

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

K/S HIMPP
Petitioner

v.

BRAGI GmbH
Patent Owner

Case IPR2023-00901

**PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 10,635,385
CHALLENGING CLAIMS 1-16**

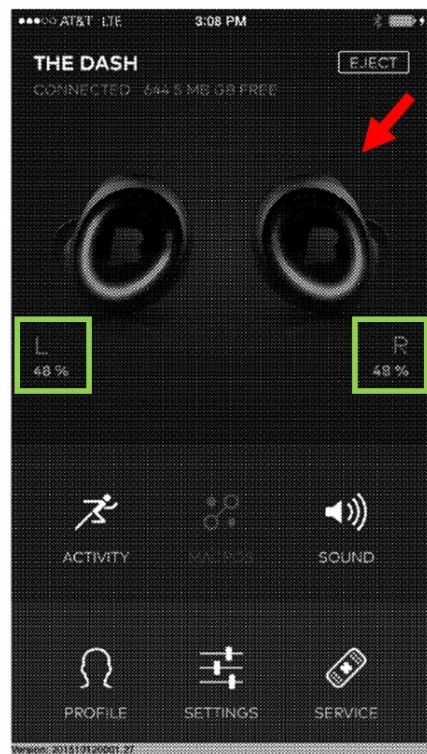
TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	MANDATORY NOTICES	3
	A. Real Party-in-Interest	3
	B. Related Matters.....	3
	C. Counsel	3
	D. Service Information	3
III.	CERTIFICATION OF GROUNDS FOR STANDING	4
IV.	OVERVIEW OF CHALLENGE AND RELIEF REQUESTED	4
	A. Prior Art.....	5
	B. Grounds for Challenge	7
V.	BACKGROUND TECHNOLOGY AND '385 PATENT OVERVIEW	8
	A. The Alleged Invention.....	8
	B. Prosecution History	10
VI.	CLAIM CONSTRUCTION	12
VII.	OVERVIEW OF THE PRIOR ART	12
	A. Hensen-Patent.....	12
	B. Hensen-Video	15
	C. Hensen-Kickstarter.....	22
VIII.	LEVEL OF ORDINARY SKILL IN THE ART	23
IX.	SPECIFIC GROUNDS OF UNPATENTABILITY	24
	A. Ground 1	24
	B. Ground 2.....	85
	C. Ground 3	92
	D. Grounds 4-6	99
X.	CONCLUSION.....	108

K/S HIMPP (“Petitioner”) respectfully requests *inter partes* review (“IPR”) of claims 1-16 of USP 10,635,385 (“’385 patent”) (Ex. 1001).

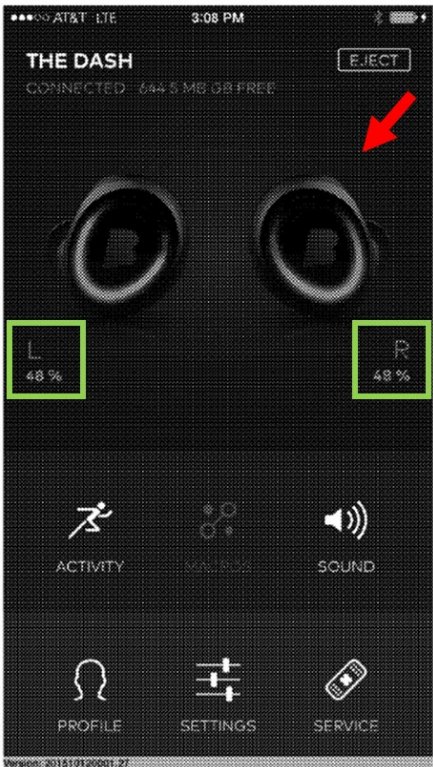
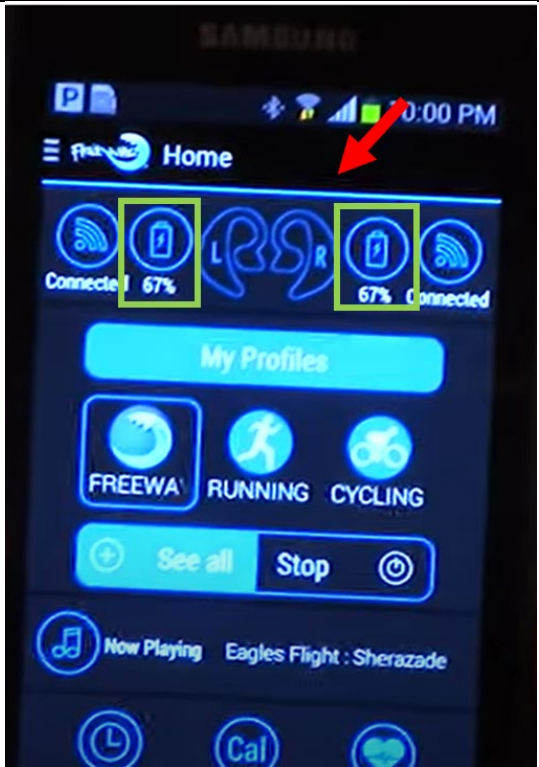
I. INTRODUCTION

The ’385 patent, which claims a November 13, 2015, priority date, concerns a software application similar to many then-popular fitness tracking smartphone apps. The software application connects to a pair of wireless earpieces (e.g., Bluetooth headphones) and provides a user interface to interact with the earpieces. As shown below, the user interface displays a “visual representation” of the **earpieces**, which can be used to monitor earpiece properties such as remaining **battery life**.



Ex-1001-USP385, Figure 6

To secure the allowance of the '385 patent, the Patent Owner amended its claims to require a visual representation of the earpiece. *See* Ex-1011-FH [PDF172-175] (Response at 2-5). However, there was nothing new or non-obvious about such a claimed visual representation. For example, FreeWavz had already developed, patented, and demonstrated (via a YouTube video and other promotional materials) a fitness-tracking software application that displays a visual representation of a pair of **wireless earpieces** to show their remaining **battery life**.

'385 Patent, Figure 6	Hensen-Video, 0:32-0:38
 Version: 201510100001.27	

Accordingly, Petitioner requests that the Board institute this IPR and cancel claims 1-16 as unpatentable.

II. MANDATORY NOTICES

A. Real Party-in-Interest

Petitioner K/S HIMPP is a real party-in-interest. For purposes of this Petition and for the avoidance of disputes, Petitioner identifies HIMPP members and affiliates Demant A/S; GN Store Nord A/S; Sound Design Technologies Ltd.; IntriCon Corporation; and Rion Co., Ltd. as additional real parties-in-interest.

B. Related Matters

According to USPTO records, the '385 patent is owned by BRAGI GmbH ("Patent Owner"). As of the filing date of this petition, Petitioner is not aware of any related proceedings involving the '385 patent.

C. Counsel

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Petitioner consents to service via email at the email addresses above.

III. CERTIFICATION OF GROUNDS FOR STANDING

Petitioner certifies pursuant to Rule 42.104(a) that the patent for which review is sought is available for IPR and that Petitioner is not barred or estopped from requesting IPR challenging the claims on the grounds identified in this Petition.

IV. OVERVIEW OF CHALLENGE AND RELIEF REQUESTED

Petitioner challenges claims 1-16 of the '385 patent.

A. Prior Art

The '385 patent claims a November 13, 2015, priority date. Ex-1001-USP385, Cover.¹ Petitioner relies upon the documents in the Table of Exhibits, including:

¹ As described below, the prior art relied on in this Petition predates the claimed priority date. Accordingly, Petitioner assumes for purposes of this Petition, without taking a position, that the '385 patent is entitled to the claimed priority date, but reserves the right to argue in later proceedings that the claimed subject matter is unsupported by the priority filing.

1. USP 9,781,514 (“Hensen-Patent”) (Ex-1003), filed October 8, 2015, as § 102(a)(2) prior art.²
2. YouTube.com, *September 2015 – FreeWavz Demo* (“Hensen-Video”) (Ex-1004 (video); Ex-1010 (screenshots)), uploaded September 10, 2015, as § 102(a)(1) prior art.
3. *User Manual: LG Heart Rate Earphones* (“LG-Manual”) (Ex-1005), released May 14, 2014, as § 102(a)(1) prior art.
4. U.S. Patent Appl. No. 2014/0189600 (“Lee”) (Ex-1006), filed December 16, 2013 and published July 3, 2014, as §§ 102(a)(1) and 102(a)(2) prior art.

² Hensen-Patent is a continuation-in-part of USPA 12/731,397 (“Hensen-Parent”) (Ex-1008) and claims priority to U.S. Provisional Appl. No. 62/061,497 (“Hensen-Provisional”) (Ex-1009). Hensen-Patent incorporates by reference the contents of Hensen-Parent and Hensen-Provisional. Ex-1003-Hensen-Patent, 1:5-17.

Petitioner does not rely on the filing dates of Hensen-Parent or Hensen-Provisional to establish that Hensen-Patent is prior art to the ’385 patent because the filing date of Hensen-Patent is sufficiently early such that Hensen-Patent qualifies as prior art.

5. Kickstarter.com, *November 22 Progress Report* (“Hensen-Kickstarter”) (Ex-1007), posted November 22, 2014, as § 102(a)(1) prior art.³

B. Grounds for Challenge

The challenged claims are rendered obvious under 35 U.S.C. § 103 as follows:

Ground	Claims	References
1	1-4, 9-16	Hensen-Patent and Hensen-Video
2	5-7	Hensen-Patent, Hensen-Video, and LG-Manual
3	8	Hensen-Patent, Hensen-Video, and Lee
4	1-4, 9-16	Hensen-Patent and Hensen-Kickstarter
5	5-7	Hensen-Patent, Hensen-Kickstarter, and LG-Manual
6	8	Hensen-Patent, Hensen-Kickstarter, and Lee

³ An Internet Archive Declaration (Ex-1023) supports the public availability of each of the archived web sites submitted as exhibits to this petition: Ex-1007, Ex-1013, Ex-1015, Ex-1016, Ex-1017, Ex-1019, and Ex-1022.

This Petition, supported by the declaration of Dr. Brian Anthony (“Ex-1002-Anthony-Decl.”), demonstrates that each challenged claim is unpatentable.

V. BACKGROUND TECHNOLOGY AND ’385 PATENT OVERVIEW

A. The Alleged Invention

The ’385 patent is directed to a system in which a software application (e.g., smartphone app) is used to interface with a wireless earpiece (e.g., Bluetooth headphones). Ex-1001-USP385, 1:30-32 (“It is a further object, feature, or advantage of the present invention to provide a software application for communicating with one or more wireless ear pieces”), 3:61-63, 7:1-10. The ’385 patent claims require the software application to display a “visual representation” of the **wireless earpiece**. *Id.*, 7:30-35, 8:23-25, 8:38-40. The visual representation is indicative of a function or property of the earpiece. For example, as shown in Figure 6, the visual representation includes icons depicting the **wireless earpieces 120 and 122** and further includes a numerical representation 124 and 126 of the **remaining battery life** for each respective **earpiece**. *Id.*, 6:1-19.



Id., Figure 6⁴; Ex-1002-Anthony-Decl., ¶¶23-24, 26.

The '385 patent additionally discloses that the software application can support other functionality such as music playback and activity monitoring. Ex-1001-USP385, 1:33-40; Ex-1002-Anthony-Decl., ¶¶25-26.

⁴ All emphasis and annotations have been added unless otherwise noted.

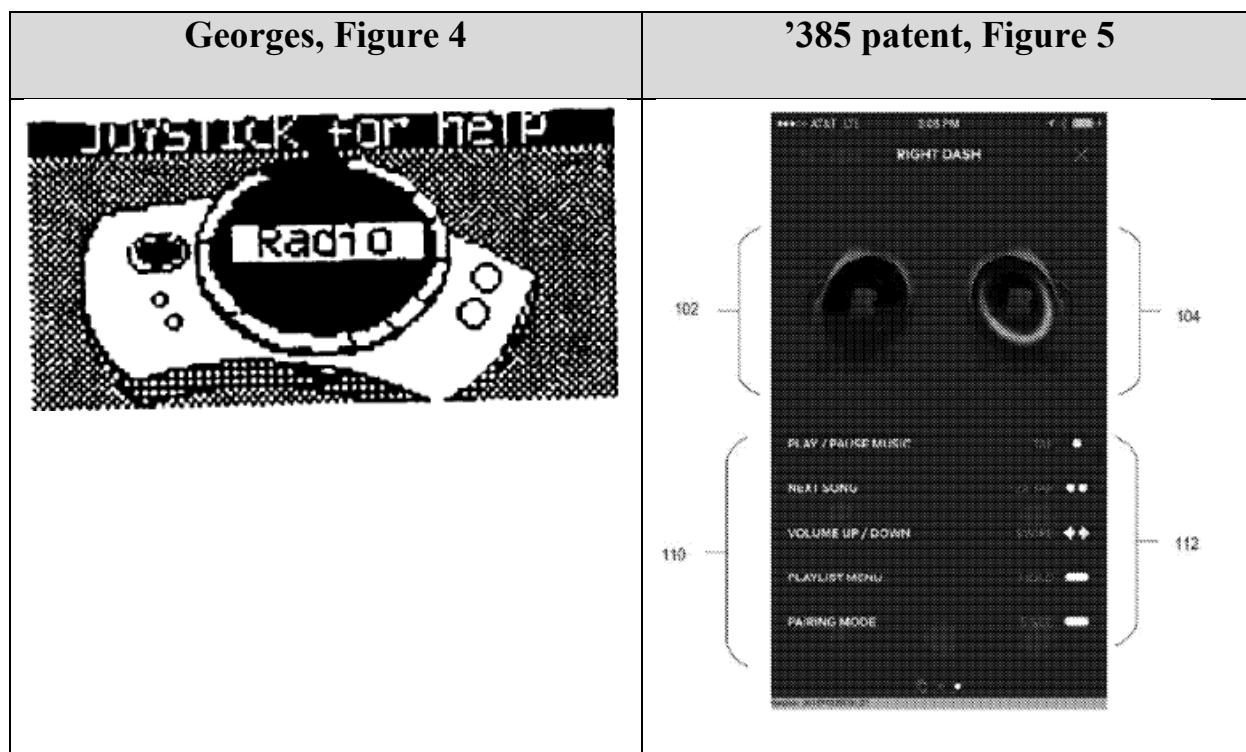
B. Prosecution History

The '385 patent was filed November 12, 2016, and claims priority to U.S. Provisional Application No. 62/255,309 filed November 13, 2015.

The examiner rejected the as-filed claims as being disclosed by prior art references. Ex-1011-FH [PDF139-144] (Office Action at 2-7). In response, the applicant amended claim 1 to add limitations related to a “visual representation,” which are now part of issued claim 1: “wherein the user interface is configured to *display a visual representation* of the at least one wireless ear piece on at least one of the one or more screen displays, *the visual representation indicative of a function or property of the at least one wireless ear piece* communicated from the at least one wireless earpiece to the computing device.” *Id.*, [PDF172] (Response at 2). Applicant similarly amended then-numbered independent claims 14 and 15 (now issued claims 13 and 14) to recite: “wherein at least one of the one or more screen displays *display a visual representation* of the set of wireless ear pieces.” *Id.*, [PDF174-175] (Response at 4-5); Ex-1002-Anthony-Decl., ¶28.

The examiner issued a final rejection, identifying a new prior art reference—USP 7,022,906 (“Georges”)—for the new limitations. Ex-1011-FH [PDF195] (Office Action at 4). After initially allowing the application to go abandoned, the applicant submitted a petition for revival and appealed the final rejection. *Id.*,

[PDF210] (Notice of Appeal). In its Appeal Brief, the applicant argued that Georges’ depiction of a “joystick” in Figure 4 was not the visual representation recited by the new limitations because 1) the depicted joystick is not separate from the display device and is not a wireless earpiece, and 2) there is no communication from a separate joystick or player regarding a function or property associated with visual representation of the joystick. *Id.*, [PDF238-241] (Appeal Brief at 16-23).



Ex-1002-Anthony-Decl., ¶¶29-30.

The examiner did not substantively respond to the applicant’s Appeal Brief and instead allowed the claims, identifying the new limitations related to the “visual representation” as the basis for allowance. Ex-1011-FH [PDF290] (Notice of Allowance at 2); Ex-1002-Anthony-Decl., ¶31.

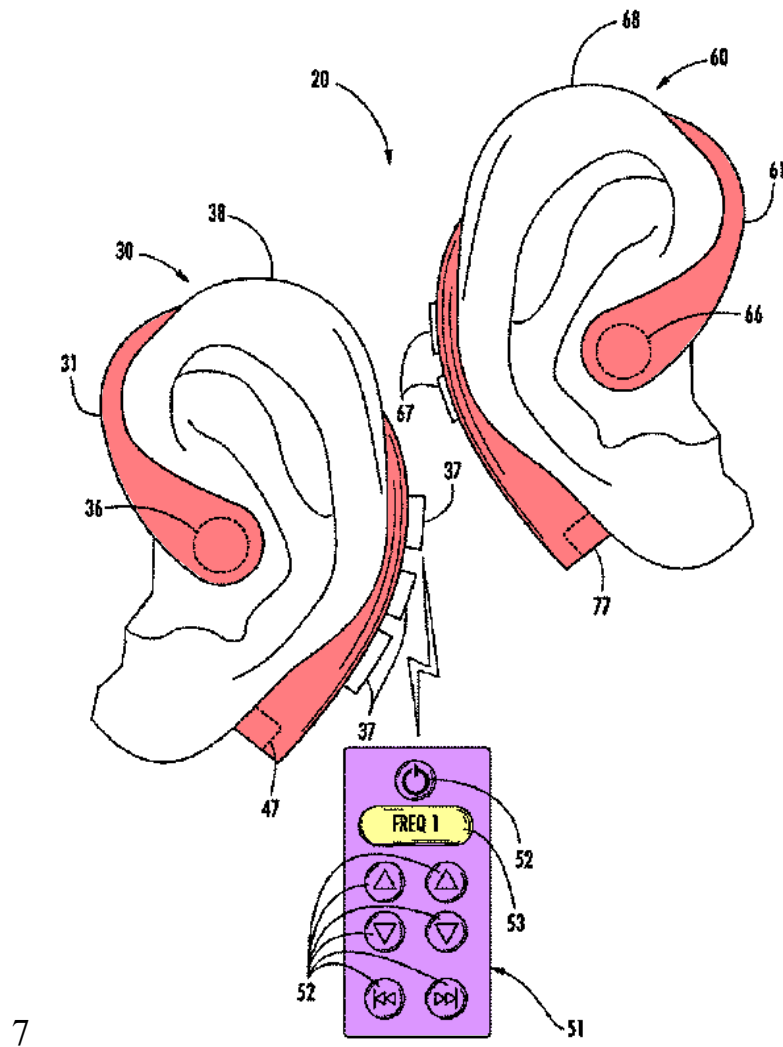
VI. CLAIM CONSTRUCTION

A claim is construed “using the same claim construction standard that would be used to construe the claim in a civil action....” 37 C.F.R. § 42.100(b). Petitioner submits that no terms need to be construed to resolve the issues raised in this Petition because the prior art discloses all limitations under any plausible construction.

VII. OVERVIEW OF THE PRIOR ART

A. Hensen-Patent

Hensen-Patent describes the same type of wireless earpiece system as the '385 patent. Namely, as shown in Figure 1, Hensen-Patent discloses a system 20 that includes a pair of **earpieces 30 and 60** and a **remote control device 51** (with a **display 53**) that communicate wirelessly. Ex-1003-Hensen-Patent, Figure 1, 7:65-8:13, 8:24-34. **Remote control device 51** communicates with **earpieces 30 and 60** to support functions such as music playback and monitoring battery life.



7

Ex-1003-Hensen-Patent, Figure 1; *see also id.*, 8:14-23 (“The remote control unit 51 is configured to transmit commands, for example, to the master wireless receiver 35 [of headphone unit 30]. *Commands that may be transmitted include volume, ... stereo audio source selection[,] ... skipping to another song, or fast-forwarding through a song.*”), 8:24-34 (“The remote control unit 51 also includes a display 53 that may display ... information about the stereo audio headphones, for example, *volume and/or battery power remaining*.... Of course, the remote

control unit 51 may send other commands and may display other information.”);

Ex-1002-Anthony-Decl., ¶¶32, 34-35.

In addition, Hensen-Patent claims priority to and incorporates by reference Hensen-Provisional, which extends Hensen-Patent’s teachings to wireless earpieces having pulse oximetry capabilities for activity monitoring applications.

Ex-1009-Hensen-Provisional, ¶¶1, 14 (“An embodiment of the invention ...

provides *an ear-mounted device comprising integrated pulse oximetry*

capabilities.... [T]he ear-mounted device may be configured to be wirelessly

connected to an electronic device so as to provide the pulse oximetry information generated thereby to the electronic device.”), 35, 42; *see also* M.P.E.P. § 2127

(“the subject matter of [a provisional] application... referred to in a prior art U.S. patent... may be relied on in a 35 U.S.C. 102(a)(2)... rejection based on that

patent... if the disclosure of the [provisional] application is... incorporated by

reference in the patent”); *Viken Detection Corporation v. American Science and*

Engineering, Inc., IPR2022-00027, Paper 12 at 44 (PTAB April 27, 2021)

(incorporated-by-reference priority application is “considered as part and parcel”

of a patent’s disclosure and can be relied upon as prior art); MPEP § 2163.07(b);

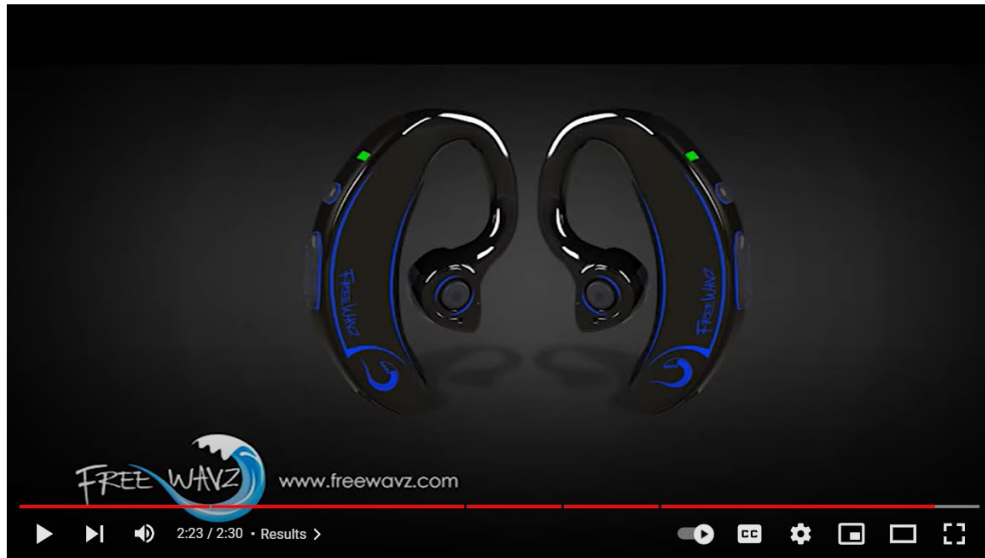
37 CFR § 1.57(c)-(e). Ex-1002-Anthony-Decl., ¶36.

B. Hensen-Video

In addition to filing the above patents, the named inventor of Hensen-Patent (Dr. Eric Hensen) posted a YouTube video in which he demonstrates the capabilities of his wireless earpiece system. Dr. Hensen demonstrates a similar system to the one described in Hensen-Patent—e.g., it includes two **wireless earpieces** connected to a **remote control device** having a **display**.

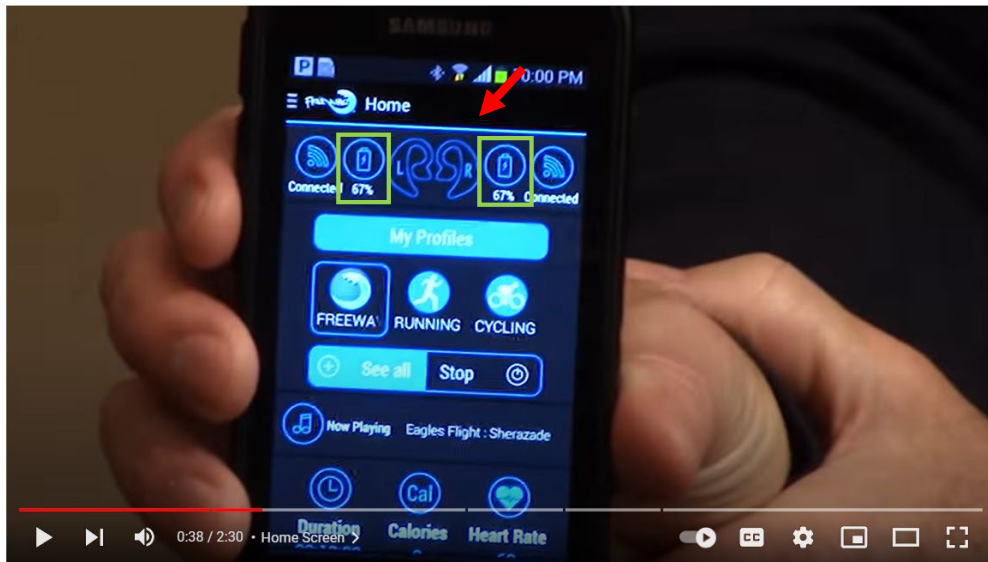


Ex-1004-Hensen-Video, 0:17. A close-up of the earpieces is shown below.



Id., 2:23; *see also id.*, 0:38 (close-up of remote control device); Ex-1002-Anthony-Decl., ¶¶32, 37.

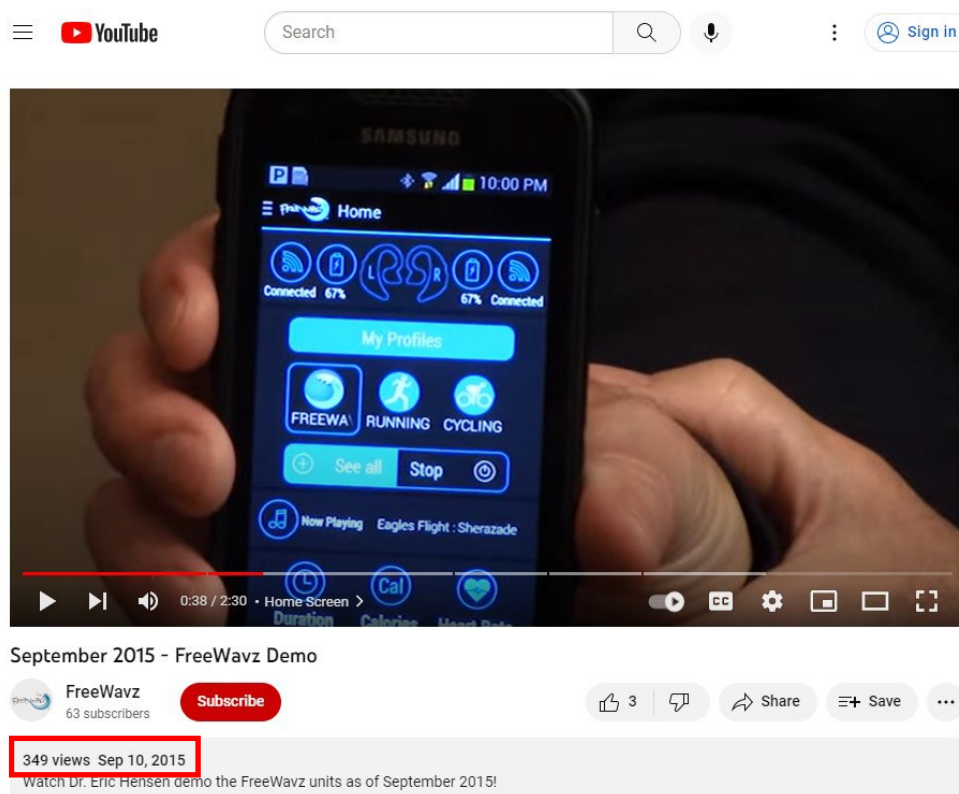
In Hensen-Video, Dr. Hensen demonstrates features of the user interface, shown below. In particular, the user interface displays a visual representation of the **earpieces**, which includes a pair of icons outlining the **left (L) and right (R) earpieces** and respective **battery life indicators**.



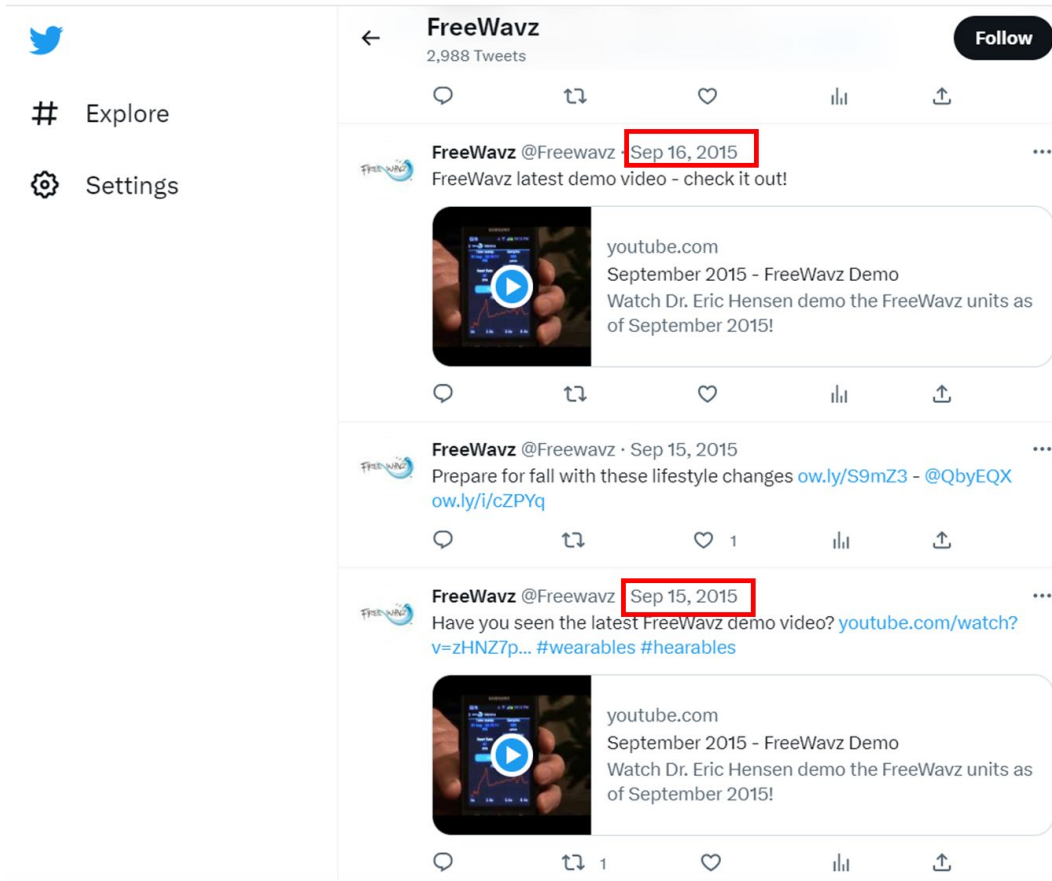
Ex-1004-Hensen-Video, 0:32-0:38 (“I want to show you this home screen. I’m going to hold it real still. Now *at the top you’re going to see each unit and the battery life.*”); Ex-1002-Anthony-Decl., ¶38.

Hensen-Video was published on YouTube on September 10, 2015, and has received over 300 views since it was uploaded.

Petition for *Inter Partes* Review of U.S. Patent No. 10,635,385
IPR2023-00901



Links to Hensen-Video were posted on Twitter on September 15 and 16, 2015, to a Twitter account with over 700 followers.



Ex-1012; *see also* Ex-1013.

On the same day that Hensen-Video was posted on YouTube (September 10, 2015), Hensen-Video was also published on Kickstarter as part of a fundraising campaign with over 1,500 backers.

UPDATE #33

Update #33 Pulse Oximetry Success + FreeWavz Testing + Factory Preparation



FreeWavz **Creator**
September 10, 2015

...

Demo Video



Ex-1014.

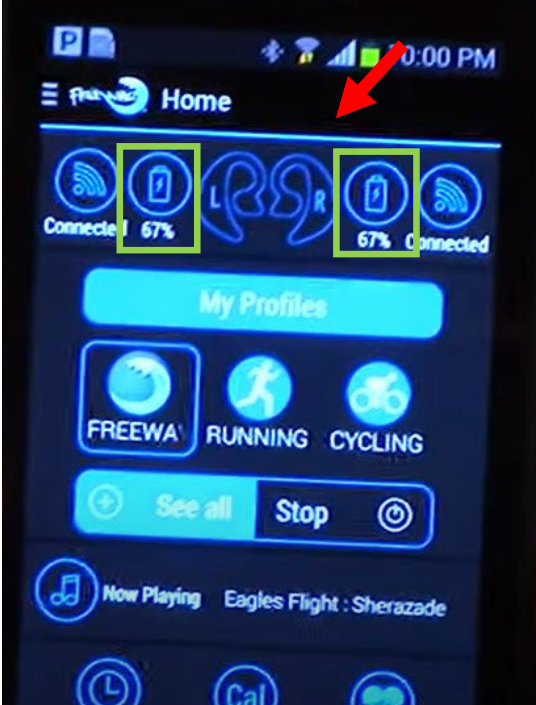
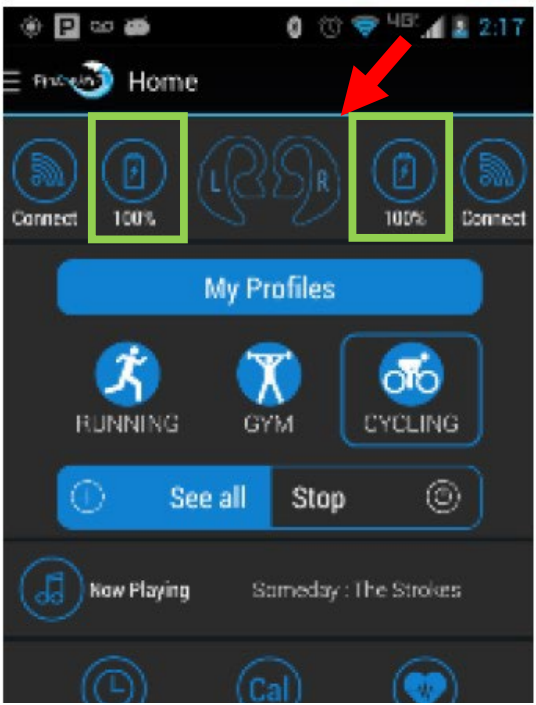
YouTube, Twitter, and Kickstarter are mainstream Internet-based platforms that companies like FreeWavz use to disseminate information about consumer products (e.g., wireless earpieces and software applications) to interested members of the public, including POSITAs. These platforms are well-known, public (e.g., no access restrictions), searchable, and intended to reach a wide audience. Pages from these web sites are frequently captured by archival tools such as the Wayback Machine. *See* Ex-1023. Accordingly, a POSITA could have readily located the information that FreeWavz posted on these platforms with reasonable diligence. *See M&K Holdings, Inc. v. Samsung Electronics Co., Ltd.*, 985 F.3d 1376, 1380-83

(Fed. Cir. 2021) (explaining that “public accessibility” standard is not “restrictive” and that relevant factors include (a) whether a website is “prominent or well-known among [POSITAs]” (b) whether the website “indexes its documents,” (c) whether a user “would have known [how] to navigate” the website, and (d) whether the information is disseminated “without any expectation of confidentiality”); *Hulu, LLC v. Sound View Innovations, LLC* IPR2018-01039, Paper 29 at 18 (PTAB Dec. 20, 2019) (precedential) (website metadata and Internet Archive declarations may provide “strong indicia that an asserted reference was publicly accessible”); *Hangzhou Chic Intelligent Tech. Co., Ltd. V. Razor USA LLC*, 2:16-CV-06359-RGK (Order: Re: Motion to Dismiss at 4) (CDCA, Dec. 19, 2016) (“Given the ubiquitous nature of World Wide Web, the capability of Internet search engines, and [the prior art inventor’s] desire to reach a broad base of investors, there is no dispute that ***the Kickstarter information was publicly accessible and constitutes a printed publication***”). Moreover, YouTube videos can constitute printed publications in *inter partes* review proceedings under §311. *See Medtronic, Inc. v. Barry*, 891 F.3d 1368, 1379-83 (Fed. Cir. 2018) (vacating the Board’s finding that a video was not sufficiently accessible to constitute a printed publication); *London Luxury LLC v. E&E Co., Ltd.*, PGR2021-00083, Paper 10 at *18-19 (PTAB Nov. 15, 2021) (finding prior art YouTube

video to be publicly accessible and a printed publication); Ex-1002-Anthony-Decl., ¶33.

C. Hensen-Kickstarter

Hensen-Kickstarter, a blog post published on November 22, 2014, describes the same FreeWavz system (e.g., including a pair of wireless earpieces and a smartphone user interface) that Dr. Hensen demonstrated in Hensen-Video. Ex-1007-Hensen-Kickstarter. For example, as shown below, Hensen-Kickstarter depicts the same “home” screen shown in Hensen-Video, including the same visual representations of the earpieces to indicate their battery life.

Hensen-Video “Home” screen (Hensen-Video, 0:17)	Hensen-Kickstarter “Home” screen (Hensen-Kickstarter, 4)
	

Ex-1002-Anthony-Decl., ¶¶32, 39-40.

VIII. LEVEL OF ORDINARY SKILL IN THE ART

A POSITA at the time of the alleged invention would have had a Bachelor’s Degree in Electrical Engineering or Computer Science, or equivalent experience, and one to two years of experience in the field of wireless electronic devices and/or graphical user interfaces, particularly as those systems relate to software applications used to interface with wireless earpieces. Ex-1002-Anthony-Decl., ¶22.

IX. SPECIFIC GROUNDS OF UNPATENTABILITY

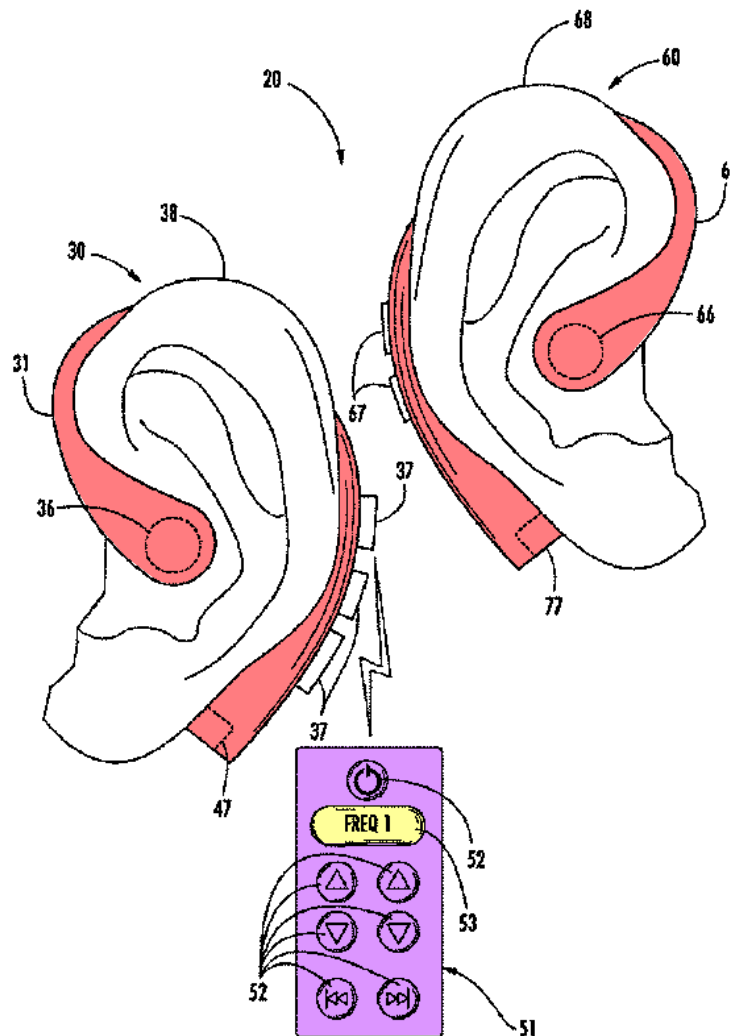
A. Ground 1

Hensen-Patent and Hensen-Video render claims 1-4 and 9-16 obvious. Ex-1002-Anthony-Decl., ¶43.

1. Claim 1

(a) [1Preamble] A system comprising:

Hensen-Patent discloses a system for interacting with wireless earpieces. As shown in Figure 1, Hensen-Patent discloses a system 20 that includes a pair of earpieces 30 and 60 and a remote control device 51 (with a display 53) that communicate wirelessly.



Ex-1003-Hensen-Patent, Figure 1. In this system, the **remote control device** sends commands to the **earpieces** and displays information received from the **earpieces**.

Id., 8:14-23 (“The **remote control unit 51** is configured to transmit commands, for example, to the master wireless receiver 35 [of **headphone unit 30**]. Commands that may be transmitted include volume, ... stereo audio source selection[,] ...

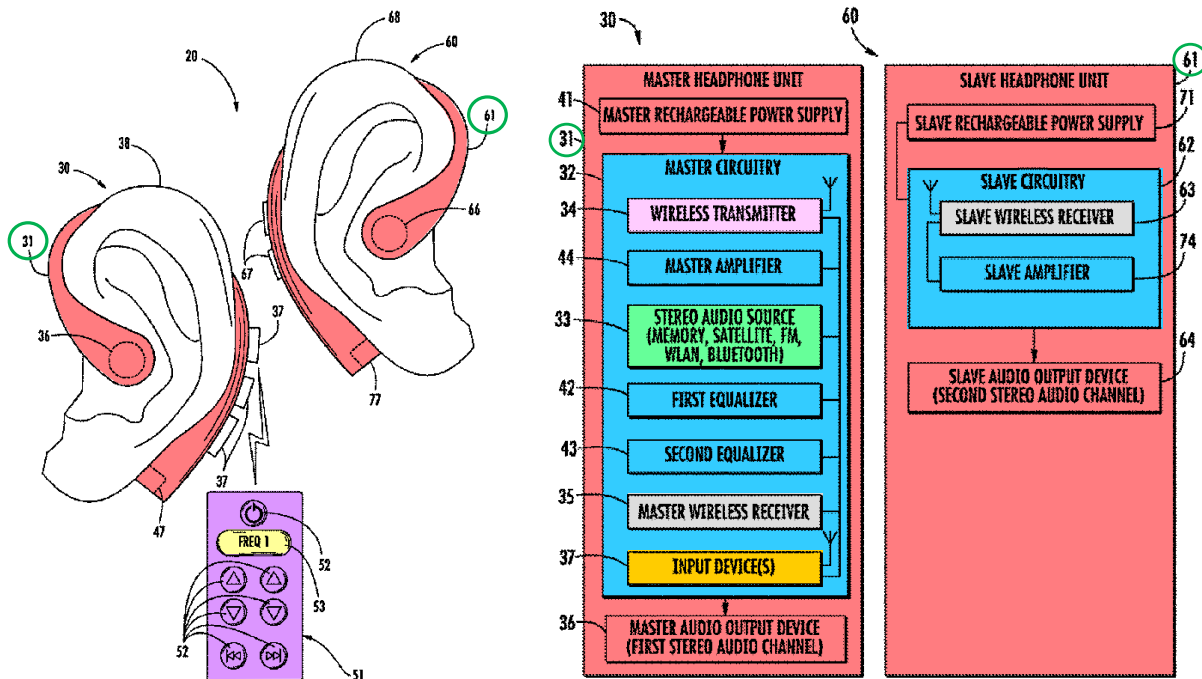
skipping to another song, or fast-forwarding through a song.”), 8:24-34 (“The

remote control unit 51 also illustratively includes remote control unit input devices

52, for example, push buttons, that correspond to the commands. The remote control unit 51 also includes a display 53 that may display ... information about the stereo audio headphones, for example, volume and/or battery power remaining. The remote control unit 51 may advantageously send commands corresponding to ones of the input devices 37.”); *see also* Ex-1009-Hensen-Provisional, ¶¶1, 14 (“An embodiment of the invention ... provides an ear-mounted device comprising integrated pulse oximetry capabilities.... [T]he ear-mounted device may be configured to be wirelessly connected to an electronic device so as to provide the pulse oximetry information generated thereby to the electronic device.”), 35, 42; Ex-1002-Anthony-Decl., ¶¶44-45.

- (b) [1A] at least one wireless ear piece comprising an ear piece housing and a wireless transceiver disposed within the ear piece housing;

Referring to Figures 1 and 2, Hensen-Patent discloses at least one wireless earpiece (e.g., headphone units 30 and 60) comprising an earpiece housing (e.g., housing 31 and 61, respectively) and a wireless transceiver (e.g., portions of circuitry 32 and 62 used for two-way wireless communication) disposed within the earpiece housing.



Ex-1003-Hensen-Patent, Figure 1 (left) and Figure 2 (right); Ex-1002-Anthony-Decl., ¶46.

First, Hensen-Patent discloses that **headphone units 30 and 60** are wireless earpieces. Ex-1003-Hensen-Patent, 13:6-8 (“Moreover, the **stereo audio headphone units 30, 60** advantageously are *wireless* and have a relatively low profile *behind the ear*”); see also *id.*, 2:24-31, 2:36-41, 4:55-64, 12:42-46, 12:52-55, Claim 1, Figure 1; Ex-1009-Hensen-Provisional, ¶¶14 (“An embodiment of the invention ... provides an *ear-mounted device* comprising integrated pulse oximetry capabilities.... [T]he *ear-mounted device may be configured to be wirelessly connected to an electronic device* so as to provide the pulse oximetry

information generated thereby to the electronic device.”), 1, 35, 42; Ex-1002-Anthony-Decl., ¶47.

Second, **headphone units 30 and 60** include **earpiece housings 31 and 61**, respectively. Ex-1003-Hensen-Patent, 4:55-64 (“[A] stereo audio headphone apparatus 20 ... illustratively includes a **master headphone unit 30** that, in turn, includes a **master housing 31** independently carried behind an ear 38 of the user”), 5:63-67 (“The **slave headphone unit 60** illustratively includes a **slave housing 61**”); *see also id.*, 2:24-31, 2:36-41, 4:55-64, 12:42-46, 12:52-55, Claim 1; Ex-1009-Hensen-Provisional, ¶¶17-19 (“The **ear-mounted device 100** may comprise a **proximal housing 200**, an intermediate section 300, and a **distal housing 400**”); Ex-1002-Anthony-Decl., ¶48.

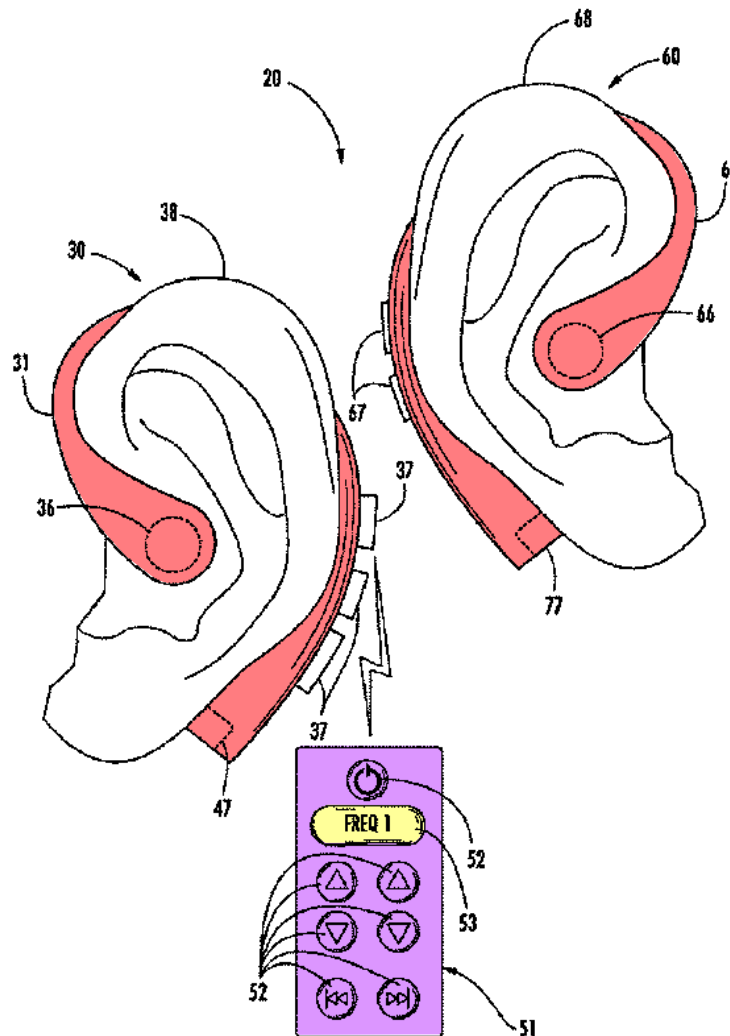
Third, **headphone units 30 and 60** include a wireless transceiver (e.g., portions of **circuitry 32 and 62** that transmit and receive wireless communications). For example, **master circuitry 32** includes a **wireless transmitter 34** to transmit wireless communications, and a **master wireless receiver 35**, a stereo audio wireless receiver within **stereo audio source 33**, and a wireless receiver within **input devices 37** to receive wireless communications. Ex-1003-Hensen-Patent, 4:66-67 (“The master circuitry [32] includes a stereo audio source 33 and a wireless **transmitter** 34 coupled thereto”), 5:9-10 (“The stereo audio source 33

may be a stereo audio wireless *receiver*”), 8:14-23 (“The remote control unit 51 is configured to transmit commands, for example, to the master wireless *receiver* 35”), 8:24-34 (“The remote control unit 51 may advantageously send commands corresponding to ones of the input devices 37”); *see also* Ex-1009-Hensen-Provisional, ¶¶1, 14, 35, 42. Hensen-Patent also discloses arrangements in which transceiver circuitry is included in *slave circuitry* 62. Ex-1003-Hensen-Patent, 6:1-6 (“Slave circuitry 62 is also carried by the slave housing 61 and includes a slave wireless *receiver* 63 cooperating with the wireless transmitter 34.”), 13:34-45 (“*[T]he elements that are present in the master headphone unit 30 may also present in the slave headphone unit*, for example, an input device [and] an audio input device [each of which can include wireless transceiver circuitry as explained above].”); Ex-1002-Anthony-Decl., ¶49.

Fourth, the wireless transceiver circuitry within *circuitry* 32 and 62 is disposed within *earpiece housings* 31 and 61. Ex-1003-Hensen-Patent, 4:65 (“Master circuitry 32 is carried by the master housing 31”), 6:1 (“Slave circuitry 62 is also carried by the slave housing 61”), Figures 1 and 2; *see also* Ex-1009-Hensen-Provisional, ¶¶17, 21, Figures 1-4; Ex-1002-Anthony-Decl., ¶50.

- (c) [1B] a software application for executing on a computing device having a display associated therewith;

Referring to Figure 1, Hensen-Patent in combination with Hensen-Video discloses a software application for executing on a computing device (e.g., **remote control device 51**) having a display (e.g., **display 53**) associated therewith.



Ex-1003-Hensen-Patent, Figure 1; Ex-1002-Anthony-Decl., ¶51.

(i) Hensen-Patent

As discussed above for Element [1Preamble], Hensen-Patent discloses a remote control device with a display, where the remote control device sends commands to the earpieces and displays information received from the earpieces. Ex-1003-Hensen-Patent, 8:14-23 (“The remote control unit 51 is configured to transmit commands, for example, to the master wireless receiver 35 [of headphone unit 30]. Commands that may be transmitted include volume, ... stereo audio source selection[,] ... skipping to another song, or fast-forwarding through a song.”), 8:24-34 (“The remote control unit 51 also illustratively includes remote control unit input devices 52, for example, push buttons, that correspond to the commands. *The remote control unit 51 also includes a display 53 that may display ... information about the stereo audio headphones, for example, volume and/or battery power remaining.* The remote control unit 51 may advantageously send commands corresponding to ones of the input devices 37.”); *see also* Ex-1009-Hensen-Provisional, ¶¶1, 14, 35, 42; Ex-1002-Anthony-Decl., ¶52.

(ii) Hensen-Video

In Hensen-Video, Dr. Hensen (the named inventor of Hensen-Patent) demonstrates the operation of a wireless earpiece system with a remote control device similar to the one disclosed in Hensen-Patent. As demonstrated in the

video, the remote control device includes a *software application executing on a smartphone computing device*. Ex-1002-Anthony-Decl., ¶53.

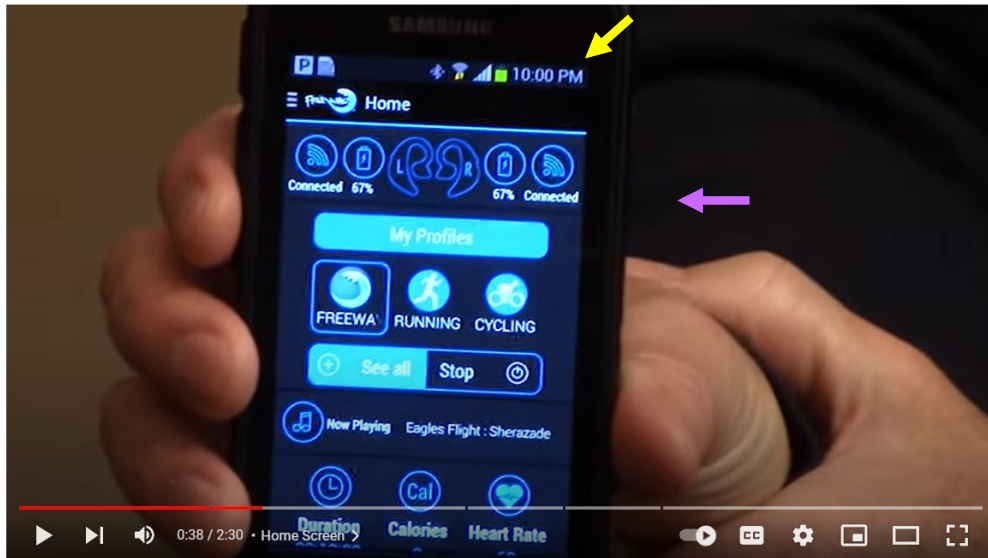
First, Hensen-Video discloses a wireless earpiece system similar to that of Hensen-Patent, *e.g.*, the system includes two **wireless earpieces** and a **remote control device** having a **display**.



Ex-1004-Hensen-Video, 0:17; *see also id.*, 2:23 (close-up of earpieces), 0:38 (close-up of remote control device). The **earpieces** are wirelessly paired with the **remote control device**. *Id.*, 0:09-0:19 (“I’ve paired [the earpieces] with each other and also paired with the **source device**, in this case, a smartphone.”); Ex-1002-Anthony-Decl., ¶54.

Second, the **remote control device** in Hensen-Video includes a software application (*e.g.*, smartphone app) running on a smartphone. The software

application causes various display screens (e.g., the “home screen”) to be displayed on the **smartphone display**.



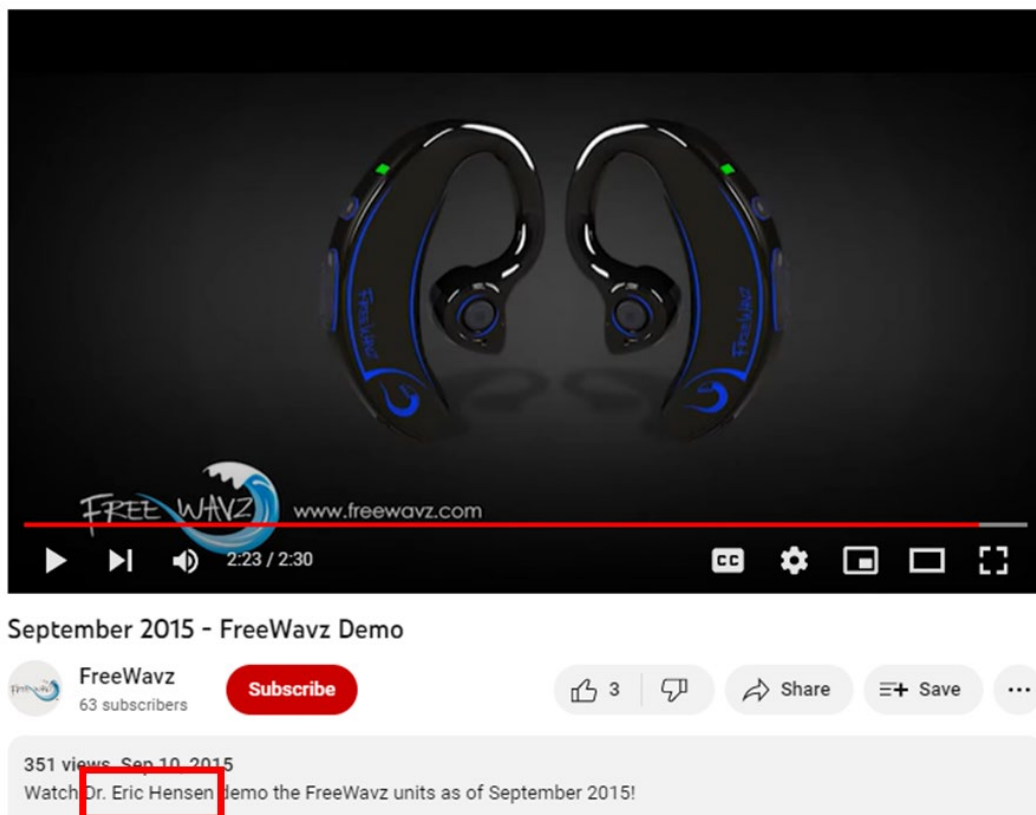
0:32-0:38 (“I want to show you this *home screen*. I’m going to hold it real still. Now at the top you’re going to see each unit and the battery life.”); *cf.* Ex-1001-USP385, 7:1-10 (“an application may be [an] app ... developed for the Android operating system for an Android device ... or for any number of other operating systems”); Ex-1002-Anthony-Decl., ¶55.

(iii) Motivation to Combine

As explained above, Hensen-Patent discloses a wireless **remote control device 51** that interacts with a pair of **wireless earpieces**, where the **remote control device** includes a **display 53**. *See* Element [1B(i)]. Hensen-Video further discloses that the **remote control device** may be a smartphone that includes a software

application running on a smartphone computer device. *See* Element [1B(ii)]. A POSITA would have been motivated to combine these teachings—namely, by modifying Hensen-Patent’s system so that it’s **remote control device 51** would be a smartphone running Hensen-Video’s software application—with a reasonable expectation of success for the following reasons. Ex-1002-Anthony-Decl., ¶56.

First, the disclosures of Hensen-Video and Hensen-Patent are expressly related, as they share the same author/inventor, Dr. Eric Hensen.



Ex-1004-Hensen-Video, 2:23; *see also* Ex-1003-Hensen-Patent, Cover Page (naming Dr. Hensen as the inventor). A POSITA considering Hensen-Patent

would thus naturally look to other teachings from the same inventor, such as Hensen-Video. Hensen-Video and Hensen-Patent are also associated with the same commercial product, FreeWavz—as shown above, Hensen-Video refers to Dr. Hensen and FreeWavz and includes a link to the company website, www.freewavz.com. The company website, in turn, describes FreeWavz as “doctor invented” and “patented,” and provides further biographical details about Dr. Hensen. Ex-1015 (“doctor invented”); Ex-1016 (“patented”); Ex-1017 (Dr. Hensen biography). Hensen-Video thus expressly instructs a POSITA to look to Dr. Hensen’s patents describing similar technology, such as Hensen-Patent, for the patented technology behind the wireless earpiece system demonstrated in the video; Ex-1002-Anthony-Decl., ¶57.

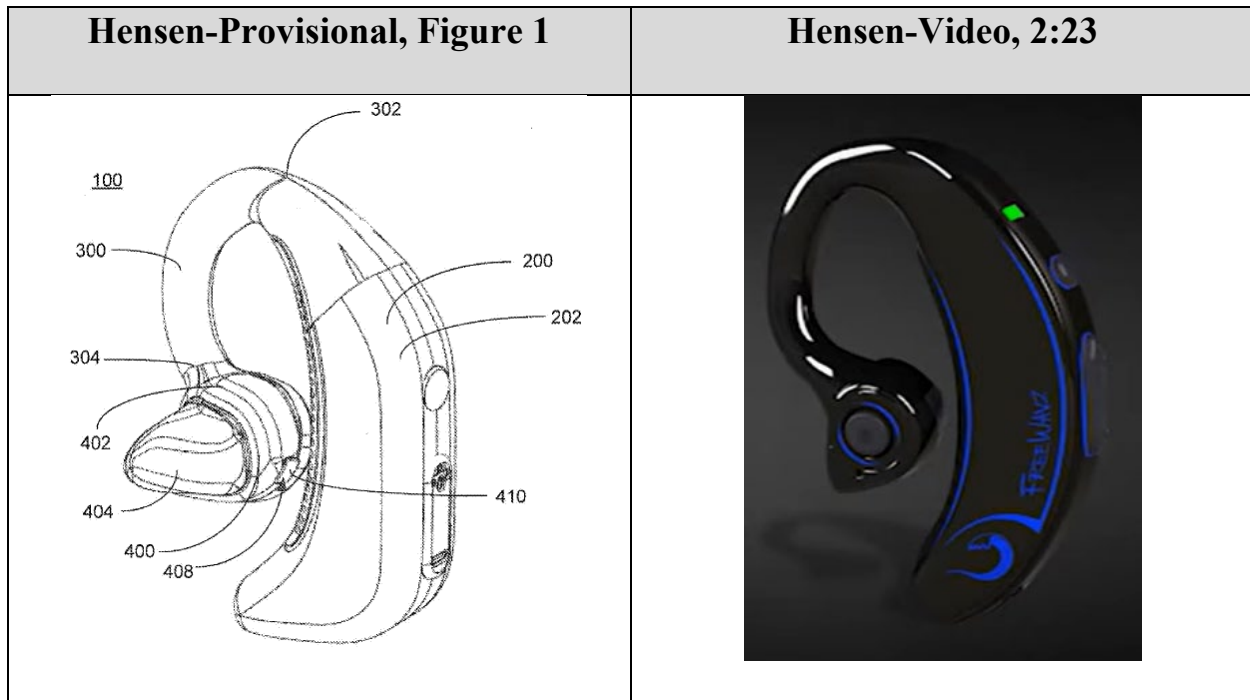
Second, Hensen-Patent and Hensen-Video both describe similar systems that use a remote control device to interact with wireless earpieces. Ex-1003-Hensen-Patent, 8:24-34 (“The remote control unit 51 also illustratively includes remote control unit input devices 52, for example, push buttons, that correspond to the commands. The remote control unit 51 also includes a display 53 that may display ... information about the stereo audio headphones, for example, volume and/or battery power remaining. The remote control unit 51 may advantageously send commands corresponding to ones of the input devices 37.”); Ex-1004-Hensen-

Video, 0:09-0:19 (“I’m currently wearing both the right and left units. I’ve already turned them on. I’ve paired them with other and also paired with the source device, in this case, a smartphone.”). In fact, Hensen-Patent explicitly contemplates that its earpieces can wirelessly communicate with a smartphone like the one shown in Hensen-Video. Ex-1009-Hensen-Provisional, ¶35 (“The communication device [within the wireless earpieces] may be configured to communicate with a remote computerized device ... over ... a wireless connection. Such remote computerized devices may include... smart phones.”). Moreover, there are a number of striking similarities between the systems depicted in Hensen-Patent and Hensen-Video, including:

- Hensen-Patent and Hensen-Video both disclose that the remote control device can read pulse oximetry data from the wireless earpieces. Ex-1009-Hensen-Provisional, ¶14 (“An embodiment of the invention, as shown and described by the various figures and accompanying text, provides an ear-mounted device comprising integrated pulse oximetry capabilities.... [T]he ear-mounted device may be configured to be wirelessly connected to an electronic device so as to provide the pulse oximetry information generated thereby to the electronic device.”); Ex-1004-Hensen-Video, 0:09-0:19 (“Right now I’m actually listening to some music and I’ve also engaged the

pulse oximetry”), 0:48-1:09 (“I’m going to go ahead and show all, and you can see not only my heart rate but my oxygen saturation at 95%.”);

- Hensen-Patent and Hensen-Video both disclose that the system can be used for physical activities such as running and cycling. *See, e.g.*, Ex-1009-Hensen-Provisional, ¶14 (“The ear-mounted device may be removably attached to an ear of the user so as to resist unintended detachment during ... any type of exercise or athletic endeavor, including, but not limited to, ***running*** [and] ***cycling***”); Ex-1004-Hensen-Video, 0:38 (user-selectable activities include “running” and “cycling”);
- Hensen-Patent and Hensen-Video both disclose wireless earpieces that support music playback functionality. *See, e.g.*, Ex-1003-Hensen-Patent, 5:41-44 (stereo audio source can be a “memory having stereo audio (music) stored thereon”), 8:17-20, 12:65-13:5 (“The stereo audio headphone apparatus 20 may be particularly advantageous to a user ... that may wish to ***listen to music***”); Ex-1004-Hensen-Video, 0:09-0:19 (“Right now I’m actually ***listening to some music*** and I’ve also engaged the pulse oximetry”);
- Hensen-Patent and Hensen-Video both disclose wireless earpieces with the same shape and aesthetics, as shown below.



Ex-1002-Anthony-Decl., ¶¶58-59.

Third, Hensen-Video specifically discloses the benefits of using a smartphone computing device running a software application as a remote control unit in a wireless earpiece system—*i.e.*, the ability to access and display data from the wireless earpieces via a touchscreen user interface. *See, e.g.*, Ex-1004-Hensen-Video, 0:32-0:38 (“I want to show you this home screen. I’m going to hold it real still. Now at the top you’re going to see each unit and the battery life.”), 0:43-0:48 (“You can also see down below here is my heart rate at 60”), 1:09-1:24 (“I’m going to demonstrate the raw data that has been obtained. If you can see that red line, that is our waveform. That is where our raw data is being obtained from -- that is, the heart rate and the oxygen saturation.”); *see also* Ex-1015 (“Easy to Use

App: Quick easy interface allows completely customizable and inspiring workouts!”). A POSITA would therefore have been motivated to modify Hensen-Patent’s wireless earpiece system using Hensen-Video’s teachings regarding a software application running on a smartphone computing device to benefit from the smartphone’s display and touchscreen interface. Ex-1002-Anthony-Decl., ¶60.

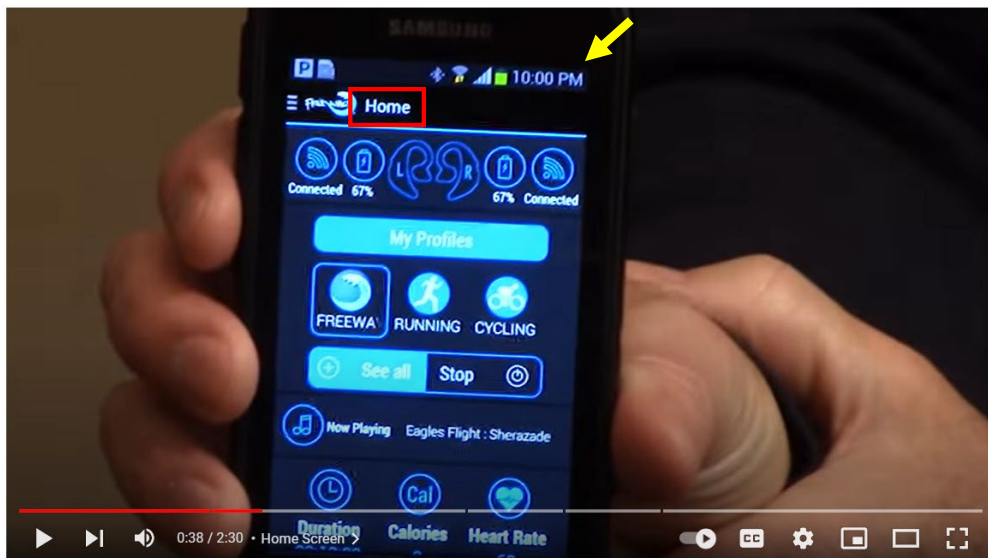
Fourth, a POSITA would have had a reasonable expectation of success in applying Hensen-Video’s teachings to Hensen-Patent’s system because Hensen-Patent contemplates that remote control device 51 can include a software application on a smartphone computing device, and Hensen-Video provides further details of such implementations. Ex-1003-Hensen-Patent, 5:9-24 (“Still further, the stereo audio wireless receiver may ... wirelessly receive stereo audio ... transmitted from a *mobile wireless communications device (i.e. cellular telephone)*.”); Ex-1009-Hensen-Provisional, ¶35 (“The communication device may be configured to communicate with a remote computerized device, either over a wired connection or a wireless connection. Such *remote computerized devices may include, but are not limited to, smart phones*, tablet computers, personal computers, notebook computers, and the like.”). Accordingly, applying Hensen-Video’s teachings to Hensen-Patent would have been a matter of routine implementation well within the skill of a POSITA and would have yielded

predictable results—e.g., remote control device 51 being implemented as a software application on a smartphone computing device—with a reasonable expectation of success. Ex-1002-Anthony-Decl., ¶61.

- (d) [1C] wherein the software application configured to display one or more screen displays on a display of the computing device;

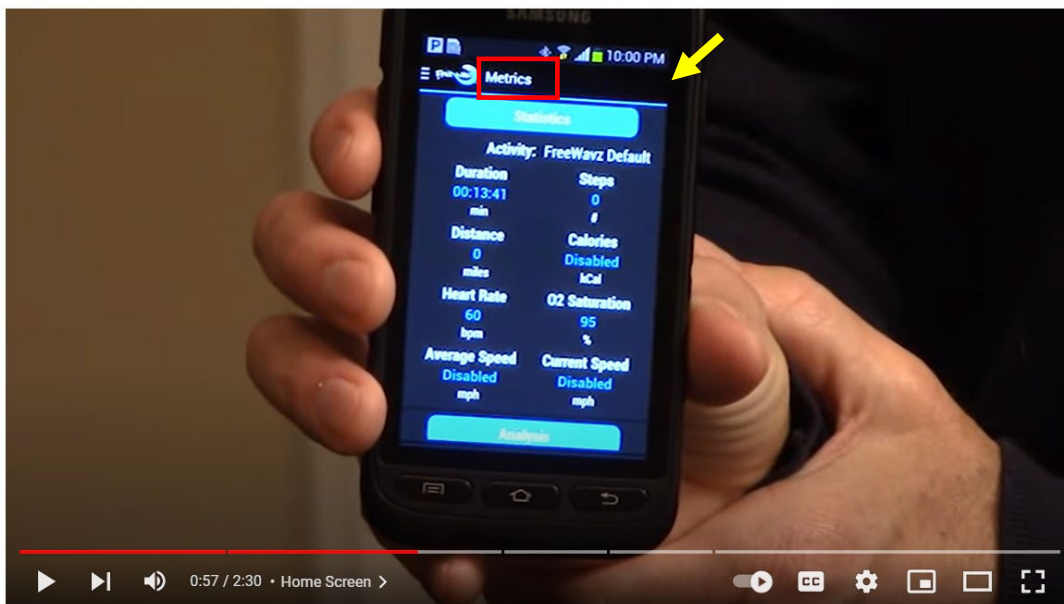
As explained above for Element [1B], Hensen-Video discloses a software application that runs on a smartphone computing device having a **smartphone display** (e.g., a touchscreen). Hensen-Video further discloses that the software application is configured to display screen displays on the **display**. Ex-1002-Anthony-Decl., ¶62.

For example, referring to the screenshot below, Hensen-Video’s software application displays a “home screen” display on the **smartphone display**.



Ex-1004-Hensen-Video, 0:32-0:38 (“I want to show you this *home screen*. I’m going to hold it real still. Now at the top you’re going to see each unit and the battery life.”); Ex-1002-Anthony-Decl., ¶63.

In another example, referring to the screenshot below, Hensen-Video’s software application displays a “metrics” screen display on the **smartphone display**.



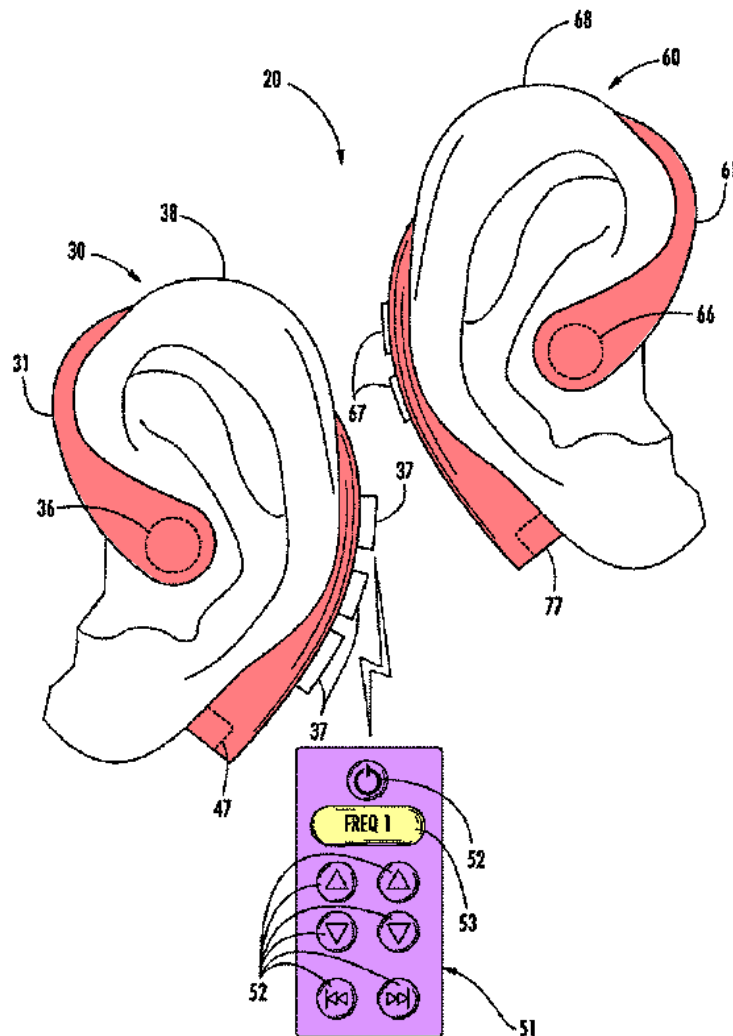
Ex-1004-Hensen-Video, 0:48-1:09 (“I’m going to go ahead and show all, and you can see not only my heart rate but my oxygen saturation at 95%.”); Ex-1002-Anthony-Decl., ¶64.

A POSITA would have been motivated to modify Hensen-Patent with the teachings of Hensen-Video as described for Element [1B]. Furthermore, Hensen-Patent explicitly states that remote control device 51 displays information associated with wireless earpieces 30 and 60, and Hensen-Video provides

mechanisms for doing so when remote control device 51 is implemented as a software application on a smartphone computing device. Ex-1002-Anthony-Decl., ¶65.

- (e) [1D] wherein the software application provides a user interface for use by a user of the at least one wireless ear piece to interact with the at least one wireless ear piece; and;

As explained above for Element [1B], Hensen-Patent in combination with Hensen-Video discloses a software application for executing on a computing device (e.g., remote control device 51) having a display (e.g., display 53) associated therewith. The combination further discloses that the software application provides a user interface (e.g., a user interface of remote control device 51) for use by a user of the at least one wireless earpiece (e.g., headphone units 30 and 60) to interact with the at least one wireless earpiece.



Ex-1003-Hensen-Patent, Figure 1; Ex-1002-Anthony-Decl., ¶66.

(i) Hensen-Patent

As discussed above for Element [1Preamble] and [1B], Hensen-Patent discloses a **remote control device** with a **display**, where the **remote control device** allows a user to interact with the **earpieces** by sending commands to the **earpieces** and displaying information received from the **earpieces**. *Id.*, 8:14-23 (“The **remote control unit 51** is configured to transmit commands, for example, to the master

wireless receiver 35 [of **headphone unit 30**]. Commands that may be transmitted include volume, ... stereo audio source selection[,] ... skipping to another song, or fast-forwarding through a song.”), 8:24-34 (“The **remote control unit 51** also illustratively includes remote control unit input devices 52, for example, push buttons, that correspond to the commands. The **remote control unit 51** also includes a **display 53** that may display ... information about the **stereo audio headphones**, for example, volume and/or battery power remaining. The **remote control unit 51** may advantageously send commands corresponding to ones of the input devices 37.”); *see also* Ex-1009-Hensen-Provisional, ¶¶1, 14, 35, 42; Ex-1002-Anthony-Decl., ¶6.

(ii) Hensen-Video

As discussed above for Element [1B], Hensen-Video likewise discloses a **remote control device** with a **display**, where the **remote control device** allows a user to interact with the **earpieces**. Hensen-Video further discloses that the **remote control device** is implemented as a *software application that provides a user interface for use by a user of the at least one wireless earpiece*. Ex-1002-Anthony-Decl., ¶68.

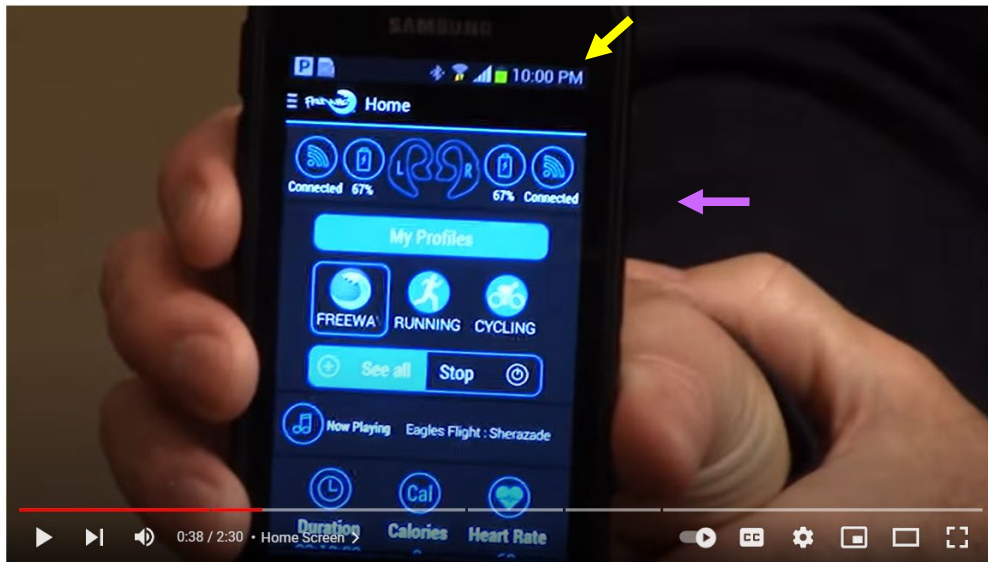
Referring to the screenshot below, Hensen-Video’s software application provides a user interface via the **smartphone display** of the **remote control device**.

Namely, the user of the **earpieces** (i.e., Dr. Hensen, pictured below) uses a touchscreen user interface of the **smartphone display** to interact with the **earpieces**.

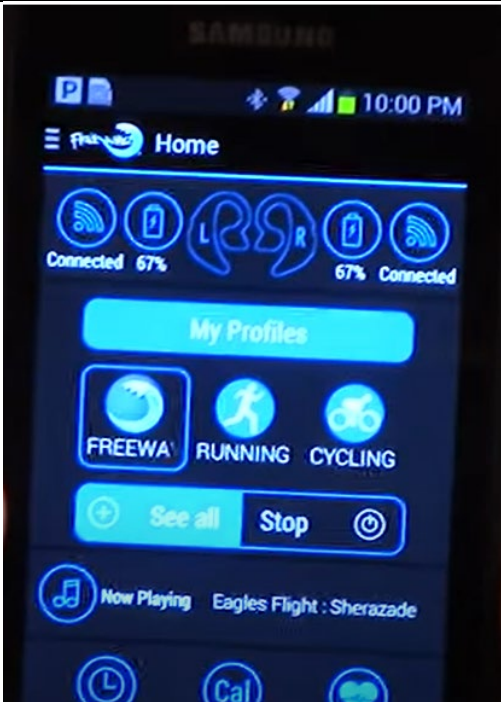
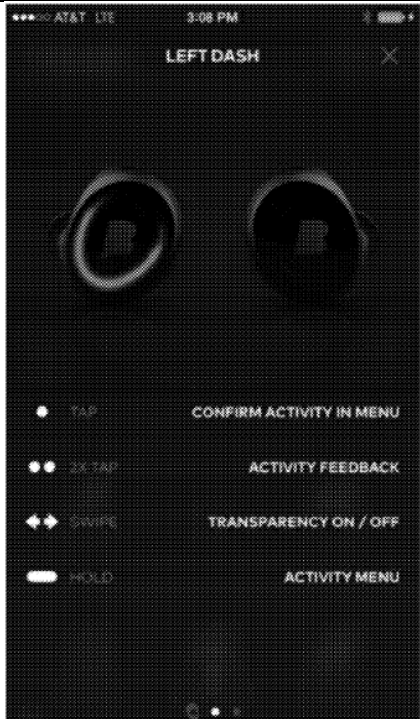


Ex-1004-Hensen-Video, 0:09-0:19 (“I’m currently wearing both the **right and left units**. I’ve already turned them on. I’ve paired them with each other and also paired with the **source device**, in this case, a smartphone.”); *see also id.*, 0:28-1:28 (showing Dr. Hensen performing operations via the touchscreen user interface of the **smartphone display**); Ex-1002-Anthony-Decl., ¶69.

For example, on the “home screen” display of the user interface, the user (Dr. Hensen) is able to monitor the battery life of the earpieces.



Ex-1004-Hensen-Video, 0:32-0:38 (“I want to show you this home screen. I’m going to hold it real still. Now at the top you’re going to see each unit and the battery life.”). In fact, the user interface shown in Hensen-Video is substantially the same as the embodiment shown in Figure 4 of the ’385 patent, which Applicant identified as supporting Element [1D] during prosecution.

Hensen-Video, 0:17	'385 patent, Figure 4
	

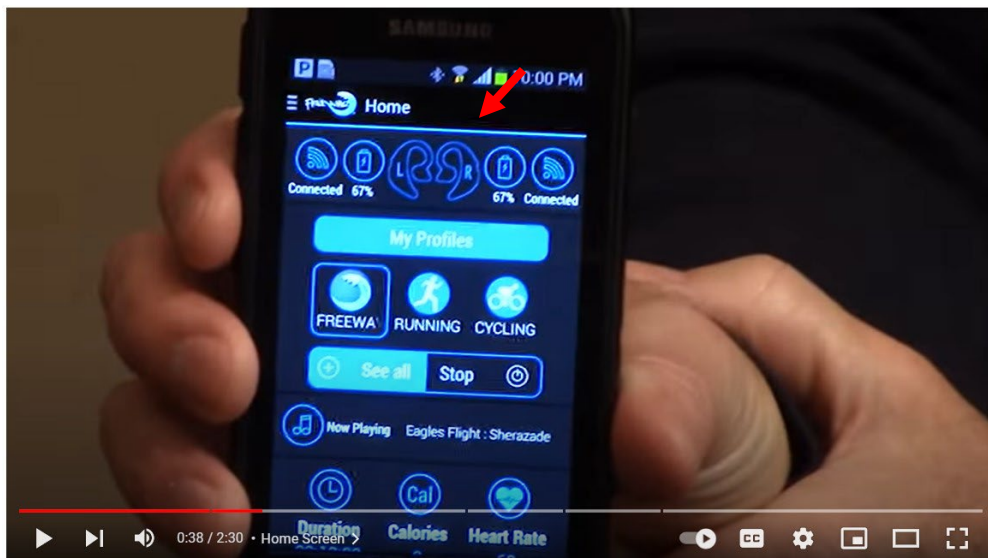
See Ex-1011-FH, [PDF229] (Appeal Brief at 8) (citing Figure 4 as supporting limitation [1D]); Ex-1002-Anthony-Decl., ¶¶70-71.

A POSITA would have been motivated to modify Hensen-Patent with the teachings of Hensen-Video as described for Element [1B]. Furthermore, Hensen-Patent explicitly states that remote control device 51 displays information associated with wireless earpieces 30 and 60, and Hensen-Video provides mechanisms for doing so when remote control device 51 is implemented as a software application on a smartphone computing device. Ex-1002-Anthony-Decl., ¶72.

- (f) [1E] wherein the user interface is configured to display a visual representation of the at least one wireless ear piece on at least one of the one or more screen displays.

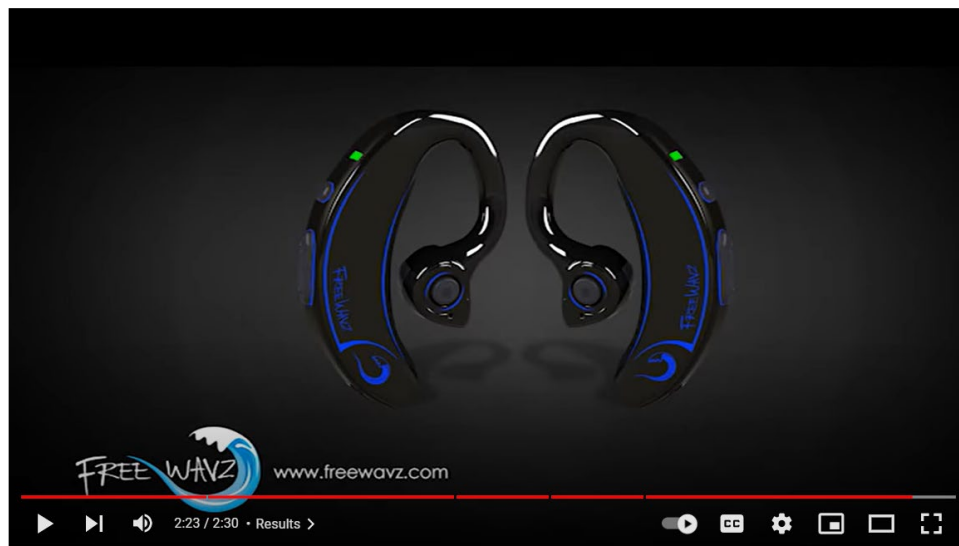
As explained above for Element [1D], Hensen-Patent in combination with Hensen-Video discloses a user interface (e.g., a touchscreen user interface of remote control device 51) used to interact with the at least one wireless earpiece (e.g., headphone units 30 and 60). Hensen-Video further discloses that the user interface is configured to display a visual representation of the at least one wireless earpiece on one or more screen displays. Ex-1002-Anthony-Decl., ¶73.

For example, referring to the screenshot below, Hensen-Video's user interface displays a visual representation of the left (L) and right (R) earpieces on the "home screen" display. Namely, the visual representation includes a pair of icons that depict silhouettes/outlines of the left (L) and right (R) earpieces.

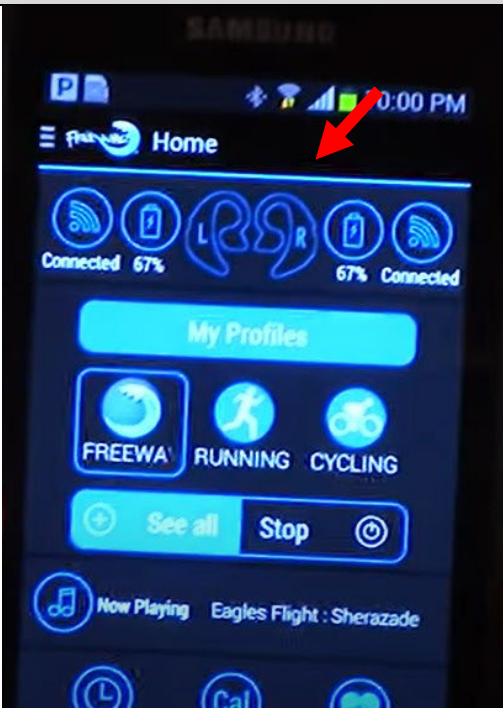
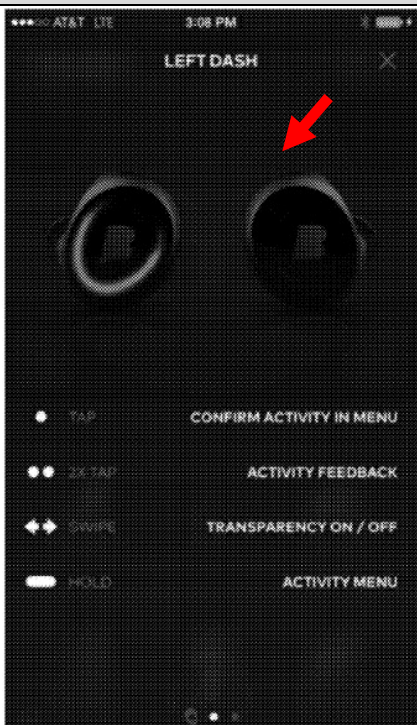


Ex-1004-Hensen-Video, 0:32-0:38 (“I want to show you this home screen. I’m going to hold it real still. Now *at the top you’re going to see each unit* and the battery life.”); Ex-1002-Anthony-Decl., ¶74.

The icons appearing at the top of the home screen display closely resemble the actual *earpieces* depicted in the screenshot below.



Ex-1004-Hensen-Video, 2:23. In fact, the visual representation shown in Hensen-Video is substantially the same as the embodiment shown in Figure 4 of the '385 patent, which Applicant identified as supporting Element [1E] during prosecution.

Hensen-Video, 0:17	'385 patent, Figure 4
	

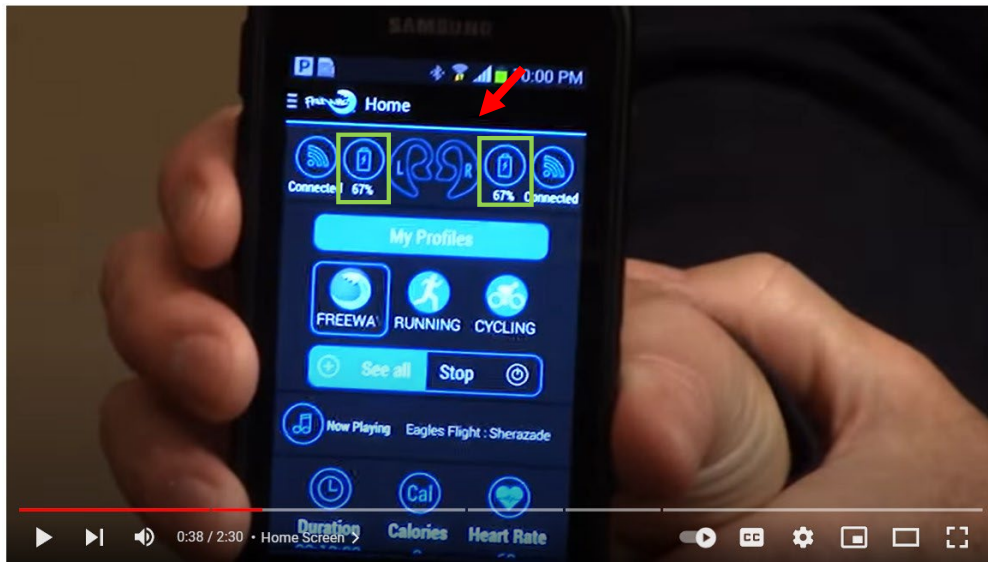
See Ex-1011-FH, [PDF229] (Appeal Brief at 8) (citing Figure 4 as supporting limitation [1E]); Ex-1002-Anthony-Decl., ¶¶75-76.

A POSITA would have been motivated to modify Hensen-Patent with the teachings of Hensen-Video as described for Element [1B]. Furthermore, Hensen-Patent explicitly states that its remote control device 51 is used to display remaining battery life of earpieces 30 and 60, (Ex-1003-Hensen-Patent, 8:24-34), and Hensen-Video provides mechanisms for doing so when remote control device 51 is implemented as a software application on a smartphone computing device. Ex-1002-Anthony-Decl., ¶77.

- (g) [1F] the visual representation indicative of a function or property of the at least one wireless ear piece communicated from the at least one wireless earpiece to the computing device.

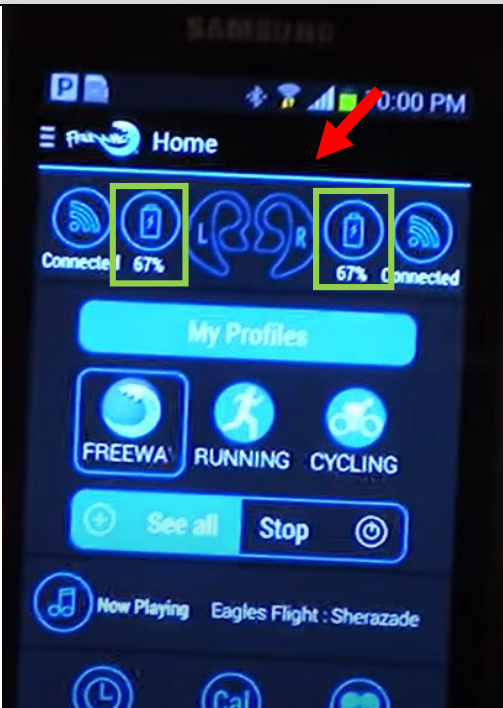
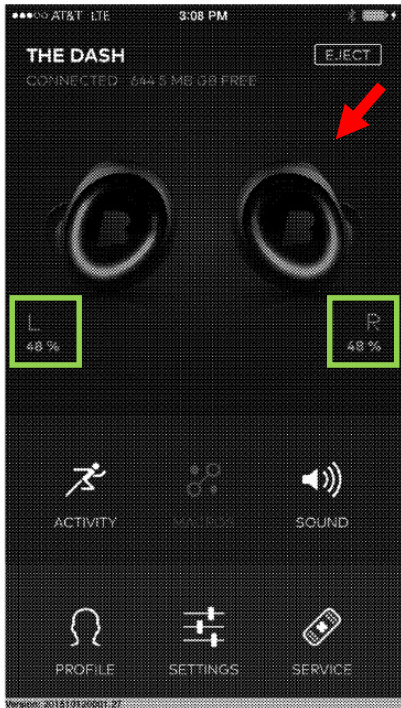
As explained above for Element [1E], Hensen-Video discloses a user interface configured to display a visual representation of the at least one wireless earpiece on one or more screen displays (e.g., the home screen display). Hensen-Video further discloses that the visual representation is indicative of a function or property of the at least one wireless earpiece communicated from the at least one wireless earpiece to the computing device (e.g., battery life). Ex-1002-Anthony-Decl., ¶78.

First, referring to the screenshot below, Hensen-Video's user interface displays a visual representation of the **left (L) and right (R) earpieces** on the "home screen" display. The visual representation includes icons depicting the **earpieces** and further includes an indication of the **battery life** of each of the earpieces.



Ex-1004-Hensen-Video, 0:32-0:38 (“I want to show you this home screen. I’m going to hold it real still. Now *at the top you’re going to see each unit and the battery life.*”); Ex-1002-Anthony-Decl., ¶79.

Second, battery life is a property of an earpiece that is necessarily communicated from the earpiece to the computing device (e.g., the remote control device) to enable the computing device to display the visual representation of this information. In fact, during prosecution of the ’385 patent, the applicant expressly identified battery life as a property of an earpiece that satisfies Element [1F].

Hensen-Video, 0:17	'385 patent, Figure 6
	

See Ex-1011-FH, [PDF229] (Appeal Brief at 8) (citing Specification 8:16-17 as supporting limitation [1F]; this passage describes Figure 6 and states: “Underneath the ‘L’ is textual [*sic*: textual] information in the form of *a numerical representation 124 of remaining battery life for the left ear piece*”); see also Ex-1001-USP385, Claim 7 (“The system of claim 6 wherein the property is remaining battery life”); Ex-1002-Anthony-Decl., ¶¶80-82.

A POSITA would have been motivated to modify Hensen-Patent with the teachings of Hensen-Video as described for Elements [1B]-[1D]. Furthermore, Hensen-Patent explicitly states that its remote control device 51 is used to display

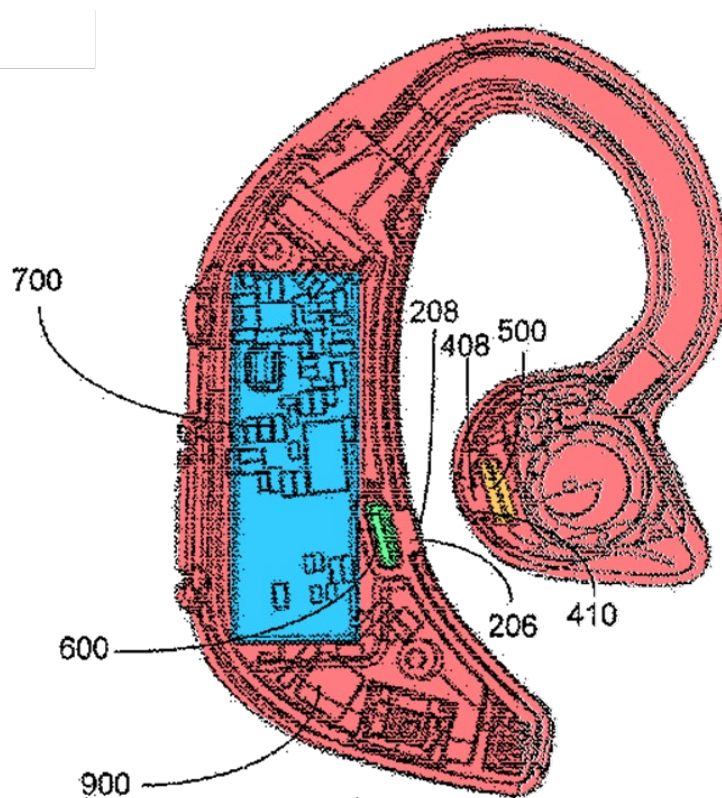
remaining battery life of earpieces 30 and 60, (Ex-1003-Hensen-Patent, 8:24-34), and Hensen-Video provides mechanisms for doing so when remote control device 51 is implemented as a software application on a smartphone computing device. Ex-1002-Anthony-Decl., ¶83.

2. Claim 2: The system of claim 1 wherein the at least one wireless earpiece comprises a physiological sensor.

(i) Hensen-Patent

By incorporating by reference the content of Hensen-Provisional (*see* Section VII.A), Hensen-Patent discloses a wireless earpiece comprising a physiological sensor (e.g., an integrated pulse oximeter that measures physiological quantities such as heart rate and oxygen saturation). Ex-1003-Hensen-Patent, 1:11-17 (incorporating Hensen-Provisional); Ex-1009-Hensen-Provisional, ¶¶1 (“The present invention relates to systems and methods for *ear-mounted devices with integrated pulse oximetry capability*”), 14 (“An embodiment of the invention ... provides an *ear-mounted device comprising integrated pulse oximetry capabilities. The ear-mounted device may be configured to measure at least one of the pulse and the oxygen saturation of a user* while simultaneously providing acoustic functionality to the user.”), 17, 21-23, 25, 26, 29, 30, 33, 34, 42, 47, 50; Ex-1002-Anthony-Decl., ¶84.

As shown in Figure 4 of Hensen-Provisional, the physiological sensor (e.g., the integrated pulse oximeter) consists of a radiation emitting device 500, a radiation sensing device 600, and processing circuitry 700 within the wireless earpiece (e.g., ear-mounted device 100) that are configured to perform pulse oximetry.



Ex-1009-Hensen-Provisional, Figure 4; *see also id.*, ¶¶21, 30, 33, 42. In fact, during prosecution of the '385 patent, the applicant expressly identified a pulse oximeter as a physiological sensor that satisfies claim 2. Ex-1011-FH [PDF229] (Appeal Brief at 8) (citing Specification 5:2 as supporting claim 2; this passage

states: “a **pulse oximeter 76**, a temperature sensor 80, or other physiological or biological sensor(s)”). This is consistent with the well-known use of pulse oximeters as physiological sensors that measure physiological quantities like heart rate and oxygen saturation. *See, e.g.,* Ex-1024, 7:21-60 (heart rate); Ex-1025, 7:9-20 (oxygen saturation); Ex-1002-Anthony-Decl., ¶85.

A POSITA would have understood Hensen-Patent to disclose arrangements in which Hensen-Patent’s wireless earpiece system (*see* Claim 1) includes Hensen-Provisional’s pulse oximetry and activity monitoring capabilities. In particular, Hensen-Provisional’s capabilities expressly build upon and are consistent with the wireless earpiece system disclosed in Hensen-Patent—Hensen-Provisional focuses on describing the details of the pulse oximetry and activity monitoring capabilities and cross-references Hensen-Patent for a fuller description of the wireless earpiece system as a whole (e.g., **earpieces 30 and 60** and **remote control device 51**). *See* Ex-1009-Hensen-Provisional, ¶36 (“Additional details regarding various capabilities and function of the processing circuitry 700, including processing and audio playback, as well as the ear-mounted device 100 in general, may be found in

[Hensen-Parent or, equivalently, Hensen-Patent⁵], the content of which is incorporated herein by reference in its entirety, except to the extent disclosure therein is inconsistent with disclosure herein.”); Ex-1002-Anthony-Decl., ¶86.

Moreover, it would have been obvious to combine Hensen-Provisional’s pulse oximetry capabilities with Hensen-Patent’s wireless earpiece system given that Hensen-Provisional expressly discloses such a combination by cross-referencing the disclosure of Hensen-Patent, as explained above. A POSITA would have combined these teachings with a reasonable expectation of success because Hensen-Patent discloses a wireless earpiece system, and Hensen-Provisional discloses additional capabilities of such a system (e.g., the ability to carry out pulse oximetry measurements in an otherwise similar system). Ex-1002-Anthony-Decl., ¶87.

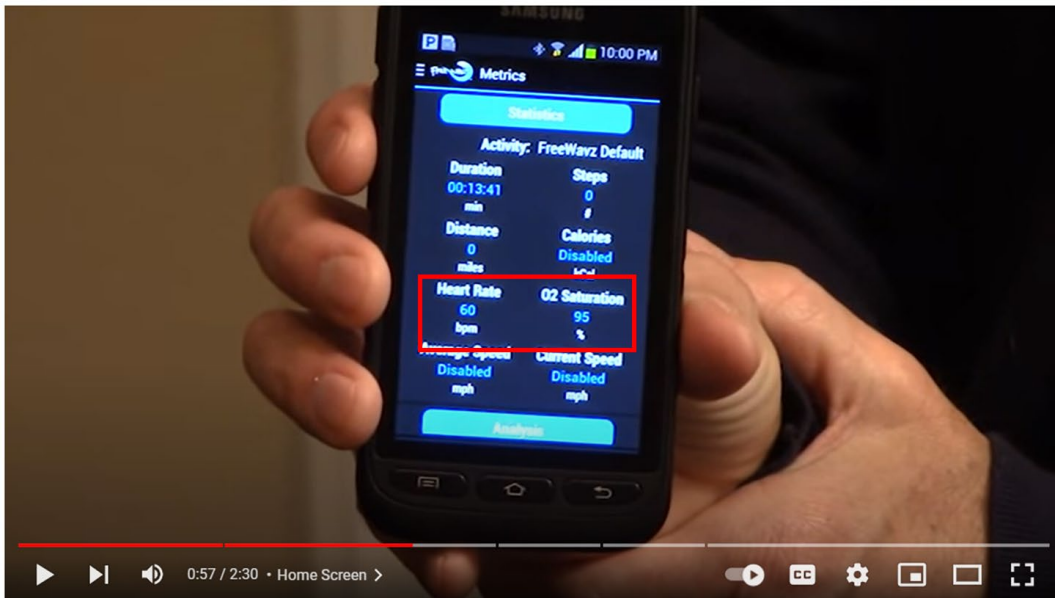
⁵ Hensen-Parent’s teachings (including the description of **earpieces 30 and 60** and **remote control device 51**) are substantively identical to the teachings of Hensen-Patent. *See generally* Ex-1008-Hensen-Parent, Figures 1-4, 4:36-6:19, 7:40-8:9. Thus, by incorporating by reference Hensen-Parent and describing capabilities that build upon the system of Hensen-Parent, Hensen-Provisional also demonstrates its compatibility with the system of Hensen-Patent. Ex-1002-Anthony-Decl., ¶86.

(ii) **Hensen-Video**

Hensen-Video also discloses that the **earpieces** include a physiological sensor (e.g., a pulse oximeter).



Ex-1004-Hensen-Video, 0:09-0:19 (“Right now I’m actually listening to some music and *I’ve also engaged the pulse oximetry*”). Like the pulse oximeter described in Hensen-Patent, Hensen-Video’s pulse oximeter measures physiological quantities including heart rate and oxygen saturation.



Id., 0:48-1:09 (“I’m going to go ahead and show all, and *you can see not only my heart rate but my oxygen saturation* at 95%”); Ex-1002-Anthony-Decl., ¶88.

3. Claim 3: The system of claim 2 wherein the software application provides for tracking one or more physical activities using the physiological sensor.

As explained above for Element [1B], Hensen-Patent in combination with Hensen-Video discloses a software application for executing on a computing device (e.g., [remote control device 51](#)) having a display (e.g., [display 53](#)) associated therewith. The combination further discloses that the software application provides for tracking one or more physical activities using the physiological sensor (e.g., a pulse oximeter). Ex-1002-Anthony-Decl., ¶89.

(i) Hensen-Patent

As discussed above for Element [1B], Hensen-Patent discloses a **remote control device** with a **display**, where the **remote control device** allows a user to display information received from the **earpieces**. Ex-1003-Hensen-Patent, 8:24-34 (“The **remote control unit 51** also illustratively includes remote control unit input devices 52, for example, push buttons, that correspond to the commands. The **remote control unit 51** also includes a **display 53** that may display ... information about the **stereo audio headphones**, for example, volume and/or battery power remaining. The **remote control unit 51** may advantageously send commands corresponding to ones of the input devices 37. Of course, the **remote control unit 51** may send other commands and may display other information.”); *see also* Ex-1009-Hensen-Provisional, ¶¶1, 14, 35, 42; Ex-1002-Anthony-Decl., ¶90.

Moreover, the information received from the earpieces can include information associated with one or more physical activities received from a physiological sensor (e.g., a pulse oximeter). Ex-1002-Anthony-Decl., ¶91.

First, as explained above for Claim 2, Hensen-Patent discloses that the **earpieces** can include a pulse oximeter and can transmit pulse oximetry data from the pulse oximeter to the **remote control device**. Ex-1009-Hensen-Provisional, ¶42 (“Each of the pulse, oxygen saturation, and error signal ... may be transmittable by

the processing circuitry 700 to an **electronic device** as described hereinabove.”);

Ex-1002-Anthony-Decl., ¶91.

Second, Hensen-Patent discloses that the wireless earpiece system is intended to be used while the user participates in a variety of physical activities, including running, cycling, and swimming. Ex-1009-Hensen-Provisional, ¶14 (“The ear-mounted device may be [used] during periods of activity by the user, such as ... ***running, ... cycling, [and] swimming***”); *see also* Ex-1003-Hensen-Patent, 13:6-16 (“Moreover, the stereo audio headphone units 30, 60 [may be used] in ***activities involving wearing of a helmet and in activities involving a range of body movements***, for example. More particularly, the wireless operation of the stereo audio headphones may be particularly useful ***during a workout or during a run***.”); Ex-1002-Anthony-Decl., ¶92.

(ii) Hensen-Video

Hensen-Video similarly discloses a **remote control device** that displays information received from **earpieces**, including information associated with one or more physical activities received from a physiological sensor (e.g., a pulse oximeter). Hensen-Video further discloses that the **remote control device** includes a ***software application that provides for tracking*** the one or more physical activities using the physiological sensor. Ex-1002-Anthony-Decl., ¶93.

First, as explained above for Claim 2, Hensen-Video discloses that the **earpieces** include a physiological sensor (e.g., a pulse oximeter) and send pulse oximetry data to the **remote control device**.



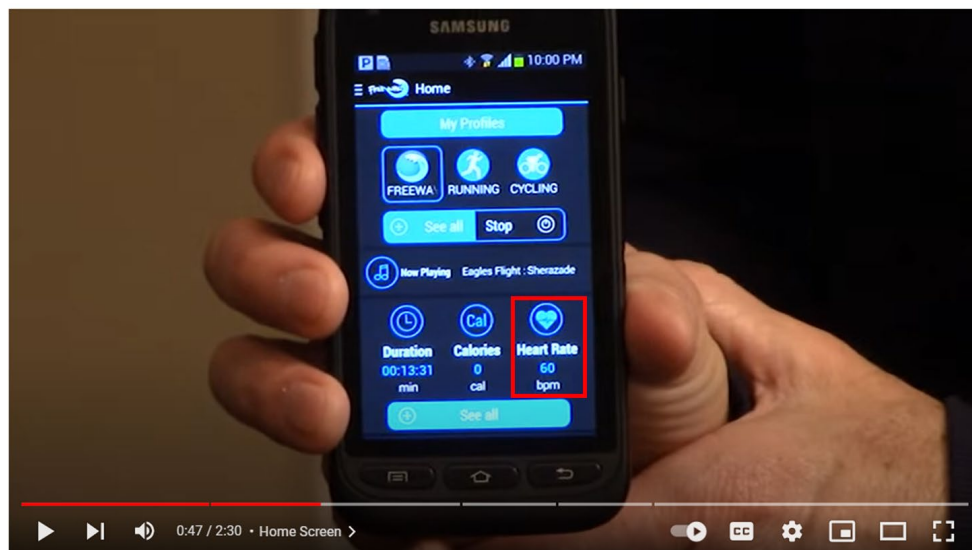
Ex-1004-Hensen-Video, 0:09-0:19 (“I’m currently wearing both the **right and left units**. I’ve already turned them on. *I’ve paired them with each other and also paired with the source device*, in this case, a smartphone. I’m going to go ahead and show a few functions that are currently running. Right now I’m actually listening to some music and *I’ve also engaged the pulse oximetry*”); Ex-1002-Anthony-Decl., ¶94.

Second, Hensen-Video discloses that the software application is intended to be used while the user participates in a variety of physical activities. Two exemplary physical activities—running and cycling—are shown as user-selectable profiles within the software application.



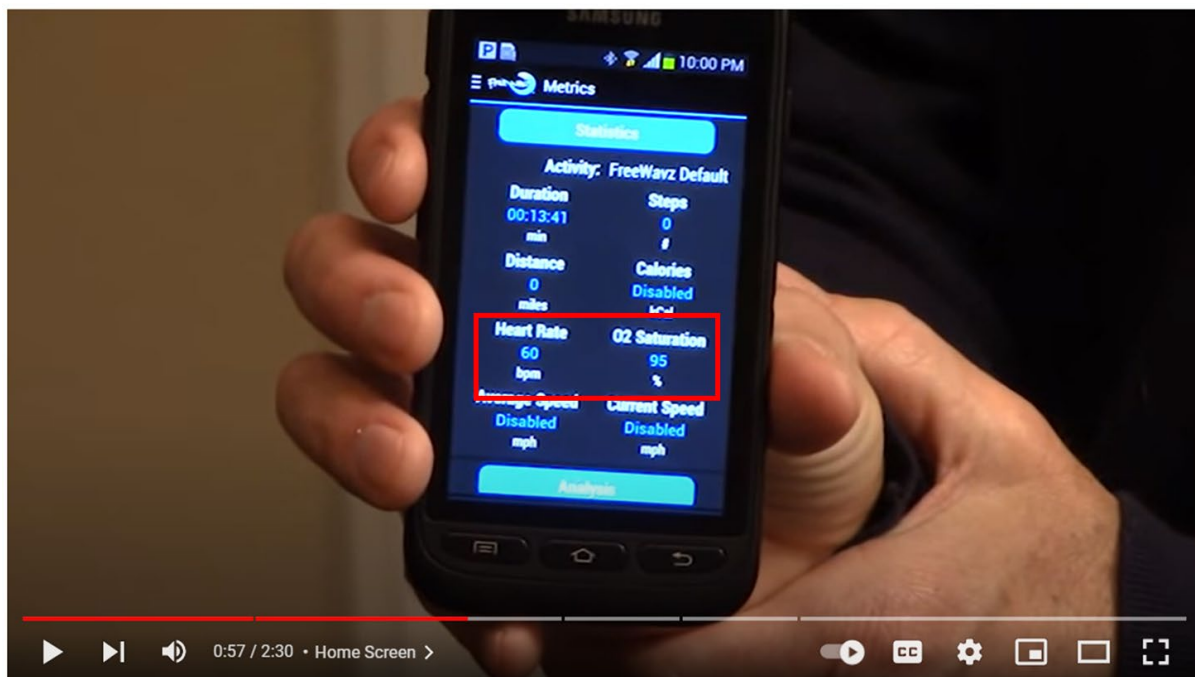
Ex-1004-Hensen-Video, 0:38; Ex-1002-Anthony-Decl., ¶95.

Third, the software application running on the remote control device provides for tracking one or more physical activities using the data from the pulse oximeter. For example, the software application provides for tracking heart rate during a physical activity using the pulse oximeter.



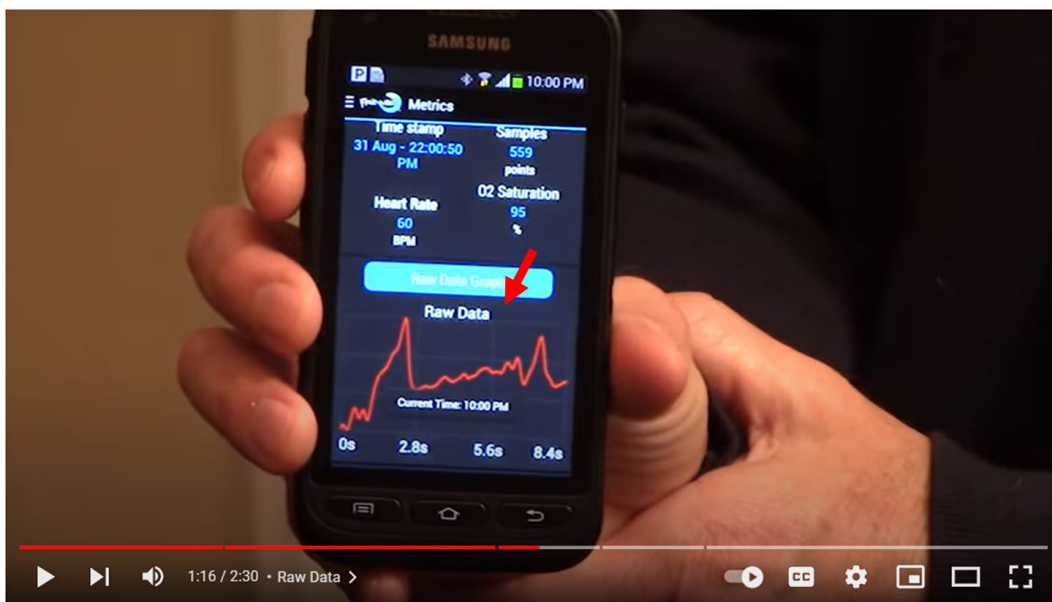
Ex-1004-Hensen-Video, 0:43-0:48 (“You can also see down below here is my heart rate at 60”). In fact, during prosecution of the ’385 patent, Applicant expressly identified measuring heart rate as an example of tracking a physical activity as recited by claim 3. Ex-1011-FH [PDF229] (Appeal Brief at 8) (citing Specification 9:7-10 as supporting claim 3: “Various information associated with this activity is also shown. This may include *heart rate 132 as measured by one or more of the ear pieces such as through use of a pulse oximeter*, steps 134, as measured by one or more of the ear pieces such as through use of an inertial sensor, and duration 136”); Ex-1002-Anthony-Decl., ¶96.

The software application also provides for tracking oxygen saturation during the physical activity using the pulse oximeter.



Ex-1004-Hensen-Video, 0:48-1:09 (“I’m going to go ahead and show all, and you can see not only my heart rate but my oxygen saturation at 95%. And that’s kind of consistently where I run as far as my heart rate is concerned. Oxygen usually is normal between 95 and 100 percent.”); Ex-1002-Anthony-Decl., ¶97.

Moreover, the software application also provides for tracking these quantities—heart rate and oxygen saturation—over time using a waveform representation of data from the pulse oximeter.



Ex-1004-Hensen-Video, 1:09-1:24 (“I’m going to demonstrate the raw data that has been obtained. If you can see that red line, that is our waveform. That is where our raw data is being obtained from -- that is, the heart rate and the oxygen saturation.”); Ex-1002-Anthony-Decl., ¶98.

A POSITA would have been motivated to modify Hensen-Patent with the teachings of Hensen-Video as described for Element [1B]. Furthermore, Hensen-Patent explicitly states that its remote control device 51 is used to display information received from wireless earpieces 30 and 60, and Hensen-Video provides mechanisms for doing so when remote control device 51 is implemented as a software application on a smartphone computing device. Ex-1002-Anthony-Decl., ¶99.

4. Claim 4: The system of claim 3 wherein the physical activities are selected from a set consisting of running, biking, and swimming.

As explained above for Claim 3, Hensen-Patent in combination with Hensen-Video discloses a software application for tracking physical activities including running, biking (i.e., cycling), and swimming. Ex-1009-Hensen-Provisional, ¶14 (“The ear-mounted device may [used] during periods of activity ... including, but not limited to, *running*, ... *cycling*, [*and*] *swimming*”); Ex-1002-Anthony-Decl., ¶100.

Moreover, referring to the screenshot below, Hensen-Video discloses that the software application provides an interface for selecting the activities to be tracked (in the example shown below, running and cycling).



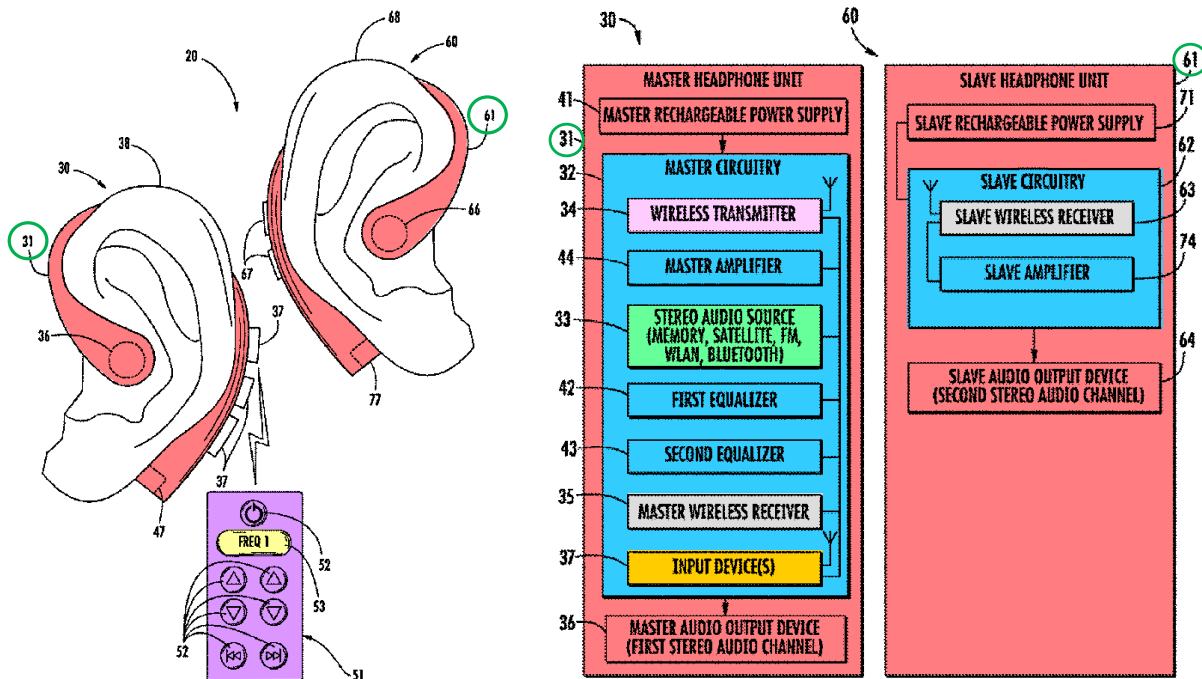
Ex-1004-Hensen-Video, 0:38; Ex-1002-Anthony-Decl., ¶101.

To the extent PO argues that Hensen-Patent and Hensen-Video do not disclose that the activities are selected from a *closed* set “consisting of” running, biking, and swimming, this would have been an obvious design choice well within the knowledge and skill of a POSITA. In fact, running, biking, and swimming are a particularly well-known closed set of activities because they are the three elements of a triathlon, which has been a popular sport for decades. Ex-1018 (“Triathlon was invented in the early 1970s by the San Diego Track Club.... The club’s first event consisted of a *10km run, an 8km cycle and a 500m swim*. Over the next decade, triathlon’s popularity continued to build, and it soon gained worldwide recognition.... Triathlon made its Olympic full medal debut at the 2000 Sydney Games. This helped the sport to become even more popular.”). Thus, a

POSITA would have been motivated to track activities selected from the closed set of running, biking, and swimming, and would have had a reasonable expectation of success in doing so—Hensen-Video’s software application already provides the ability to select among running and biking, such that adding one more activity (swimming) would have been trivial to implement. Ex-1002-Anthony-Decl., ¶¶102-103.

5. Claim 9: The system of claim 1 wherein the at least one wireless ear piece comprises onboard storage for storing audio files.

To the extent this limitation is limiting, referring to Figures 1 and 2, Hensen-Patent discloses wireless earpieces (e.g., **headphone units 30 and 60**) comprising onboard storage (e.g., memory within **stereo audio source 33**) for storing audio files (e.g., MP3 files). Ex-1003-Hensen-Patent, 4:66-5:4 (“The **master circuitry includes a stereo audio source 33** and a wireless transmitter 34 coupled thereto. The **stereo audio source 33 may be a memory, for example, and may store stereo audio data**. The memory may be fixed or may be removable, for example, a secure digital (SD) memory card. Other types of memory, may be used.”), 5:5-8 (“The **stereo audio data that may be stored in a memory or provided by the stereo audio source may be mpeg layer 3 (mp3) encoded data [(“audio files”)], for example**. Other types of stereo audio data or other data may be stored in the memory.”).



Ex-1003-Hensen-Patent, Figure 1 (left) and Figure 2 (right); Ex-1002-Anthony-Decl., ¶¶104-105.

6. Claim 10: The system of claim 1 wherein the at least one wireless ear piece is configured to store at least one playlist of audio files.

As explained above for Claim 9, Hensen-Patent discloses wireless earpieces (e.g., **headphone units 30 and 60**) that store audio files (e.g., MP3 files). To the extent this limitation is limiting, Hensen-Patent further discloses that the stored audio files include at least one playlist of audio files—for example, storing a playlist allows the user to “skip” to another song in the playlist. Ex-1003-Hensen-Patent, 5:41-44 (“For example, if the stereo audio source is a memory having stereo audio (music) stored thereon, a selected one of the input devices 37 may be

for *skipping to another song*, or fast-forwarding through a song.”), 8:17-20; Ex-1002-Anthony-Decl., ¶106.

7. Claim 11: The system of claim 1 wherein the software application provides for connecting the at least one wireless ear piece with the computing device.

Referring to the screenshot below, Hensen-Video discloses a software application that provides for connecting (e.g., pairing) the at least one wireless earpiece (e.g., **right and left headphone units**) with the computing device (e.g., **smartphone computing device**).



Ex-1004-Hensen-Video, 0:09-0:19 (“I’ve paired [the **earpieces**] with each other and also paired with the **source device**, in this case, a smartphone.”). Namely, a POSITA would have understood that the software application (e.g., FreeWavz app; *see* Element [1B]) works together with the operating system of the smartphone computing device to communicate data between the earpiece and computing

device (*see* Elements [1D], [1F]) – for example, by invoking a Bluetooth application programming interface of the operating system to facilitate data transfer – thereby connecting the earpiece and computing device. Ex-1002-Anthony-Decl., ¶107.

A POSITA would have been motivated to modify Hensen-Patent with the teachings of Hensen-Video as described for Element [1B]. Furthermore, Hensen-Patent expressly discloses connecting wireless earpieces with a remote control device, (*see, e.g.*, Ex-1003-Hensen-Patent, 5:9-24, 7:65-8:7, Claim 14; Ex-1009-Hensen-Provisional, ¶¶14, 35), and Hensen-Video provides mechanisms for doing so when the remote control device includes a software application on a smartphone computing device. Ex-1002-Anthony-Decl., ¶108.

8. Claim 12: The system of claim 11 wherein the computing device is a mobile device.

As explained for Element [1B] (*see* Section IX.A.1(c)(iii)), Hensen-Patent contemplates that its remote computing device is a mobile device (e.g., a smartphone). Ex-1009-Hensen-Provisional, ¶35 (“remote computerized device” may be a “smart phone[]”). Moreover, referring to the screenshot below, Hensen-Video discloses a that the computing device is a **smartphone** mobile device.



Ex-1004-Hensen-Video, 0:09-0:19 (“I’ve paired [the **earpieces**] with the **source device, in this case, a smartphone**.”). A POSITA would have been motivated to modify Hensen-Patent with the teachings of Hensen-Video as described for Element [1B] and Claim 11. Ex-1002-Anthony-Decl., ¶109.

9. Claim 13

- (a) [13Preamble] A method for controlling a set of wireless ear pieces, the method comprising:

Hensen-Patent discloses a method for controlling a set of wireless earpieces (**stereo headphone units 30 and 60**). Element [1Preamble], [13A]-[13E]; Ex-1002-Anthony-Decl., ¶110.

- (b) [13A] providing a software application for controlling the set of wireless ear pieces, the software application adapted to execute on a computing device;

Hensen-Patent in combination with Hensen-Video discloses providing a software application for controlling the set of wireless earpieces (**headphone units**

30 and 60), the software application adapted to execute on a computing device (smartphone computing device). Element [1B]; Ex-1002-Anthony-Decl., ¶111.

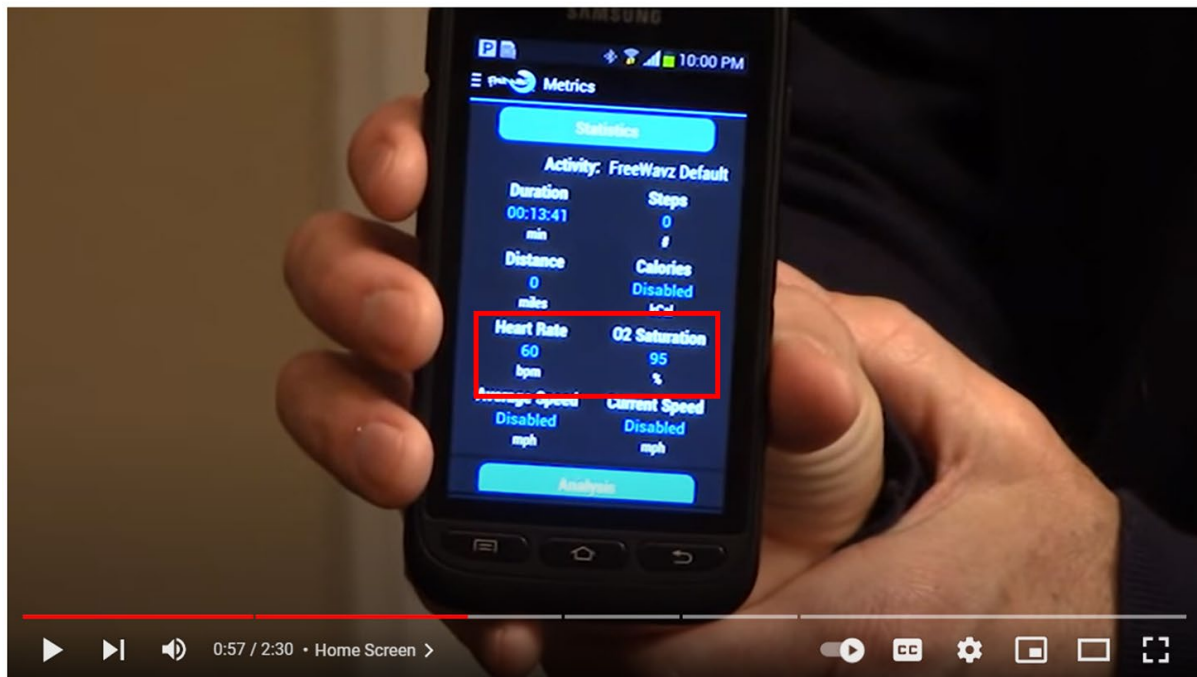
- (c) [13B] using the software application on the computing device to display one or more screen displays on a display of the computing device and to receive input from the user into the mobile device:

Hensen-Patent in combination with Hensen-Video discloses using the software application on the computing device (smartphone computing device) to display one or more screen displays (e.g., a home screen display) on a display (smartphone display) of the computing device. Element [1C]. Hensen-Patent in combination with Hensen-Video further discloses *using the software application to receive input from the user into the mobile device*. Ex-1002-Anthony-Decl., ¶112.

First, Hensen-Patent discloses that remote control device 51 receives input from the user. Ex-1003-Hensen-Patent, 8:24-34 (“The remote control unit 51 also illustratively includes *remote control unit input devices 52, for example, push buttons*, that correspond to the commands.”); *see also id.*, 8:14-23; Ex-1009-Hensen-Provisional, ¶35; Ex-1002-Anthony-Decl., ¶113.

Second, Hensen-Video discloses an implementation of the remote control device that uses a software application to receive input from the user into a mobile device (e.g., a smartphone computing device). For example, referring to the

screenshot below, the user (Dr. Hensen) provides inputs to the smartphone device to scroll through the display screens and show data associated with the wireless earpieces.



Ex-1004-Hensen-Video, 0:48-1:09 (“I’m going to go ahead and show all, and you can see not only my heart rate but my oxygen saturation at 95%. And that’s kind of consistently where I run as far as my heart rate is concerned. Oxygen usually is normal between 95 and 100 percent.”); Ex-1002-Anthony-Decl., ¶114.

A POSITA would have been motivated to modify Hensen-Patent with the teachings of Hensen-Video as described for Element [1B]. Furthermore, Hensen-Patent expressly discloses that [remote control device 51](#) receives input from the user, and Hensen-Video provides mechanisms for doing so when [remote control](#)

device 51 includes a software application on a smartphone computing device. Ex-1002-Anthony-Decl., ¶115.

- (d) [13C] wherein at least one of the one or more screen displays display a visual representation of the set of wireless ear pieces;

Hensen-Patent in combination with Hensen-Video discloses that at least one of the one or more screen displays display a visual representation of the set of wireless earpieces. Element [1E]; Ex-1002-Anthony-Decl., ¶116.

- (e) [13D] communicating data associated with the input between the software application and at least one of the wireless ear pieces;

Hensen-Patent in combination with Hensen-Video discloses communicating data associated with the input between the software application and at least one of the wireless earpieces. See Element [1D]; Ex-1002-Anthony-Decl., ¶117.

First, as explained above for Element [1D], Hensen-Patent discloses a remote control device that sends data (e.g., commands) associated with the user's input to the earpieces. Ex-1003-Hensen-Patent, 8:14-23 (“**The remote control unit 51 is configured to transmit commands**, for example, to the master wireless receiver 35 [of headphone unit 30]. **Commands that may be transmitted include volume, ... stereo audio source selection[,] ... skipping to another song, or fast-forwarding through a song.**”), 8:24-34; see also Ex-1009-Hensen-Provisional, ¶¶1, 14, 35, 42; Ex-1002-Anthony-Decl., ¶117.

Second, as explained above for Element [1D], Hensen-Patent in combination with Hensen-Video discloses that the **remote control device** can include a software application running on a smartphone device. In such arrangements, the data being communicated (e.g., commands for controlling music playback) is associated with a software application running on a smartphone device. A POSITA would have been motivated to modify Hensen-Patent with the teachings of Hensen-Video as described for Elements [1B] and [1D]. Ex-1002-Anthony-Decl., ¶118.

- (f) *[13E] performing an action using at least one of the wireless ear pieces in response to receiving the data.*

As explained above for Element [13D], Hensen-Patent discloses performing an action (e.g., volume selection, audio source selection, skipping to another song, or fast-forwarding through a song) using the wireless earpieces (e.g., **headphone units 30 and 60**) in response to receiving the data. Ex-1003-Hensen-Patent, 8:14-23 (“The **remote control unit 51** is configured to transmit commands, for example, to the master wireless receiver 35 [of **headphone unit 30**]. ***Commands that may be transmitted include volume, ... stereo audio source selection[,] ... skipping to another song, or fast-forwarding through a song.***”), 8:24-34; *see also* Ex-1009-Hensen-Provisional, ¶¶1, 14, 35, 42; Ex-1002-Anthony-Decl., ¶119.

10. Claim 14

- (a) [14Preamble] A method for communicating data from a set of wireless ear pieces, the method comprising:

Hensen-Patent discloses a method for controlling a set of wireless earpieces (stereo headphone units 30 and 60). Element [1Preamble], [13Preamble], [14A]-[14E]; Ex-1002-Anthony-Decl., ¶120.

- (b) [14A] providing a software application for communicating with the set of wireless ear pieces, the software application adapted to execute on a computing device;

Hensen-Patent in combination with Hensen-Video discloses providing a software application for controlling the set of wireless earpieces (headphone units 30 and 60), the software application adapted to execute on a computing device (smartphone computing device). Element [1B], [13A]; Ex-1002-Anthony-Decl., ¶121.

- (c) [14B] using the software application on the computing device to display one or more screen displays on a display of the computing device,

Hensen-Patent in combination with Hensen-Video discloses using the software application on the computing device (smartphone computing device) to display one or more screen displays (e.g., a home screen display) on a display (smartphone display) of the computing device. Element [1C], [13B]; Ex-1002-Anthony-Decl., ¶122.

- (d) [14C] wherein at least one of the one or more screen displays display a visual representation of the set of wireless ear pieces;

Hensen-Patent in combination with Hensen-Video discloses that at least one of the one or more screen displays display a visual representation of the set of wireless earpieces. Element [1E], [13C]; Ex-1002-Anthony-Decl., ¶123.

- (e) [14D] communicating data received from one or more of the wireless ear pieces to the computing device; and

Hensen-Patent in combination with Hensen-Video discloses communicating data received from one or more of the wireless earpieces to the computing device. See Element [1D]; Ex-1002-Anthony-Decl., ¶124.

First, as explained above for Element [1D], Hensen-Patent discloses a remote control device that receives data (e.g., volume, battery power remaining, or pulse oximetry data) transmitted wirelessly from the earpieces to the remote control device. Ex-1003-Hensen-Patent, 8:24-34 (“The remote control unit 51 also includes a display 53 that may display ... *information about the stereo audio headphones, for example, volume and/or battery power remaining*.... Of course, the remote control unit 51 may send other commands and may display other information.”); see also Ex-1009-Hensen-Provisional, ¶¶1, 14 (“The ear-mounted device may be configured to be wirelessly connected to an electronic device so as

*to provide the pulse oximetry information generated thereby to the **electronic device**.*”), 35, 42; Ex-1002-Anthony-Decl., ¶124.

Second, as explained above for Element [1D], Hensen-Patent in combination with Hensen-Video discloses that the **remote control device** can include a software application running on a smartphone computing device. In such arrangements, the data being communicated is received to a smartphone computing device. A POSITA would have been motivated to modify Hensen-Patent with the teachings of Hensen-Video as described for Elements [1B] and [1D]. Ex-1002-Anthony-Decl., ¶125.

(f) [14E] updating the screen displays on the display of the computing device using the data.

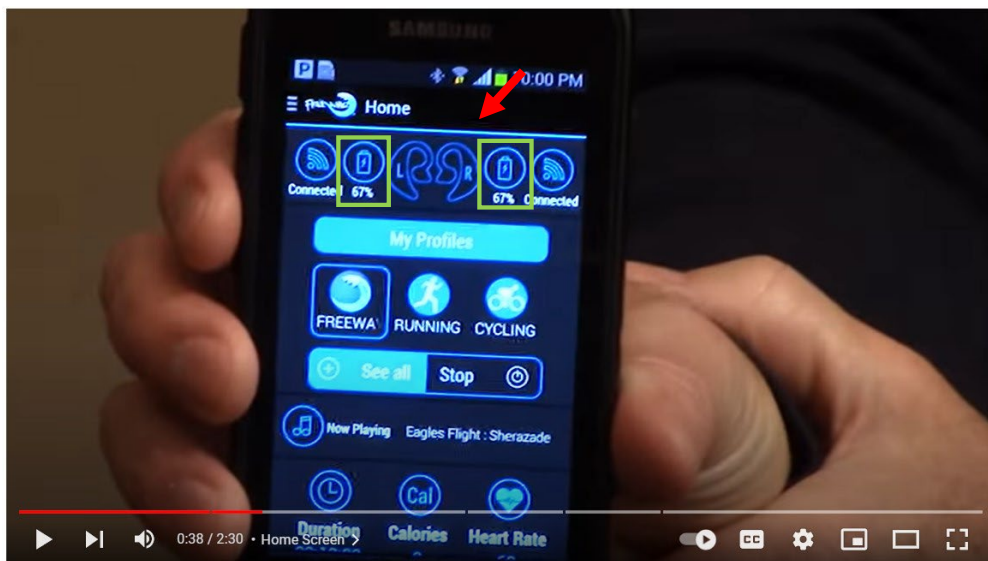
Hensen-Patent in combination with Hensen-Video discloses updating the screen displays on the display of the computing device using the data. *See* Element [1D], [14D]; Ex-1002-Anthony-Decl., ¶126.

First, as discussed above for Element [1D], Hensen-Patent discloses a **remote control device** with a **display** that is updated to display data (e.g., volume, battery power remaining, or pulse oximetry data) received from the **earpieces**. Ex-1003-Hensen-Patent, 8:24-34 (“The **remote control unit 51** also includes a **display 53** that may display ... information about the **stereo audio headphones**, for example, volume and/or battery power remaining.... Of course, the **remote control**

unit 51 may send other commands and may display other information.”); *see also* Ex-1009-Hensen-Provisional, ¶¶1, 14, 35, 42; Ex-1002-Anthony-Decl., ¶126.

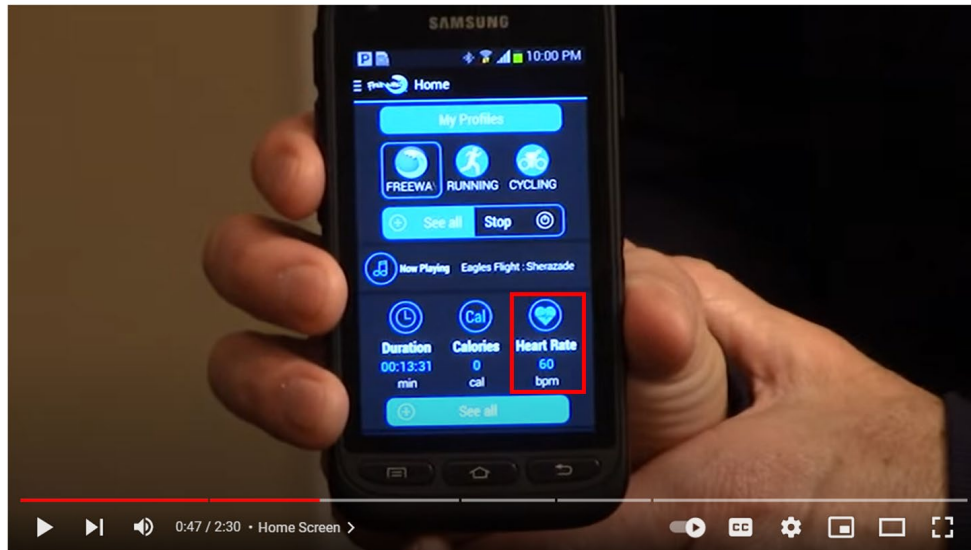
Second, as explained above for Element [1D], Hensen-Patent in combination with Hensen-Video discloses that the remote control device can include a software application running on a smartphone computing device. In such arrangements, the software application updates screen displays on the smartphone display using data received from wireless earpieces. Ex-1002-Anthony-Decl., ¶127.

For example, Hensen-Video’s home screen display is updated using battery life data from the wireless earpieces.



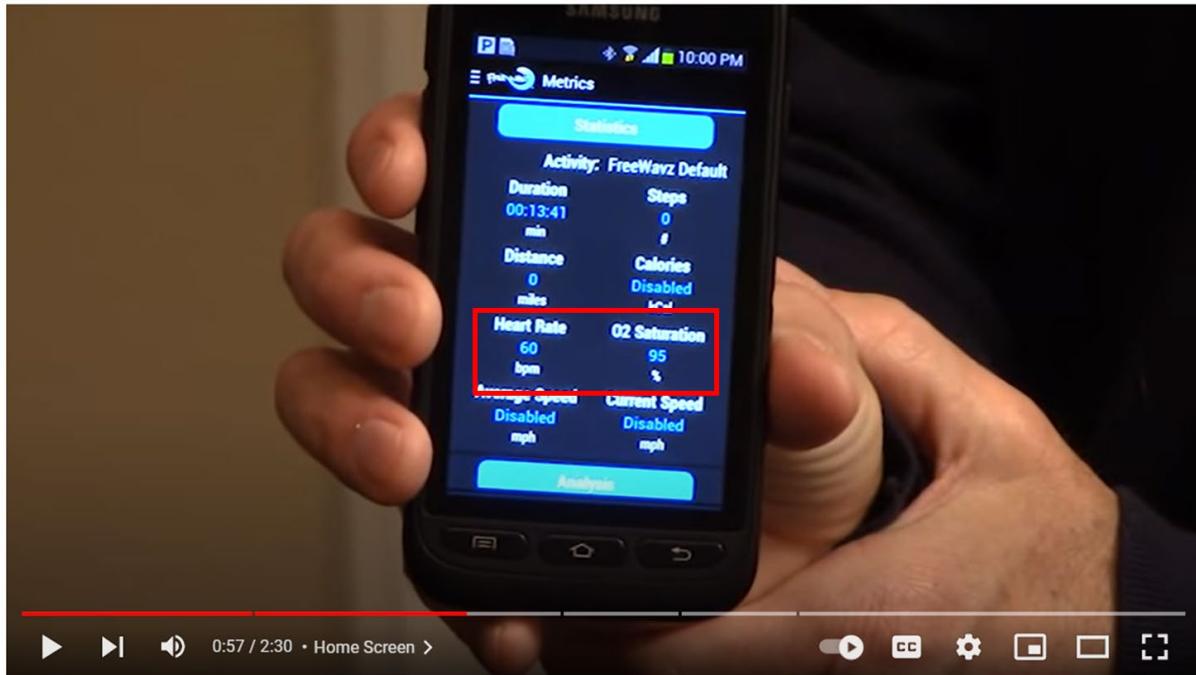
Ex-1004-Hensen-Video, 0:32-0:38 (“I want to show you this home screen. I’m going to hold it real still. Now *at the top you’re going to see each unit and the battery life*.”); Ex-1002-Anthony-Decl., ¶128.

Hensen-Video's home screen display is also updated using heart rate data from the **wireless earpieces**.



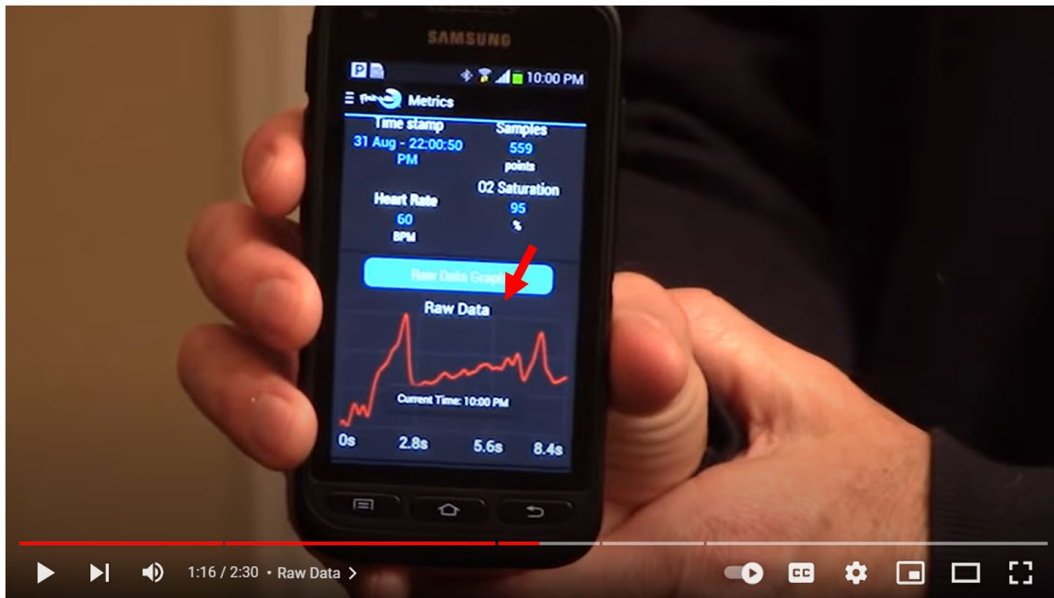
Ex-1004-Hensen-Video, 0:43-0:48 (“You can also see down below here is my heart rate at 60”); Ex-1002-Anthony-Decl., ¶129.

Hensen-Video's software application also includes a “metrics” screen display that is updated using heart rate and oxygen saturation data from the **wireless earpieces**.



Ex-1004-Hensen-Video, 0:48-1:09 (“I’m going to go ahead and show all, and you can see not only my heart rate but my oxygen saturation at 95%. And that’s kind of consistently where I run as far as my heart rate is concerned. Oxygen usually is normal between 95 and 100 percent.”); Ex-1002-Anthony-Decl., ¶130.

Moreover, the software application includes a waveform display that is updated using raw pulse oximetry data from the **wireless earpieces**.



Ex-1004-Hensen-Video, 1:09-1:24 (“I’m going to demonstrate the raw data that has been obtained. If you can see that red line, that is our waveform. That is where our raw data is being obtained from – that is, the heart rate and the oxygen saturation.”); Ex-1002-Anthony-Decl., ¶131.

A POSITA would have been motivated to modify Hensen-Patent with the teachings of Hensen-Video as described for Elements [1B] and [1D]. Furthermore, Hensen-Patent expressly discloses that a remote control device displays data from wireless earpieces, and Hensen-Video provides mechanisms for doing so when the remote control device includes a software application running on a smartphone device. Ex-1002-Anthony-Decl., ¶132.

11. Claim 15: The method of claim 14 wherein the data comprises physiological data.

To the extent this limitation is limiting, as explained above for Claims 2-4, Hensen-Patent in combination with Hensen-Video discloses that the data from the **wireless earpieces** comprises physiological data (e.g., pulse oximetry data, such as heart rate and oxygen saturation). Ex-1009-Hensen-Provisional, ¶14 (“An embodiment of the invention ... provides an ear- mounted device comprising integrated pulse oximetry capabilities. The ear-mounted device may be configured to *measure at least one of the pulse and the oxygen saturation of a user* while simultaneously providing acoustic functionality to the user. Furthermore, *the ear-mounted device may be configured to be wirelessly connected to an electronic device so as to provide the pulse oximetry information generated thereby to the electronic device.*”); Ex-1004-Hensen-Video, 0:09-0:19 (“Right now I’m actually listening to some music and I’ve also *engaged the pulse oximetry*”), 0:48-1:09 (“I’m going to go ahead and show all, and *you can see not only my heart rate but my oxygen saturation at 95%.*”); Ex-1002-Anthony-Decl., ¶133.

12. Claim 16: The method of claim 15 wherein the physiological data is heart rate data.

To the extent this limitation is limiting, as explained above for Claim 15, Hensen-Patent discloses that the physiological data is heart rate (or pulse) data. Ex-1009-Hensen-Provisional, ¶14 (“An embodiment of the invention ... provides an

ear- mounted device comprising integrated pulse oximetry capabilities. *The ear-mounted device may be configured to measure at least one of the pulse [(i.e., heart rate)] and the oxygen saturation of a user* while simultaneously providing acoustic functionality to the user.”); Ex-1004-Hensen-Video, 0:09-0:19 (“Right now I’m actually listening to some music and I’ve also engaged the pulse oximetry”), 0:48-1:09 (“I’m going to go ahead and show all, and *you can see not only my heart rate but my oxygen saturation at 95%*. And that’s kind of consistently where I run as far as my heart rate is concerned. Oxygen usually is normal between 95 and 100 percent.”); Ex-1002-Anthony-Decl., ¶134.

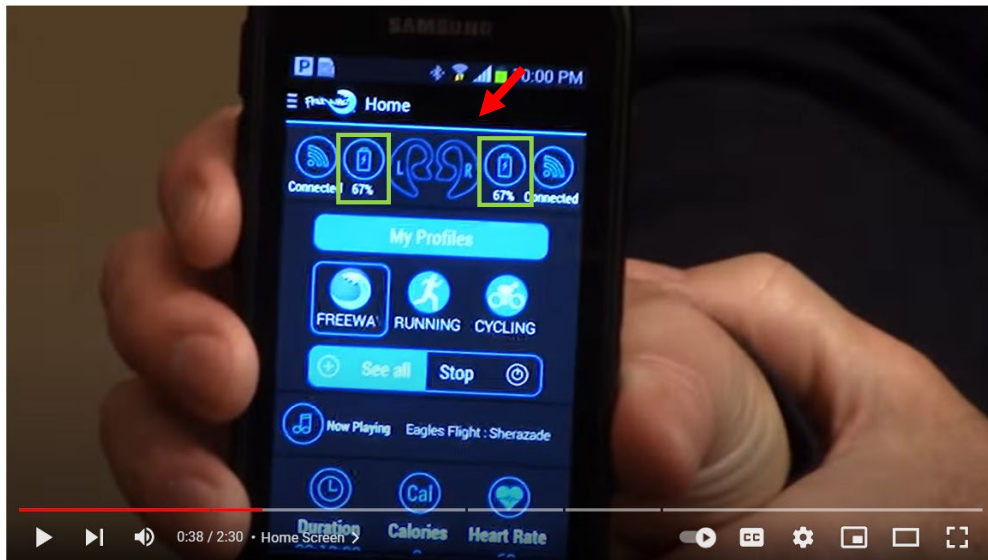
B. Ground 2

Hensen-Patent, Hensen-Video, and LG-Manual render claims 5-7 obvious. Hensen-Patent and Hensen-Video teach the features of claim 1 (per Ground 1), and the combination of Hensen-Patent, Hensen-Video, and LG-Manual disclose the

additional feature of claims 5-7.⁶ See Ground 1 (claim 1); Ex-1002-Anthony-Decl., ¶135.

1. Claim 5: The system of claim 1 wherein the representation visual representation includes lighting of the at least one wireless ear piece

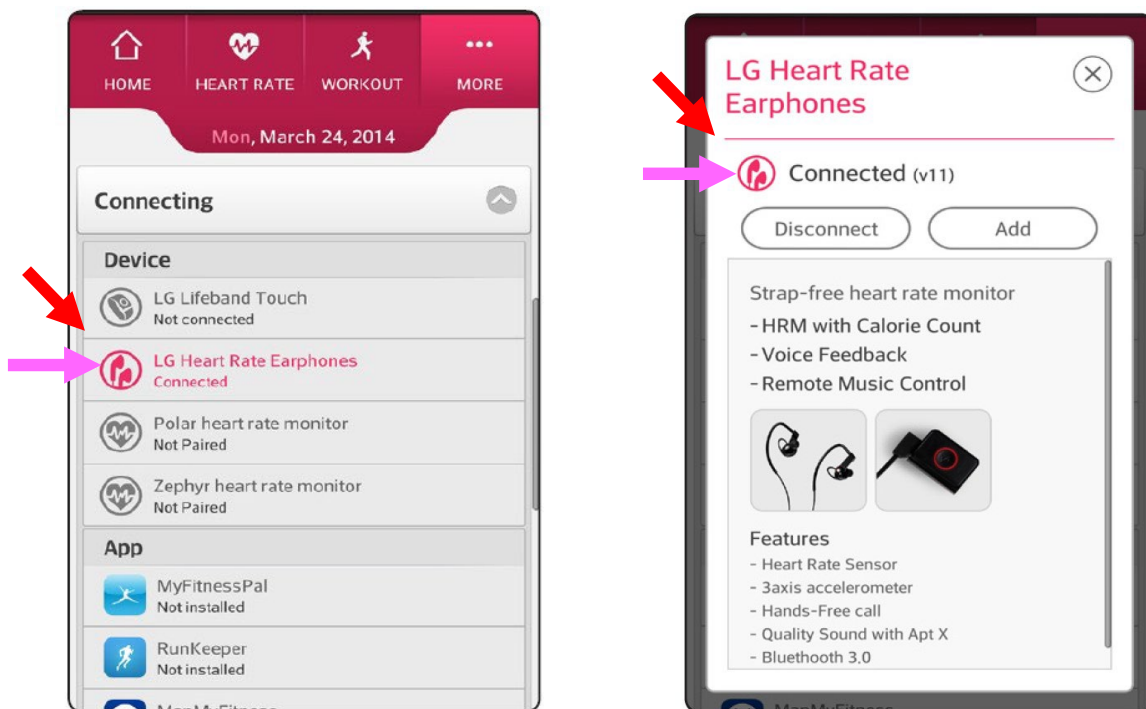
As explained above for Element [1E] and [1F], Hensen-Video discloses a visual representation of the **left (L) and right (R) earpieces** that further indicates the **battery life** of the earpieces.



⁶ LG-Manual was available for download on LG's website as of May 14, 2014. Ex-1019. The cited teachings are also found in an earlier version of the manual that was submitted to the FCC and made available to the public on February 11, 2014. Ex-1020; Ex-1021; Ex-1002-Anthony-Decl., ¶136.

Ex-1004-Hensen-Video, 0:32-0:38 (“I want to show you this home screen. I’m going to hold it real still. Now *at the top you’re going to see each unit and the battery life.*”); Ex-1002-Anthony-Decl., ¶137.

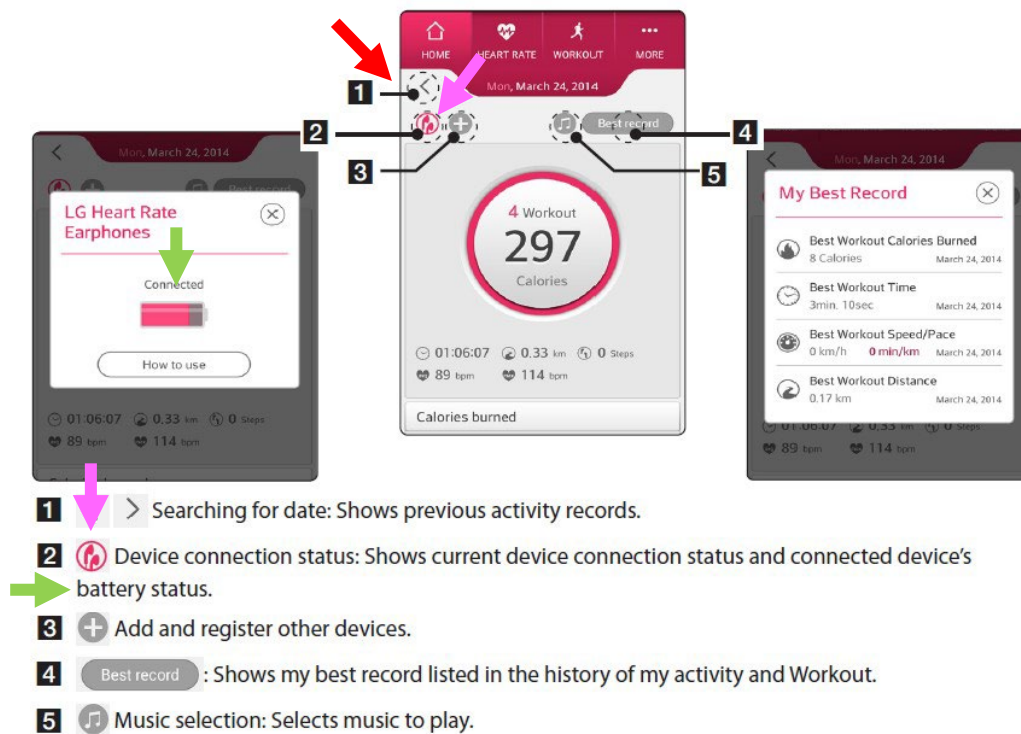
Referring to the diagram below, LG-Manual similarly discloses a visual representation of **left and right earpieces** (e.g., an icon showing a silhouette of the earpieces) and further discloses that the visual representation includes **lighting** the earpieces (i.e., coloring them pink) when they are connected.



Ex-1005-LG-Manual, 36 (“Connecting: You can register fitness devices other than LG Heart Rate Earphones and *check the connection status*. Select desired device and the screen for connection status and/or adding new devices”). As shown above

(left panel), visual representations of other devices that are not connected are not colored pink and are instead grayed out. Ex-1002-Anthony-Decl., ¶¶138-139.

LG-Manual further discloses that the **lighting** of the earpieces is associated with **battery life**, as shown below.



Ex-1005-LG-Manual, 24 (“Home menu: You can check my current workout information, LG Fitness device connection status and total workout information”); Ex-1002-Anthony-Decl., ¶140.

A POSITA would have been motivated to combine the teachings of LG-Manual with Hensen-Patent and Hensen-Video. **First**, each of the references are directed to techniques for interacting with earpieces using a remote control device.

Ex-1005-LG-Manual, 19 (“Using the Handsfree function: To use handsfree function, you must *pair LG Heart Rate Earphones via bluetooth to your smartphone*.... To control music through the LG Heart Rate Earphones, you must *pair device via bluetooth to your smartphone*.”), 21-22; Ex-1003-Hensen-Patent, 8:14-31, Claim 14; Ex-1004-Hensen-Video, 0:09-0:19 (“I’m currently wearing both the right and left units. I’ve already turned them on. I’ve *paired them with other and also paired with the source device, in this case, a smartphone*”).

Specifically, each of the references discloses techniques for measuring heart rate data using earpieces and monitoring the heart rate data via a remote control device.

Ex-1005-LG-Manual, 31 (“*Checking the heart rate during the workout*: 1. Pair LG Heart Rate Earphones with LG Fitness app....”); Ex-1009-Hensen-Provisional, ¶14; Ex-1004-Hensen-Video, 0:48-1:09 (“I’m going to go ahead and show all, and *you can see not only my heart rate but my oxygen saturation at 95%*.”); Ex-1002-Anthony-Decl., ¶141.

Second, Hensen-Patent in combination with Hensen-Video discloses a wireless earpiece system that displays connection status and battery life data from the earpieces, and LG-Manual discloses a graphical user interface element that conveys this data in an simple and space-efficient manner. For example, as shown in the side-by-side comparison below, Hensen-Video’s and LG-Manual’s

interfaces convey the same connection status and **battery life** data via a visual representation of the **earpieces**, but in LG-Manual's approach using **lighting** takes up less space on the screen.



More generally, implementing either of the visual representations shown above was well within the skill of a POSITA, and selecting between them would have been a routine design choice when developing the software application and arranging the graphical user interface elements. Ex-1002-Anthony-Decl., ¶¶142-143.

Therefore, a POSITA would have readily applied LG-Manual's known graphical user interface element (visual representation with **lighting**) to the system of Hensen-Patent and Hensen-Video to yield predictable results (displaying data

from the earpieces in a simple and space-efficient manner). A POSITA would have combined Hensen-Patent, Hensen-Video, and LG-Manual's teachings with a reasonable expectation of success given that LG-Manual's visual representation would be used for its intended purpose of displaying connection status and battery life data from wireless earpieces. Ex-1002-Anthony-Decl., ¶144.

2. Claim 6: The system of claim 5 wherein the lighting is associated with the function or property of the at least one wireless ear piece.

As explained above for claim 5, the combination of Hensen-Patent, Hensen-Video, and LG-Manual discloses that the lighting is associated with the function or property (e.g., battery life) of the at least one wireless earpiece. *See, e.g.*, Ex-1005-LG-Manual, 24 (“Device connection status: ***Shows current device connection status and connected device's battery status***”); Ex-1004-Hensen-Video, 0:32-0:38 (“I want to show you this home screen. I’m going to hold it real still. Now ***at the top you’re going to see each unit and the battery life***.”); Ex-1003-Hensen-Patent, 8:26-31; Ex-1002-Anthony-Decl., ¶145.

3. Claim 7: The system of claim 6 wherein the property is remaining battery life.

The combination of Hensen-Patent, Hensen-Video, and LG-Manual discloses that the property is remaining battery life. *See* Claim 6; Ex-1002-Anthony-Decl., ¶146.

C. Ground 3

1. Claim 8: The system of claim 1 wherein the user interface is further configured to display available gestures associated with controlling the at least one wireless ear piece.

Claim 8 would have been obvious over Hensen-Patent, Hensen-Video, and Lee. Hensen-Patent and Hensen-Video teach the features of claim 1 (per Ground 1), and the combination of Hensen-Patent, Hensen-Video, and Lee discloses the additional features of claim 8. *See* Ground 1 (Claim 1); Ex-1002-Anthony-Decl., ¶147.

(i) Hensen-Patent and Hensen-Video

As explained above for Element [1D], Hensen-Patent in combination with Hensen-Video discloses a user interface that displays information (e.g., volume settings) associated with **wireless earpieces**. Ex-1003-Hensen-Patent, 8:24-34 (“The **remote control unit 51** also includes a **display 53** that may display ... information about the **stereo audio headphones**, for example, **volume**.”); *see also* Ex-1009-Hensen-Provisional, ¶¶1, 14, 35, 42; Ex-1004-Hensen-Video, 0:32-0:38; Ex-1002-Anthony-Decl., ¶148.

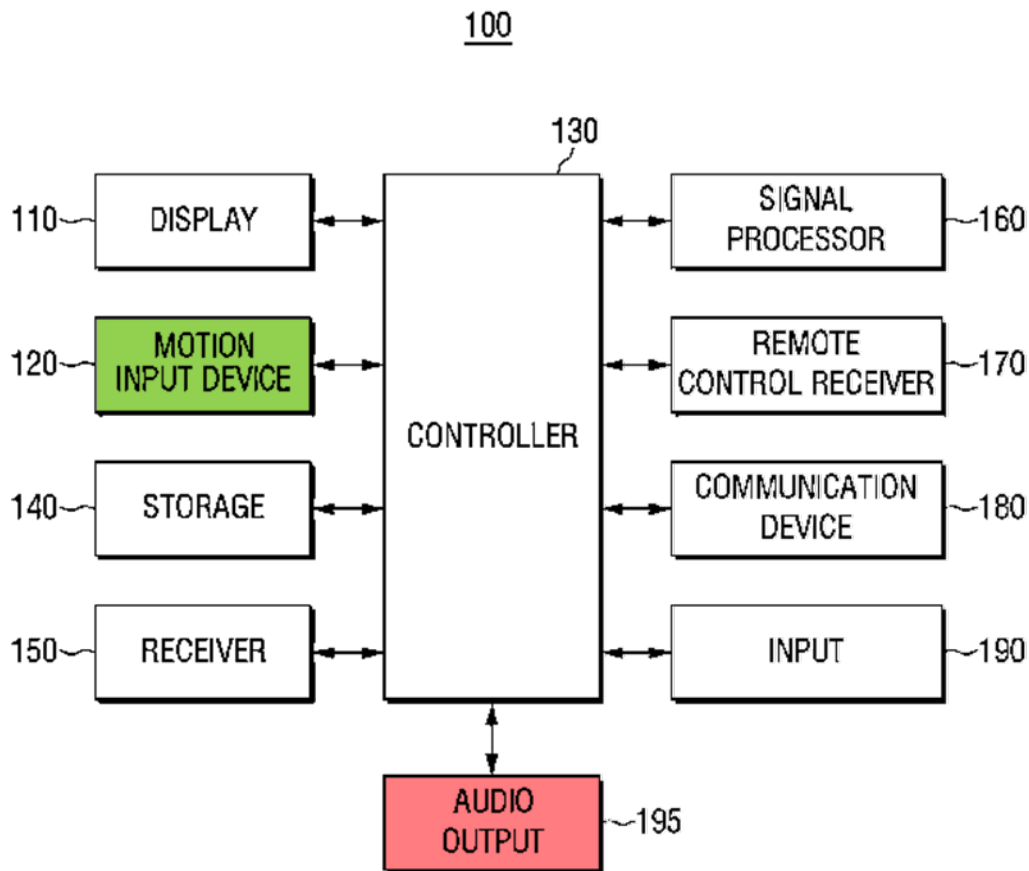
Hensen-Patent further discloses that the **wireless earpieces** are equipped with input devices 37 associated with controlling the **wireless earpieces** (e.g., adjusting the volume). Ex-1003-Hensen-Patent, 5:37-47 (“The input devices 37 may be for **adjusting volume**”). Input devices 37 can illustratively be push buttons but could

also include other known types of input devices (such as the prior art gesture-based input devices described below). *Id.* (“The input devices 37 *may be push buttons* *Other types of input devices may be used* ... as will be appreciated by those skilled in the art.”); Ex-1002-Anthony-Decl., ¶149.

(ii) Lee

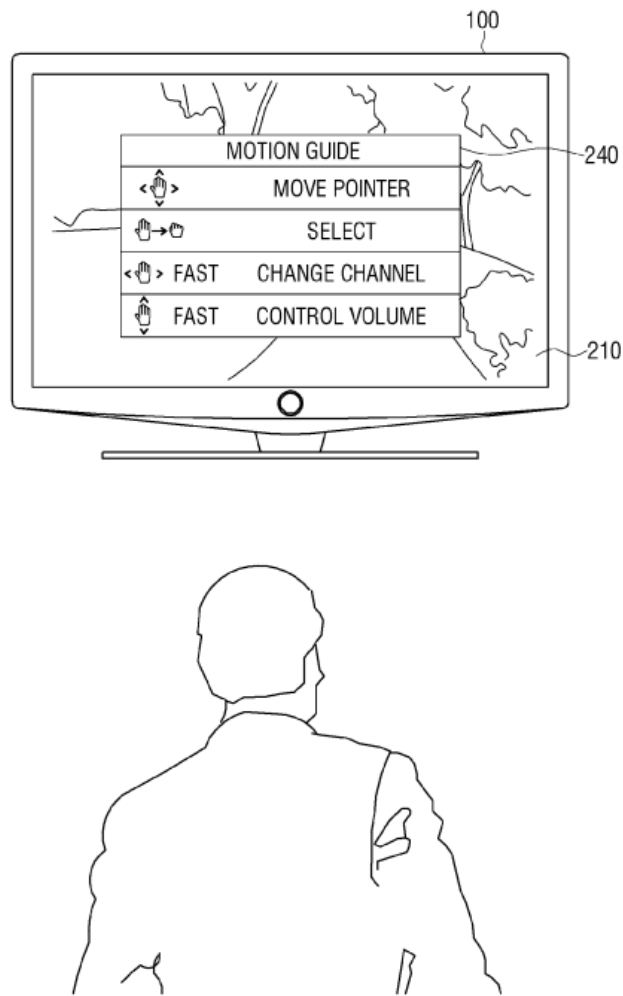
Lee discloses that the user interface is *configured to display available gestures associated with controlling the at least one wireless ear piece*. Ex-1002-Anthony-Decl., ¶150.

First, referring to Figure 3, Lee discloses a gesture-based input device (e.g., *motion input device 120*) that is used to control (e.g., set the volume of) an audio device (e.g., a display apparatus 100 having an *audio output 195*).



Ex-1006-Lee, ¶¶47 (“The *controller 130* may control to recognize a motion input through the *motion input device 120* and perform a task corresponding to the recognized motion [] such as ... controlling volume.”), 77 (“the display apparatus 100 may further comprise ... an *audio output 190* [*sic: 195*]”), 10, 24; Ex-1002-Anthony-Decl., ¶151.

Second, as shown in Figure 6A, Lee discloses a user interface that displays available gestures (e.g., a motion guide) associated with controlling the audio device (e.g., adjusting the volume of *audio output 195*).



Ex-1006-Lee, Figure 6A, ¶96 (“[T]he controller 130 may *display a guide 240 (FIG. 6B) including information regarding available motions* on the screen as illustrated in FIG. 6B.”); Ex-1002-Anthony-Decl., ¶152.

During prosecution of the '385 patent, the Examiner cited Lee as disclosing the limitations of then-numbered claim 9 (now claim 8). Ex-1011-FH [PDF199] (Office Action at 8) (“Lee discloses a display for an electronic unit to display available motions or gestures for the user in controlling the electronic device....

[I]t would have been obvious to [a POSITA] to utilize the guide disclosed by Lee ... so that the user [is] informed and comfortable regarding the motions available for controlling the electronic device”). At no point during prosecution (including in the applicant’s Appeal Brief) did the applicant contest the Examiner’s conclusions that Lee discloses these limitations or that a POSITA would have been motivated to combine Lee with the primary references. *See, e.g.,* Ex-1011-FH [PDF272] (Appeal Brief at 51) (applicant’s only argument for the allowability of then-numbered claim 9, now claim 8, was based on its dependency from claim 1); Ex-1002-Anthony-Decl., ¶153.

Thus, the combination of Hensen-Patent, Hensen-Video, and Lee discloses a user interface that displays available gestures (e.g., Lee’s motion guide) associated with controlling a wireless earpiece (e.g., setting the volume of Hensen-Patent’s wireless earpieces adapted to include a gesture-based input device as taught by Lee). Ex-1002-Anthony-Decl., ¶154.

(iii) Motivation to Combine

A POSITA would have been motivated to combine the teachings of Lee with Hensen-Patent and Hensen-Video. Specifically, the Examiner of the ’385 patent concluded (and the applicant did not contest) that “it would have been obvious to [a POSITA] to utilize the guide disclosed by Lee ... so that the user [is] informed

and comfortable regarding the motions available for controlling the electronic device.” Ex-1011-FH [PDF199] (Office Action at 8). A POSITA would have been motivated to combine these teachings with a reasonable expectation of success for the following additional reasons. Ex-1002-Anthony-Decl., ¶155.

First, each of the references are directed to techniques for interacting with electronic devices via a user interface. Ex-1006-Lee, ¶¶24 (“it is possible to ***control a display apparatus by a user’s motion*** and thus, user convenience can be improved”), 10; Ex-1003-Hensen-Patent, 8:14-31; Ex-1004-Hensen-Video, 0:09-0:19. Specifically, Lee and Hensen-Patent both disclose techniques for setting the volume of an audio device. Ex-1006-Lee, ¶47 (“The ***controller 130 may control to recognize a motion input ... and perform a task corresponding to the recognized motion*** (such as... ***controlling volume*** ...).”), ¶77; Ex-1003-Hensen-Patent, 5:37-47 (“***[I]nput devices 37 may be for adjusting volume.***”); Ex-1002-Anthony-Decl., ¶156.

Second, Hensen-Patent discloses that a variety of known input devices can be used to control its earpieces (e.g., to set the volume), and Lee discloses a convenient and intuitive gesture-based input device suitable for this purpose. Ex-1003-Hensen-Patent 5:37-47 (“The input devices 37 may be push buttons.... ***Other types of input devices may be used ... as will be appreciated by those skilled in***

the art.”); Ex-1006-Lee, ¶¶24 (“According to various exemplary embodiments, *it is possible to control a display apparatus by a user’s motion and thus, user convenience can be improved*”), 10. Thus, a POSITA would have been motivated by the teachings of Hensen-Patent to seek out Lee’s teachings regarding a convenient gesture-based input device. Ex-1002-Anthony-Decl., ¶157.

Third, Hensen-Patent in combination with Hensen-Video discloses a user interface that displays information associated with its earpieces, (*see, e.g., Ex-1003-Hensen-Patent*, 8:24-34) and Lee discloses mechanisms for displaying such information (e.g., a motion guide) in a manner that draws the user’s attention and minimizes interference with the user interface. Ex-1006-Lee, ¶11 (“a display apparatus ... is controlled by a user's motion, and *draws the attention of a user to a motion guide when the guide regarding available motions is provided, while minimizing interference with the display apparatus.*”). Thus, a POSITA would have further been motivated by the teachings of Hensen-Patent to seek out Lee’s teachings regarding displaying a motion guide, particularly give Lee’s teachings that the motion guide grabs the user’s attention without interfering with the use of the user interface. Ex-1002-Anthony-Decl., ¶158.

Therefore, a POSITA would have readily applied Lee’s known gesture interface and motion guide to the system of Hensen-Patent and Hensen-Video to

yield predictable results (a convenient gesture-based interface for the wireless earpieces and a user that is informed and comfortable with the available gestures).

A POSITA would have combined Hensen-Patent, Hensen-Video, and Lee's teachings with a reasonable expectation of success given that Lee's gesture interface and motion guide would be used for its intended purpose of controlling an audio device. Ex-1002-Anthony-Decl., ¶159.

D. Grounds 4-6

Grounds 4-6 demonstrate that the challenged claims would have been obvious over the same combinations of references as Grounds 1-3 except that Hensen-Kickstarter replaces Hensen-Video. Hensen-Kickstarter is a printed publication that was posted on Kickstarter on November 22, 2014. Ex-1007-Hensen-Kickstarter. The Internet Archive captured a snapshot of Hensen-Kickstarter on September 24, 2015, before the claimed priority date of the '385 patent. Ex-1023. At that time, Hensen-Kickstarter had been "liked" 27 times and commented on four times. Ex-1007-Hensen-Kickstarter, 1. Moreover, as explained above in Section VII.B, Kickstarter is an Internet-based public platform on which POSITAs would have sought and readily accessed prior art in the field of the '385 patent. Accordingly, to the extent PO challenges the availability of Hensen-Video as prior art under §311, Grounds 4-6 demonstrate that the

challenged claims are nevertheless unpatentable based on similar prior art teachings of Hensen-Kickstarter. Ex-1002-Anthony-Decl., ¶¶160-161.

Hensen-Kickstarter is associated with the same author/inventor (Dr. Eric Hensen) and commercial product (FreeWavz) as Hensen-Video and Hensen-Patent. *See* Section IX.A.1(c)(iii). For example, Hensen-Kickstarter was posted under FreeWavz’s Kickstarter account and includes numerous explicit references to the FreeWavz product. *See, e.g.*, Ex-1007-Hensen-Kickstarter, 2-3. Moreover, Hensen-Kickstarter links to pages that identify Dr. Hensen as the founder of FreeWavz. Ex-1022; Ex-1002-Anthony-Decl., ¶162.

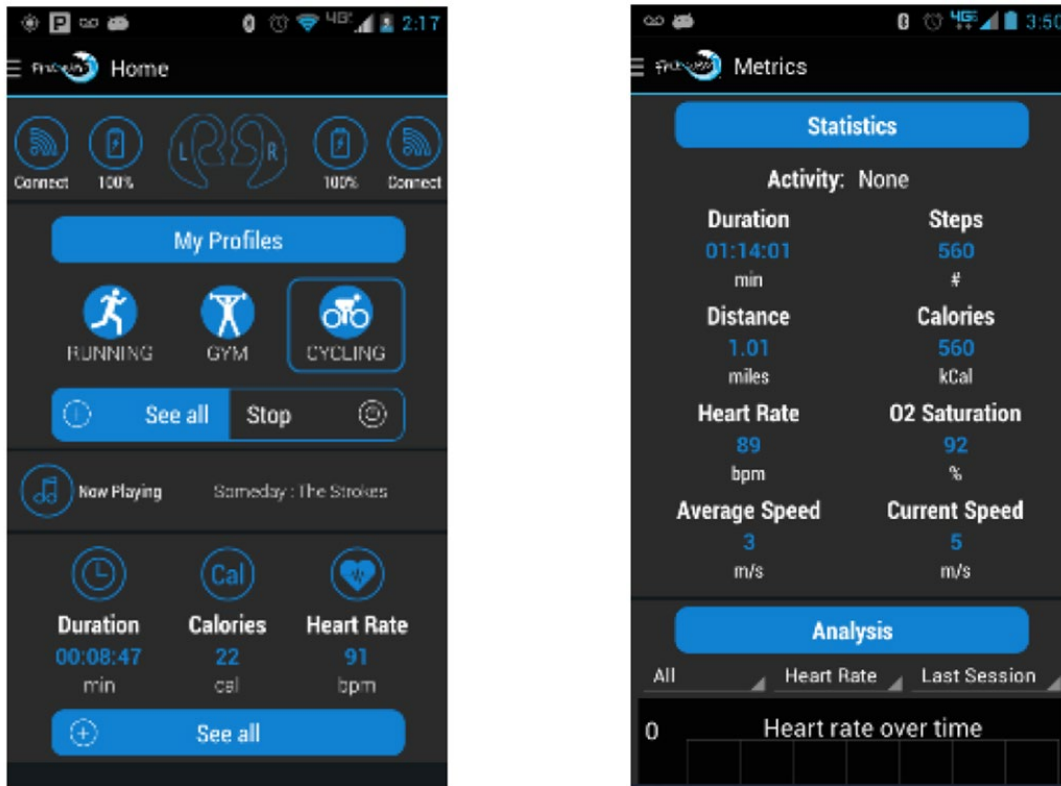
As further explained below, Hensen-Kickstarter has nearly identical teachings to Hensen-Video for each of the limitations for which Hensen-Video was cited in Grounds 1-3. Thus, the challenged claims would have been obvious over Hensen-Kickstarter for the same reasons that they would have been obvious over Hensen-Video. Ex-1002-Anthony-Decl., ¶163.

1. Elements [1B], [1C] and [13B] and Claims 11-12

These claim limitations recite features of a wireless earpiece system comprising wireless earpieces and a remote control device having display screens. Hensen-Kickstarter discloses a wireless earpiece system with a pair of wireless earpieces that closely resemble those of Hensen-Video.

Hensen-Video, 2:23	Hensen-Kickstarter, 2
	

See also Ex-1007-Hensen-Kickstarter, 2 (“FreeWavz provide *complete freedom from wires*”). Hensen-Kickstarter also discloses the same type of remote control device (e.g., an Android smartphone) and software application (e.g., an Android app) that causes a display to show various display screens, as shown below.

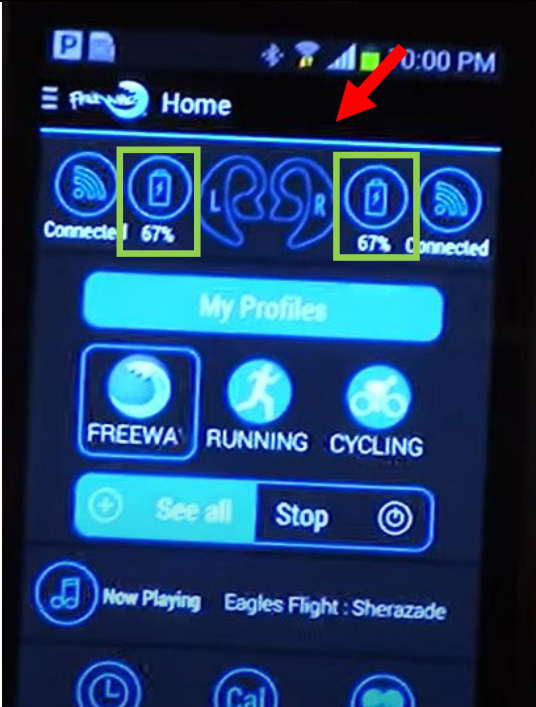
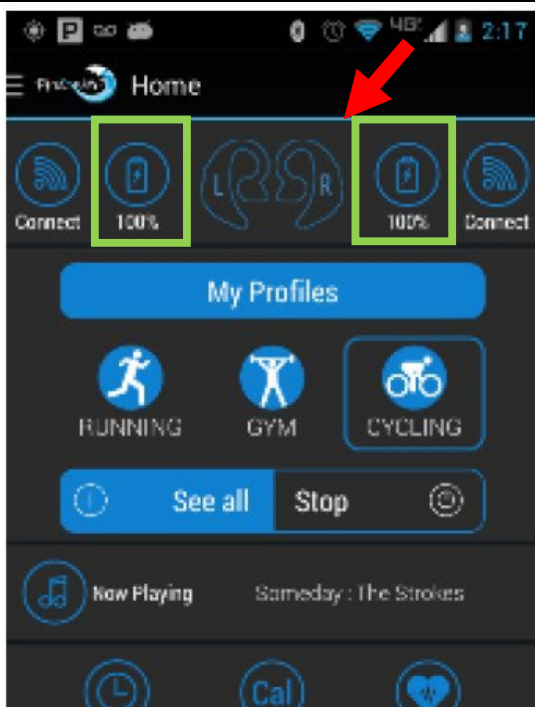


Ex-1007-Hensen-Kickstarter, 4-5 (“The Android app is just about finished. Here are some sample page screen shots to demonstrate their appearance”). Icons on the “home” screen (above left) indicate that the earpieces are connected (paired) with the smartphone app, just as in Hensen-Video. *Compare with* Sections IX.A.1(c)(ii), IX.A.1(d), IX.A.7, IX.A.8, IX.A.9(c) (citing corresponding teachings of Hensen-Video for Elements [1B], [1C] and [13B] and Claims 11-12); Ex-1002-Anthony-Decl., ¶¶164-165.

2. Elements [1D], [1E], [14E] and Claims 5 and 6

These claim limitations recite features of a user interface provided on the remote control device, including the use of a visual representation. Hensen-

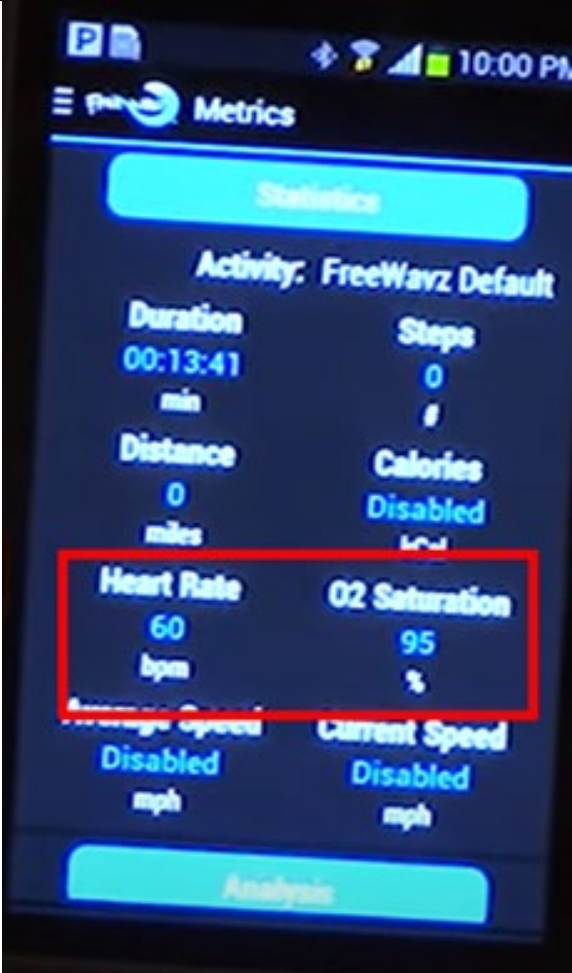
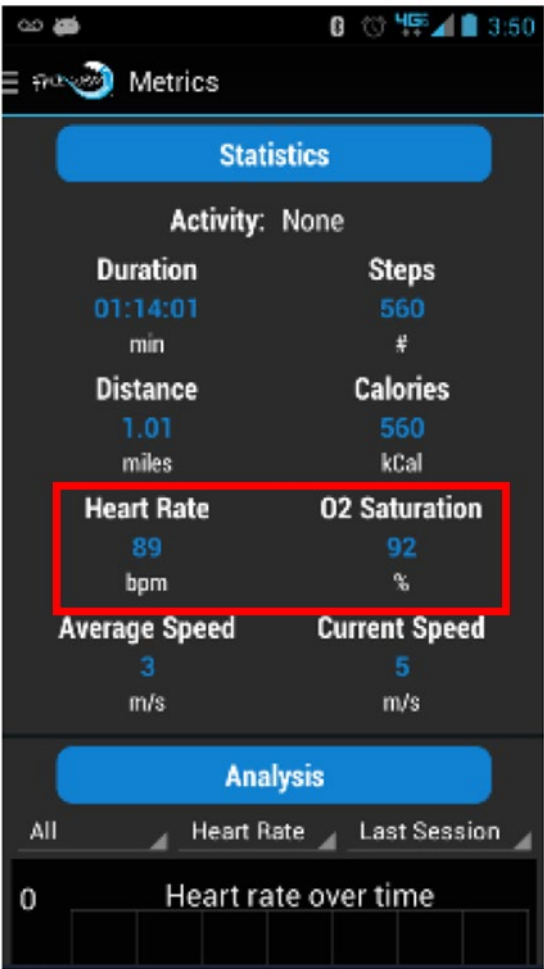
Kickstarter’s user interface that is virtually identical to the user interface depicted in Hensen-Video. For example, as shown below, both user interfaces have the same “home” screen, including the same visual representation of the **earpieces** that indicates their **battery life**.

Hensen-Video “Home” screen (Hensen-Video, 0:17)	Hensen-Kickstarter “Home” screen (Hensen-Kickstarter, 4)
	

Compare with Sections IX.A.1(f), IX.A.10(f), IX.B.1, IX.B.2 (citing corresponding teachings of Hensen-Video for Elements [1D], [1E], [14E] and Claims 5 and 6);
Ex-1002-Anthony-Decl., ¶166.

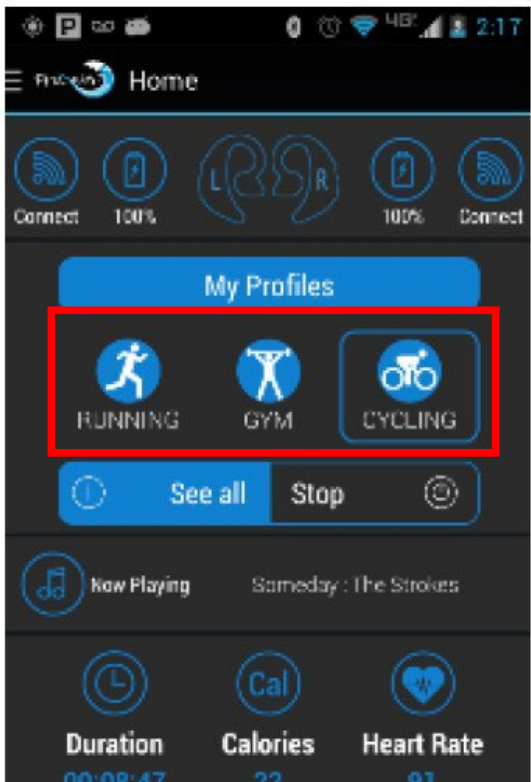
3. Claims 3, 4, and 15 and Element [14E]

These claim limitations recite features related to fitness tracking applications and displaying physiological data. Hensen-Kickstarter’s software application tracks and displays the same fitness tracking data (e.g., heart rate and oxygen saturation) received from physiological sensors as Hensen-Video.

Hensen-Video “Metrics” screen (Hensen-Video, 0:48-1:09)	Hensen-Kickstarter “Metrics” screen (Hensen-Kickstarter, 5)
	

See also Hensen-Kickstarter, 1 (“FreeWavz: Smart Earphones with ***Built-in Fitness Monitoring***”), 2 (“FreeWavz provide complete freedom from wires, have a naturally perfect fit and ***deliver the fitness metrics you want, when you want them***”), 4 (“on-ear tuning of ***biometric algorithms***”), 6 (“***Tracking-Activity/Metric/Time***”). Compare with Sections IX.A.3(ii), IX.A.10(f), IX.A.11 (citing corresponding teachings of Hensen-Video for Claims 3 and 15 and Element [14E]); Ex-1002-Anthony-Decl., ¶167.

Moreover, Hensen-Kickstarter’s user interface provides the same capabilities as Hensen-Video for selecting among activities (e.g., running and cycling) to be tracked.

Hensen-Video “Home” screen (Hensen-Video, 0:38)	Hensen-Kickstarter “Home” screen (Hensen-Kickstarter, 4)
	

Compare with Section IX.A.4 (citing corresponding teachings of Hensen-Video for Claim 4); Ex-1002-Anthony-Decl., ¶168.

Thus, Hensen-Kickstarter discloses each of the limitations for which Hensen-Video was cited in Grounds 1-3. Ex-1002-Anthony-Decl., ¶169.

4. Motivation to Combine

A POSITA would have been motivated to combine Hensen-Kickstarter with Hensen-Patent for the same reasons set forth in Grounds 1-3. See Section IX.A.1(c)(iii). For example, as explained above, Hensen-Kickstarter is associated

with the same author/inventor and commercial product and as Hensen-Patent and therefore expressly instructs a POSITA look to Hensen-Patent for further details of the system described in Hensen-Kickstarter. Moreover, Hensen-Patent and Hensen-Kickstarter disclose compatible systems that use a remote control device to interact with wireless earpieces, including by reading physiological data (e.g., heart rate and oxygen saturation) from the earpieces. Ex-1002-Anthony-Decl., ¶170.

As further motivation, Hensen-Kickstarter discloses that its wireless earpiece system was selected for the 2015 CES Innovation Award in Wearable Tech. Ex-1007-Hensen-Kickstarter, 8-9 (“To be considered for this award, products are ... evaluated on their engineering, aesthetic and design qualities, intended use/function and user value, how the design and innovation of the product directly compares to other products in the marketplace and unique/novel features present.... FreeWavz scored highly across all judging criteria.”); Ex-1002-Anthony-Decl., ¶171.

Because the software applications disclosed in Hensen-Kickstarter and Hensen-Video are substantially the same, their implementation would have been the same and a POSITA would have modified Hensen-Patent with the teachings of Hensen-Kickstarter with a reasonable expectation of success for the same reasons as those set forth in Section IX.A.1(c)(iii). Ex-1002-Anthony-Decl., ¶172.

X. CONCLUSION

Petitioner respectfully requests institution of IPR to cancel claims 1-16.

Respectfully submitted,

/Haixia Lin/

Haixia Lin, Reg. No. 61,318

Table of Exhibits for U.S. Patent 10,635,385 Petition for *Inter Partes* Review

Exhibit	Description
1001	U.S. Patent No. 10,635,385 (“’385 patent”)
1002	Declaration of Brian W. Anthony, Ph.D.
1003	U.S. Patent No. 9,781,514 (“Hensen-Patent”)
1004	YouTube.com, <i>September 2015 – FreeWavz Demo</i> [https://www.youtube.com/watch?v=zHNZ7p5GnH4] (“Hensen-Video”)
1005	<i>User Manual: LG Heart Rate Earphones</i> (“LG-Manual”)
1006	U.S. Patent Appl. No. 2014/0189600 (“Lee”)
1007	Kickstarter.com, November 22 Progress Report (“Hensen-Kickstarter”) [https://web.archive.org/web/20150924011438/https://www.kickstarter.com/projects/freewavz/freewavzsmart-earphones-with-built-in-fitness-mon/posts/1057132]
1008	U.S. Patent No. 9,161,131 (“Hensen-Parent”)
1009	U.S. Provisional Application No. 62/061,497 (“Hensen-Provisional”)
1010	Screenshots from Hensen-Video
1011	File History for U.S. Patent No. 10,635,385 (“’385 FH”)
1012	Twitter.com – Posts by FreeWavz [https://twitter.com/Freewavz]
1013	Twitter.com - October 2014 Snapshot of Posts by FreeWavz [https://web.archive.org/web/20141026181307/twitter.com/Freewavz]
1014	Kickstarter.com, <i>Pulse Oximetry Success + FreeWavz Testing + Factory Preparation</i> [https://www.kickstarter.com/projects/freewavz/freewavz-smart-earphones-with-built-in-fitness-mon/posts/1349732]

Exhibit	Description
1015	FreeWavz.com – Home Page [https://web.archive.org/web/20151004055203/http://www.freewavz.com/]
1016	FreeWavz.com – News Page [https://web.archive.org/web/20151006111823/http://www.freewavz.com/news/]
1017	FreeWavz.com – About Page [https://web.archive.org/web/20151008013534/http://freewavz.com/about/]
1018	Olympics.com – History of Triathlon [https://olympics.com/en/sports/triathlon/#discipline-history-of]
1019	LG.com – FR74 Product Page [https://web.archive.org/web/20150507002217/http://www.lg.com/us/support-mobile/lg-FR74#]
1020	FCC.gov – FR74 FCC Application [https://apps.fcc.gov/oetcf/eas/reports/ViewExhibitReport.cfm?mode=Exhibits&RequestTimeout=500&calledFromFrame=N&application_id=5sSYi3UFjhWeKosDZgHTHQ%3D%3D&fcc_id=BEJ9QK-DMFR74]
1021	FCC.gov – FR74 User Manual (Attachment to FCC Application) [https://apps.fcc.gov/eas/GetApplicationAttachment.html?id=2186303]
1022	Kickstarter.com – FreeWavz Creator Bio [https://web.archive.org/web/20150912193027/https://www.kickstarter.com/projects/freewavz/freewavz-smart-earphones-with-built-in-fitness-mon/creator_bio]
1023	Internet Archive Declaration of Nathaniel E Frank-White
1024	U.S. Patent No. 9,392,946
1025	U.S. Patent No. 8,818,476

CERTIFICATE OF SERVICE

I hereby certify that on May 10, 2023, I caused a true and correct copy of the foregoing materials:

- Petition for *Inter Partes* Review of U.S. Patent No. 10,635,385
- Table of Exhibits
- Exhibits 1001 – 1025
- Word Count Certificate of Compliance
- Fee Authorization
- Power of Attorney

to be served via electronic mail at the addresses listed below. These email addresses include addresses for the attorney of record as listed on PAIR and who have agreed to electronic service:

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Respectfully Submitted

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Brian J. Lambson
Registration No. 72,570

WORD COUNT CERTIFICATE OF COMPLIANCE

I hereby certify that the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 10,635,385 contains 13,649 words as measured by the word processing software used to prepare the document, in compliance with 37 C.F.R. § 42.24(d).

Respectfully submitted,

Dated: May 10, 2023

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