (i.e., remote server) comprises one or more storage devices adapted to store the one or more exercise classes. CLASSES • Select a live or on-demand ride from the home screen, or tap Classes to filter and search thousands of on-demand rides by length, instructor, title, and featured music. • Toggle to Floor on the class selection screen to see strength, stretching, yoga, and more. • Use the buttons along the bottom of the screen to view a Schedule of upcoming classes, join Challenges, or view Programs of preselected classes. • Tap More for a Scenic Ride, or to Just Ride without instruction or video. Peloton Bike+ Manual, p. 31 (PELOTON_ICON2_007913).
Claim 81		
	An exercise device as recited in claim 78, wherein the network is selected from the group consisting of a local area network, a wide area network, and the Internet.	The network utilized by the Bike+ comprises a network selected from the group consisting of a local area network, a wide area network, and the Internet. For example, the Bike+ uses a TCP/IP protocol which is an internet network. An example of this is set forth below:



```
Frame 1: 143 bytes on wire (1144 bits), 143 bytes captured (1144 bits) on interface \Device\NPF_{B874C064-7DCE-4795-836C-8CDEA9EE26B7}, id 0
Ethernet II, Src: b6:69:21:6c:03:b8 (b6:69:21:6c:03:b8), Dst: IPv4mcast_7f:ff:fa (01:00:5e:7f:ff:fa)
Internet Protocol Version 4, Src: 192.168.137.1, Dst: 239.255.255.250
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
  > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
    Total Length: 129
    Identification: 0x9332 (37682)
  > Flags: 0x0000
    Fragment offset: 0
    Time to live: 4
    Protocol: UDP (17)
    Header checksum: 0xe995 [validation disabled]
    [Header checksum status: Unverified]
    Source: 192.168.137.1
    Destination: 239.255.255.250
User Datagram Protocol, Src Port: 50724, Dst Port: 1900
Simple Service Discovery Protocol
```

(Easttom II Decl., ¶ 30; *see also* Easttom I Decl., ¶¶ 86–101.)

Another example is that the Bike+ can also use a local area network:

As an alternative, Peloton touchscreens are equipped with an Ethernet port for wired network connections.

Plug your Ethernet cable into the touchscreen port and your router (or wall jack) for your Local Area Network (LAN). Your Peloton will then connect to your network automatically.

<https://support.onepeloton.com/hc/en-us/articles/208776746-Connecting-To-Your-Network>

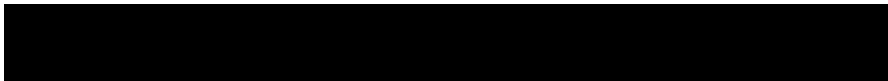
Claim 82

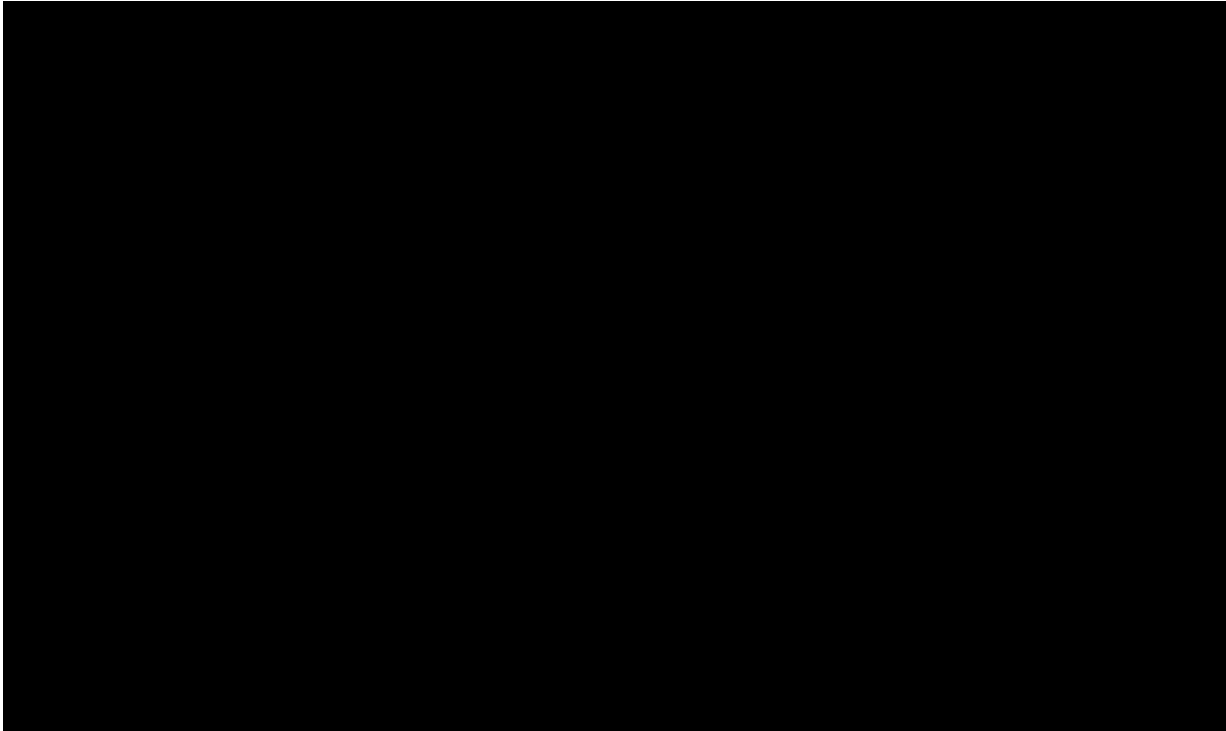
An exercise device as recited in claim 78, wherein the exercise mechanism includes one or more actuators configured to vary one

The Bike+ contains, for example, a stepper motor that is configured to vary the resistance (i.e., operating parameter) of the Bike+.

Executive Summary

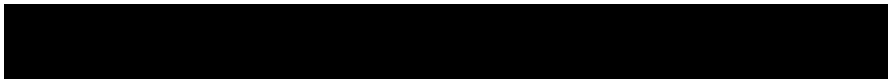
- 1. **Product Features:** Stepper Motor Brake with Load Cell, Re-designed user adjustments, Improved resistance knob, weight holders and shrouds, Topaz

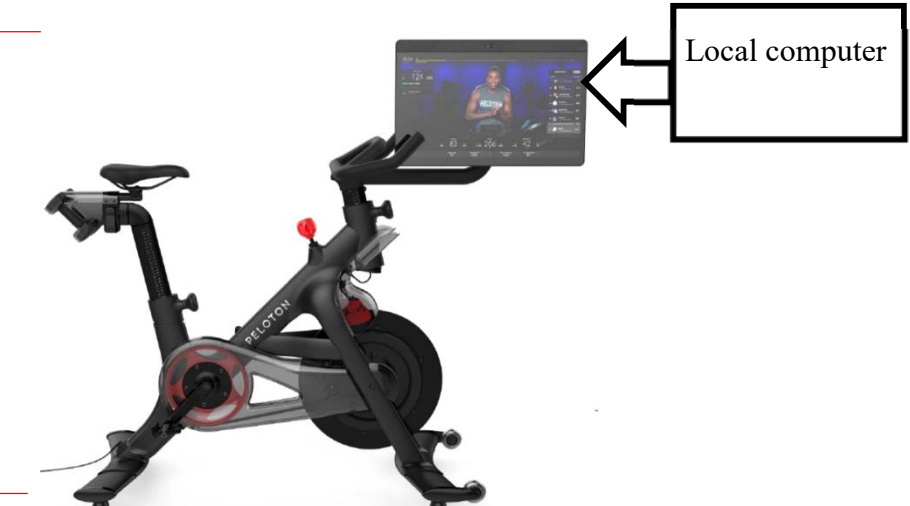


or more operating parameters of the exercise mechanism.	(PELOTON_ICON2_006347)  (PELOTON_ICON2_006354)
Claim 83	
An exercise device as recited in 78, wherein the control means comprises at least one decoder configured to decode the one or more packetized control signal and at least one	On information and belief, the Bike+’s control means comprises, for example, at least one decoder that is configured to decode the one or more packetized control signals. Further, on information and belief, the Bike+ has at least one processor that is configured to activate the one or more actuators (i.e., to change resistance) in response to the one or more decoded control signals.



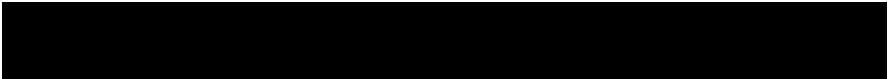
	processor configured to activate the one or more actuators in response so the one or more decoded control signals.	
Claim 84		
	An exercise device as recited in claim 78, wherein the communication system comprises:	
	(a) One or more storage devices adapted to store the one or more audio and video signals;	The communication system of the Bike+ takes form of, for example, a remote server. The remote server comprises one or more storage devices adapted to store one or more audio and video signals: CLASSES • Select a live or on-demand ride from the home screen, or tap Classes to filter and search thousands of on-demand rides by length, instructor, title, and featured music. • Toggle to Floor on the class selection screen to see strength, stretching, yoga, and more. • Use the buttons along the bottom of the screen to view a Schedule of upcoming classes, join Challenges, or view Programs of preselected classes. • Tap More for a Scenic Ride, or to Just Ride without instruction or video. Peloton Bike+ Manual, p. 31 (PELOTON_ICON2_007913).
	(b) A control signal generator configured to generate one or more control signals; and	For example, the remote server, on information and belief, comprises a control signal generator that is configured to generate one or more control signals.

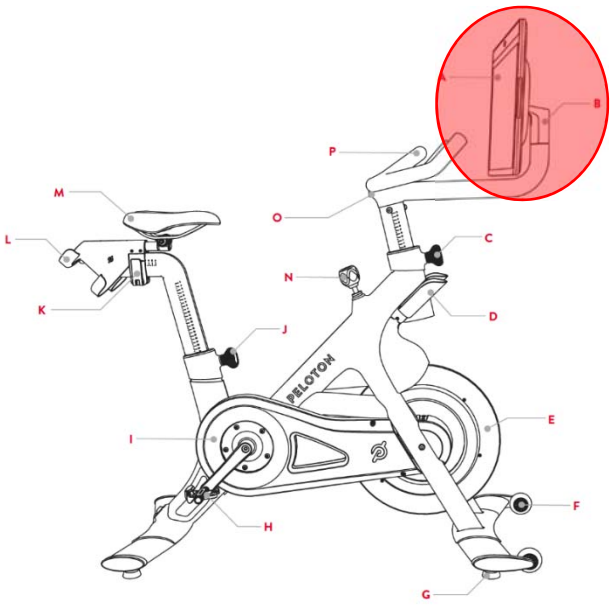


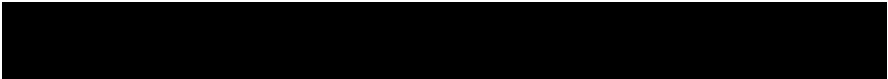
(c) A control processor configured to synchronize and packetize the controls signals with the one or more audio and video signals and deliver the packetized control signal to the exercise mechanism.	For example, the remote server, on information and belief, comprises a control processor that is configured to synchronize and packetize the control signals with the one or more audio and video signals and deliver the packetized control signal to the exercise mechanism. “When a user selects a class and before the class video starts to play, the Peloton Bike+ requests class information from Peloton via an Application Programming Interface (API).” (Almeroth I Decl., ¶ 72; <i>see also</i> Vivori Decl., ¶ 6)
Claim 85	
An exercise system comprising:	To the extent the preamble is limiting, the Bike+ is an exercise system in the form of a stationary exercise bike.
(a) a local system including at least one exercise apparatus to an associated local computer;	The Bike+ is a local system that is a stationary exercise bike and is equipped with a local computer. Stationary exercise bike  The diagram shows a black Peloton Bike+ stationary exercise bike. A red bracket on the left side of the bike is labeled "Stationary exercise bike". A black box labeled "Local computer" is positioned to the right of the bike's screen. Two black arrows point from the "Local computer" box to the screen of the bike, indicating a connection between the computer and the bike's display system.



(b) a remote system including a least one remote computer; and	The remote server is the remote system that, includes at least one remote computer.
(c) a communication link for communicating packetized data between the local computer and the remote system, such that the local system may receive remote system data from the remote system, including packetized control signals for controlling operation of the at least one exercise apparatus.	The Bike+ sends the packetized data from the remote server via API over the internet. “When a user selects a class and before the class video starts to play, the Peloton Bike+ requests class information from Peloton via an Application Programming Interface (API).” (Almeroth I Decl., ¶ 72; <i>see also</i> Vivori Decl., ¶ 6) The packetized data from the Peloton server, for example, is JSON information that contains resistance ranges and timestamps that auto-follow utilizes to change resistance on the Bike+. (<i>see</i> Almeroth I Decl., ¶ 72, “This mapping between timestamps and resistance is what auto-follow uses to adjust the resistance.”) This JSON information is a packetized control signal because it is sent via internet and controls the resistance of the Bike+.
Claim 87	
An exercise system as recited and claim 85, wherein the one or more control signals correspond to an exercise program selected by a user of the least one exercise apparatus.	For example, Peloton sends a recorded class file to the third party DataPure where the analysts manually create timestamps and metadata that represents the recommended resistance and cadence ranges called out by the instructor. Peloton calls this information “target metrics.” (<i>see</i> Vivori Decl., ¶ 5). These target metrics are then inserted into the JSON information (i.e., packetized control signal), thus the JSON information is indicative of the selected exercise program and the JSON information is also utilized for changing one or more operating parameters (i.e., resistance) of the Bike+ based on the exercise program selected by the user and one or more packetized control signals. (<i>see</i> Almeroth I Decl., ¶ 72, “This mapping between timestamps and resistance is what auto-follow uses to adjust the resistance.”)



Claim 89	
An exercise system as recited in claim 85, wherein the remote system remotely controls an operation of the local computer based upon the packetized control signals.	For example, the remote server sends the packetized control signal (i.e., JSON information) to the Bike+. Within the JSON information are timestamps and resistance ranges that the Bike+ then uses to control the resistance of the Bike+. (see Almeroth I Decl., ¶ 72, “This mapping between timestamps and resistance is what auto-follow uses to adjust the resistance.”)
Claim 90	
An exercise system as recited in claim 85, further comprising one or more input devices gathering a signal from a user of the at least one exercise apparatus, the one or more input devices being selected from a group consisting of audio and video.	The Bike+ has an input device, for example, in the form of a touchscreen. A TOUCHSCREEN B SWIVEL C HANDLEBAR HEIGHT ADJUSTMENT KNOB D WATER BOTTLE HOLDER E FLYWHEEL F WHEELS G FEET H PEDALS I BELT GUARD J SEAT HEIGHT ADJUSTMENT KNOB K SEAT SLIDER LATCH L WEIGHT HOLDERS M SADDLE N RESISTANCE KNOB/EMERGENCY BRAKE O AUDIO JACK P HANDLEBARS  Peloton Bike+ Manual, p. 10–11 (PELOTON_ICON2_007903)



Touchscreen is selected from a group consisting of audio input device (i.e., 4 Digital Microphone Array) and a video input device (i.e., 8MP Still Photo/1080P Video Camera with Privacy Cover).

TOUCHSCREEN SPECIFICATIONS

23.8" 1080P HD Touchscreen

WiFi 802.11 a/b/g/n/ac MIMO 2x2 antenna

1 Gbps Ethernet (via network port)

4 GB Memory

16 GB Internal Flash Storage

ANT+™ Wireless

Bluetooth® 5.0

8MP Still Photo/1080P Video Camera with Privacy Cover

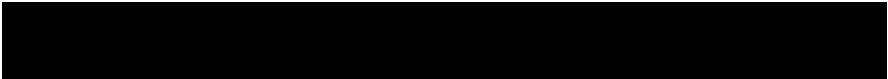
4 Digital Microphone Array

3.5mm Headphone Port

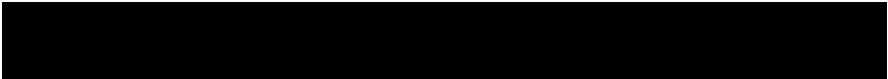
2x10 Watt Woofers with 2x3W Front-Facing Tweeters

Stereo Speakers with 80Hz to 20KHz Frequency Response

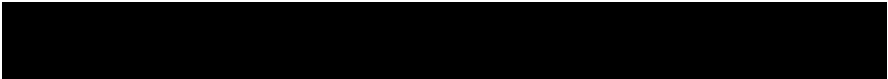
Peloton Bike+ Manual, p. 15 (PELOTON_ICON2_007905)

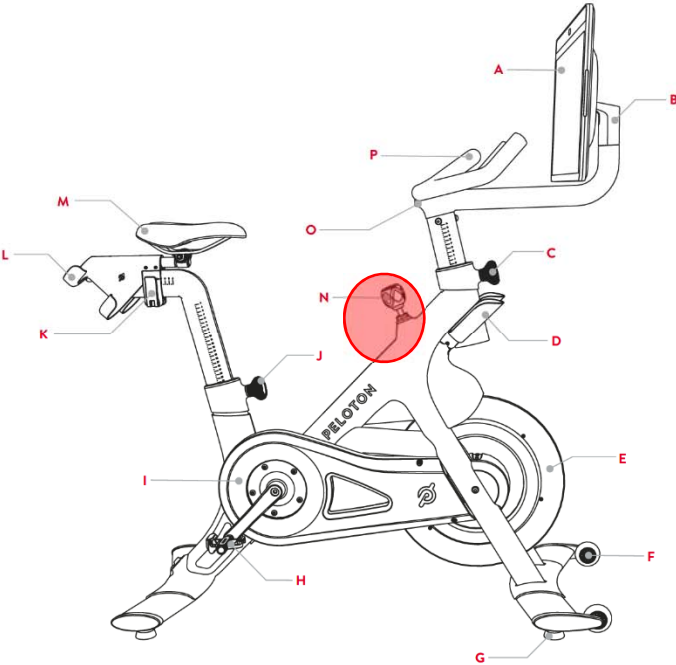


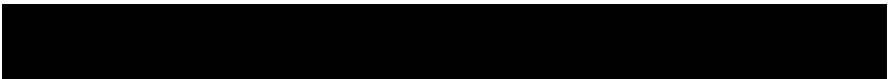
Claim 92	
An exercise system as recited in claim 85, wherein the packetized control signals are synchronized with at least one of an audio signal or a video signal.	The packetized control signals from the remote server are, on information and belief, synchronized with at least one of an audio signal or a video signal. For example, when the packetized control signal automatically changes the resistance, the resistance in the lower right hand corner of the user's screen will change at the same time to visually illustrate to the user that the resistance is changing. Examples of this visual change is illustrated below: 



Claim 93		
An exercise system as recited in claim 85, wherein the communication link comprises a network connection.	The communication link comprises, for example, an internet network connection. For example, the packetized signal sent from the remote server to the Bike+ is sent using a TCP/IP protocol (i.e., internet network). An example of this is set forth below. <pre>Frame 1: 143 bytes on wire (1144 bits), 143 bytes captured (1144 bits) on interface \Device\NPF_{B874C064-7DCE-4795-836C-8CDEA9EE26B7}, Id 0 Ethernet II, Src: b6:69:21:6c:03:b8 (b6:69:21:6c:03:b8), Dst: IPv4mcast_7f:ff:fa (01:00:5e:7f:ff:fa) Internet Protocol Version 4, Src: 192.168.137.1, Dst: 239.255.255.250 0100 = Version: 4 0101 = Header Length: 20 bytes (5) > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT) Total Length: 129 Identification: 0x9332 (37682) > Flags: 0x0000 Fragment offset: 0 Time to live: 4 Protocol: UDP (17) Header checksum: 0xe995 [validation disabled] [Header checksum status: Unverified] Source: 192.168.137.1 Destination: 239.255.255.250 User Datagram Protocol, Src Port: 50724, Dst Port: 1900 Simple Service Discovery Protocol</pre> (Easttom II Decl., ¶ 30; <i>see also</i> Easttom I Decl., ¶¶ 86–101)	
Claim 94		
An exercise system as recited in claim 85, wherein the exercise apparatus comprises one or more sensors for detecting data representative of the status of the exercise apparatus is configured	The Bike+, on information and belief, comprises one or more sensors that detects data that is representative of the status of the Bike+ that is configured to transmit the data to the remote system via the internet network.	



	to transmit the data to the remote system via the communication link.
Claim 95	
An exercise system as recited in claim 85, further comprising a safety mechanism in communication with the at least one exercise apparatus, the safety mechanism manipulating the at least one exercise apparatus in the event that a packetized control signal is interrupted.	The Bike+ further comprises a safety mechanism in the form of, for example, an emergency brake. A TOUCHSCREEN B SWIVEL C HANDLEBAR HEIGHT ADJUSTMENT KNOB D WATER BOTTLE HOLDER E FLYWHEEL F WHEELS G FEET H PEDALS I BELT GUARD J SEAT HEIGHT ADJUSTMENT KNOB K SEAT SLIDER LATCH L WEIGHT HOLDERS M SADDLE N RESISTANCE KNOB O AUDIO JACK P HANDLEBARS EMERGENCY BRAKE (PELOTON_ICON2_007903) 



For example, the emergency brake is in communication with the Bike+ and the emergency brake is able to manipulate the exercise apparatus by immediately stopping the flywheel upon activation of the emergency brake.

The resistance knob can be used as an emergency brake. To stop immediately, push down on the resistance knob.

This bike has a direct driven flywheel. If the flywheel is moving, the pedals are moving. Removing your feet from the pedals while they are moving can cause serious injury. Stop by reducing pedaling frequency in a controlled manner or by using the emergency brake. Do not remove your feet from the pedals until the flywheel stops moving.

Peloton Bike+ Manual, p. 4 (PELOTON_ICON2_007900)

- **Emergency brake:** Press down on the resistance knob while pedaling slowly. The flywheel should come to a complete stop immediately. If it does not, stop using the bike immediately and contact Peloton Support.

Peloton Bike+ Manual, p. 40 (PELOTON_ICON2_007918)

On information and belief, in the event the packetized control signal (i.e., JSON information) is interrupted, the emergency brake is capable of immediately stopping the flywheel.