

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.;
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner

v.

SLYDE ANALYTICS, LLC,
Patent Owner.

Case No. IPR2024-00041
U.S. Patent No. 10,198,085

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 10,198,085**

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LIST OF EXHIBITS¹

Ex. No.	Description
Ex-1001	U.S. Patent No. 10,198,085 (“the ’085 Patent”)
Ex-1002	Declaration of Dr. Benjamin B. Bederson
Ex-1003	Curriculum Vitae of Dr. Benjamin B. Bederson
Ex-1004	Prosecution History of the ’085 Patent (Application No. 15/799,608)
Ex-1005	U.S. Patent Application Publication No. US 2009/0164219 (“Yeung”)
Ex-1006	U.S. Patent No. 8,228,292 (“Ruiz”)
Ex-1007	U.S. Patent Application Publication No. US 2011/0148752 (“Alameh”)
Ex-1008	Mark Joselli and Esteban Clua, gRmobile: A Framework for Touch Accelerometer Gesture Recognition for Mobile Games, IEEE 141-150 (2010).
Ex-1009	U.S. Patent No. 8,615,375 (“Yano”)
Ex-1010	U.S. Patent Application Publication No. 2009/0195497 (“Fitzgerald”)
Ex-1011	U.S. Patent Application Publication No. 2011/0264928 (“Hinckley”)
Ex-1012	U.S. Patent Application Publication No. 2008/0229255 (“Linjama”)
Ex-1013	U.S. Patent Provisional Application No. 61/320,663 (“Ruiz Provisional”)

¹ Four-digit pin citations that begin with 0 are to the branded numbers added by Samsung in the bottom right corner of the exhibits. All other pin citations are to original page, column, paragraph, or line numbers.

Ex. No.	Description
Ex-1014	Certified Translation of Japanese Patent Application Publication No. JP2007-41143 (“Nishijima”)
Ex-1015	Certified Translation of Japanese Patent Application Publication No. JP2010-262341 (“Shimazaki”)
Ex-1016	Certified Translation of Chinese Patent Application Publication No. CN101458557 (“Zhenghao”)
Ex-1017	U.S. Patent No. 5,612,931 (“Sato”)
Ex-1018	Thomas Schlömer, et. al, “Gesture Recognition with a Wii Controller,” Proceedings of the Second International Conference on Tangible and Embedded Interaction, February 18-20 2008 (“Schlömer”)
Ex-1019	U.S. Patent No. 7,873,849 (“Mucignat”)
Ex-1020	U.S. Patent 9,122,735 (“Locker”)
Ex-1021	U.S. Patent Application Publication No. US 2010/0013778 (“Liu”)
Ex-1022	Seungyon Claire Lee, Bohao Li, and Thad Starner, AirTouch, Synchronizing in-air hand gesture and on-body tactile feedback to augment mobile gesture interaction 3-10 (2011).
Ex-1023	Benjamin B. Bederson & James D. Hollan, Pad++: A Zooming Graphical Interface for Exploring Alternate Interface Physics 17-26 (1994).
Ex-1024	David Rogers, Feimo Hou, Chandelle Vuolo & Benjamin B. Bederson, Tossing Objects in a Desktop Environment (1996).
Ex-1025	Benjamin B. Bederson, Fisheye Menus 217-225 (2000).
Ex-1026	Leslie E Chipman, Benjamin B. Bederson & Jennifer A. Golbeck, SlideBar: Analysis of a linear input device 1-9 (2004).

Ex. No.	Description
Ex-1027	Hilary Browne et al., Designing a Collaborative Finger Painting Application for Children (2000).
Ex-1028	Pekka Parhi, Amy K. Karlson & Benjamin B. Bederson, Target Size Study for One-Handed Thumb Use on Small Touchscreen Devices 203-210 (2006).
Ex-1029	Amy K. Karlson, Benjamin B. Bederson & José Contreras-Vidal, Understanding One-Handed Use of Mobile Devices 1-22 (2007).
Ex-1030	Test of Time Awards, VIS2021, https://ieevis.org/year/2021/info/awards/test-of-time-awards (last visited Oct. 3, 2023).
Ex-1031	Test of Time Awards, VIS2022, https://ieevis.org/year/2022/info/awards/test-of-time-awards (last visited Oct. 3, 2023).
Ex-1032	Swiss Patent Application No. 01689/11 (“’911 Application”)
Ex-1033	U.S. Patent Application Publication No. 2009/0265671 (“Sachs”)
Ex-1034	World Intellectual Property Organization Publication No. WO 2006/120211 (“Tecchiolli”)
Ex-1035	David Dearman, Amy Karlson, Brian Meyers, and Ben Bederson, Multi-Modal Text Entry and Selection on a Mobile Device 19-26 (2011).
Ex-1036	Mercedes Casamayor and Claire Croke, How to Save Power in Battery Applications Using the Power-Down Mode in an ADC, Analog Dialogue (2003), https://www.analog.com/media/en/analog-dialogue/volume-37/number-3/articles/save-power-with-power-down-mode.pdf .
Ex-1037	Eija Kaasinen, User acceptance of mobile services: Value, ease of

Ex. No.	Description
	use, trust and ease of adoption, VTT Technical Research Centre of Finland (June 22, 2005).
Ex-1038	Beverly L. Harrison, Kenneth P. Fishkin, Anuj Gujar, Carlos Mochon, and Roy Want, Squeeze Me, Hold Me, Tilt Me! An Exploration of Manipulative User Interfaces, CHI '98: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems 17-24 (1998).
Ex-1039	Lynn Michelle Roylance and James B. Angell, A Batch-Fabricated Silicon Accelerometer, IEEE 1911-1917 (1979).
Ex-1040	William A.S. Buxton, A three-state model of graphical input, IFIP TC13 International Conference on Human-Interaction 449-456 (1990).
Ex-1041	J.F. Barlett, Rock 'n' Scroll is here to stay [user interface], IEEE 40-45 (2000).
Ex-1042	12-Bit, 200kHz, micropower Sampling Analog-to-Digital Converter, ADS7822, Burr-Brown Products from Texas Instruments (2007).
Ex-1043	MSOP-8 Package Information, Diodes Incorporated (2021), https://www.diodes.com/assets/Package-Files/MSOP-8.pdf .
Ex-1044	Standard Red T-1 ¾ Solid State Lamps, MV5052, MV5053/6053, MV5054A-1/2/3, MV5055, Fairchild Semiconductor (2002).
Ex-1045	+1.5 g Dual Axis Micromachined Accelerometer, MMA6260Q, MMA6261Q, MMA6262Q, MMA6263Q, Motorola Semiconductor Technical Data (2004).
Ex-1046	IEEE Declaration of Gordon MacPherson regarding Ex-1008, Joselli reference.
Ex-1047	Screenshot of https://ieeexplore.ieee.org/document/5479100 (accessed on Oct. 13, 2023)
Ex-1048	Ivan Raso, Ramon Hervás, and Jose Bravo, m-Physio: Personalized Accelerometer-based Physical Rehabilitation Platform 416-421

Ex. No.	Description
	(2010).
Ex-1049	Liyanaarachchi Lekamalage Chamara Kasun, Wooi-Boon Goh, Accelerometer-based swinging gesture detection for an electronic handbell, IEEE 272-277 (2011).
Ex-1050	World Intellectual Property Organization Publication No. WO 2012/001464 A1 (“Lundin”)
Ex-1051	Benjamin B. Bederson, Richard S. Wallace, and Eric Schwartz, A miniaturized space-variant active vision system: Cortex-I, Machine Visions and Applications 101-109 (1995).
Ex-1052	U.S. Patent No. 5,754,176 (“Crawford”)
Ex-1053	Pocket PC User’s Guide, Casio
Ex-1054	Shwetak N. Patel, Jeffrey S. Pierce, and Gregory D. Abowd, A gesture-based authentication scheme for untrusted public terminals, UIST ’04: Proceedings of the 17th annual ACM symposium on User interface software and technology 157-160 (2004).
Ex-1055	Java version history, Wikipedia, https://en.wikipedia.org/wiki/Java_version_history .
Ex-1056	3-Axis, +2 g/+4 g/+8 g/+16 g, Digital Accelerometer, ADXL345, Analog Devices.
Ex-1057	Linux Watch, https://researcher.watson.ibm.com/researcher/view_group_subpage.php?id=6102 (last visited Sept. 29, 2023).
Ex-1058	Chandra Narayanaswami et al., IBM’s Linux Watch: The Challenge of Miniaturization 33-41 (2002).

I. INTRODUCTION

Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Petitioner”) request *inter partes* review (“IPR”) of Claims 1-10 of U.S. Patent No. 10,198,085 (“the ’085 Patent”) (Ex-1001), currently assigned to Slyde Analytics LLC (“PO”).

II. MANDATORY NOTICES UNDER 37 C.F.R. §42.8

Real Parties-in-Interest: Petitioner identifies the following real parties-in-interest: Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.

Related Matters: PO has asserted the ’085 Patent against Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. in *Slyde Analytics LLC v. Samsung Electronics Co., Ltd., et al.*, Case No. 2-23-cv-00083 (E.D. Tex.); PO has also asserted the ’085 Patent against Zepp Health Corporation in *Slyde Analytics LLC v. Zepp Health Corp.*, Case No. 2-23-cv-00172 (E.D. Tex.).

Lead and Back-Up Counsel:

- Lead Counsel:

William M. Fink (Reg. No. 72,332)
O’Melveny & Myers LLP
1625 Eye Street, NW
Washington, DC 20006
Telephone: (202) 383-5300
Fax: (202) 383-5414
E-Mail: tfink@omm.com

- Backup Counsel:

Brian Cook (Reg. No. 59,356)
O'Melveny & Myers LLP
400 South Hope Street, 18th Floor
Los Angeles, CA 90071
Telephone: (213) 430-6000
Fax: (213) 430-6407
E-Mail: bcook@omm.com

Nicholas Whilt (Reg. No. 72,081)
O'Melveny & Myers LLP
400 South Hope Street, 18th Floor
Los Angeles, CA 90071
Telephone: (213) 430-6000
Fax: (213) 430-6407
E-Mail: nwhilt@omm.com

Benjamin M. Haber (Reg. No. 67,129)
O'Melveny & Myers LLP
400 South Hope Street, 18th Floor
Los Angeles, CA 90071
Telephone: (213) 430-6000
E-Mail: bhaber@omm.com

Service Information: Petitioner consents to electronic service by email to the following addresses:

- tfink@omm.com
- bcook@omm.com
- nwhilt@omm.com
- bhaber@omm.com

III. FEE AUTHORIZATION

The PTO is authorized to charge any fees due during this proceeding to Deposit Account No. LA50-0639.

IV. GROUNDS FOR STANDING

Petitioner certifies that the '085 Patent is available for review, and Petitioner is not barred or estopped from requesting review.

V. PRECISE RELIEF REQUESTED

Petitioner requests review and cancellation of Claims 1-10 as unpatentable based on the following grounds, supported by a declaration from Dr. Benjamin B. Bederson. Ex-1002; Ex-1003.²

Ground	Summary
1	Claims 1-10 are obvious over Yeung (Ex-1005) combined with Ruiz (Ex-1006)
2	Claims 1-4, 6, and 8-10 are obvious over Yeung combined with Alameh (Ex-1007) and further combined with Joselli (Ex-1008)
3	Claims 5 and 7 are obvious over Yeung combined with Alameh and Joselli and further combined with Yano (Ex-1009)

² Dr. Bederson would have been a POSITA, as defined below. Ex-1002 ¶¶1-22, 37-41, 63.

VI. THE CHALLENGED PATENT

The '085 Patent³ aims “to provide a better method for switching a device, such as a [wristwatch], into a different power mode ... without causing unwanted power mode switches.” Ex-1001, 2:19-24, 1:19. Specifically, “wristturn detection is performed for detecting rotation of the wrist and deciding if this rotation corresponds to a predefined pattern, in which case the wristwatch should be switched to a second power mode for example in order to activate the display.” *Id.*, 9:38-42.

The alleged improvement is distinguishing “between intentional commands to switch a device and other gestures or accelerations which may be produced during normal use of the device.” *Id.*, 2:9-13. But the claims are directed to predictable combinations of well-known prior-art elements in touchscreen devices as reflected, for example, in the sole independent claim, which recites:

1. A method for switching a wristwatch from a first power mode to a second power mode, comprising:

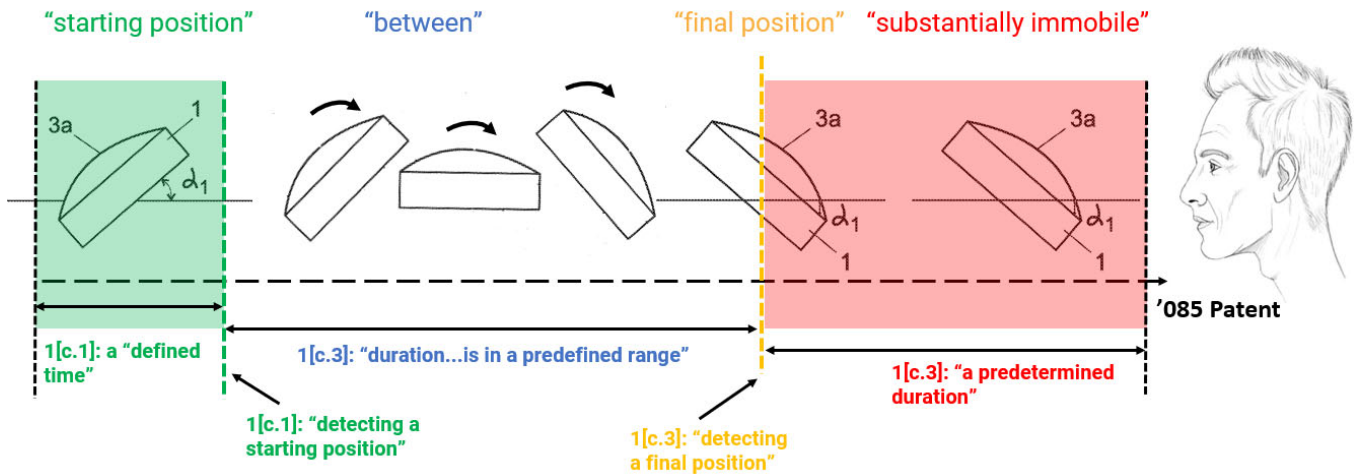
- [a] using an accelerometer for detecting a wristturn, and
- [b] switching said wristwatch from said first power mode to said second power mode when a wristturn has been detected,
- [c] wherein said step of detecting a wristturn comprises:

³ This section is supported by Ex-1002 ¶¶46-53.

- [c.1] detecting that an orientation of the wristwatch is in a starting position, wherein said step of detecting that the orientation is in the starting position comprises detecting that the orientation of the wristwatch is held within a first range for a defined time;
- [c.2] detecting that an orientation of the wristwatch is then in a final position, wherein said step of detecting that the orientation is in the final position comprises detecting that the orientation is in a second range different from said first range,
- [c.3] in response to a detection that the orientation of the wristwatch is in the second range, detecting that the wristwatch remains substantially immobile during a predetermined duration and that a duration between the starting position and the final position is in a predefined range.

Ex-1001, 10:59-11:15.

As claimed, a wristwatch switches power modes when its accelerometer detects a wristturn. The illustration below, based on Figures 7a-7c and the accompanying description, shows the specific motion indicating a desire to change power modes.



Ex-1001, Figs. 7a (left, green) and 7b/7c (right, red). Other images and color annotations have been added.

First, a “starting position” (green) is detected (Element 1[c.1]) when the wristwatch is held in an orientation within an angle range facing away from the user for “a defined time” (e.g., 50 ms). *Id.*, 9:58-63 (“a first defined angle range α_1 (e.g., 25° to 155° relative[] to the horizontal),” where positive angles indicate rotation away from the user’s face).

Next, the wristwatch is detected in a “final position” (Element 1[c.2]), within an orientation range different from that of the starting position. Ex-1001, 10:4-7. (“final position in a second defined angle range α_1 (e.g. -25° to -75° relative[] to the horizontal).”) The final position “is a typical position for reading the time on the watch, with the display oriented toward the face of the user.” *Id.*, 10:7-9.

Finally, Element 1[c.3] requires detecting (1) that the device is held substantially immobile during a “predetermined duration” *and* (2) that the duration

between the starting and final positions is in “a predefined range.” Having completed these steps, the wristwatch switches to a second power mode.

VII. PROSECUTION HISTORY OF THE '085 PATENT

The '085 Patent was filed October 31, 2017 as a continuation of international patent application PCT/EP2012/070273, filed October 12, 2012. It claims priority to Swiss patent application CH2011/1689, filed October 18, 2011.⁴

This Petition presents new arguments and prior art not considered during prosecution, and nothing precludes considering them in the first instance under 35 U.S.C. §325(d). All claims are invalid as obvious. Ex-1002 ¶¶37-41, 125-250.

VIII. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art at the relevant time (“POSITA”) would have had a bachelor’s degree in electrical engineering, computer science, computer engineering, or a related field, and two-three years of experience in the research, design, development, or testing of user interfaces, inertial sensors, and human-computer interaction in mobile devices, with additional education substituting for experience and vice versa. Ex-1002 ¶¶37-41.

IX. PRIORITY DATE

The '085 Patent is entitled to a priority date no earlier than 10/12/12 (the filing of U.S. Patent Application No. 14/352,727). *The '085 Patent is not entitled*

⁴ This section is supported by Ex-1002 ¶¶54-62.

to the priority date of Swiss Patent Application No. 1689/11 (10/18/2011) (“’911 Application,” Ex-1032. The ’085 Patent’s claims are all directed to detecting a “wristturn.” But the ’911 Application contains no such disclosure and never uses the term. *See* Ex-1032. The ’085 Patent discusses wristturn detection exclusively with respect to Figures 7a-7c, which it refers to as “another method for switching the wristwatch 1 from a first power mode to a second power mode.” *See, e.g.*, Ex-1001, 3:41-43, 9:29-36. However, the ’911 Application does not include Figures 7a-7c or any description of this second method. Thus, the ’085 Patent is not entitled to this earlier priority date.

Regardless, pre-AIA 35 U.S.C. §102 applies whether the ’085 Patent is entitled to the 2011 or 2012 priority date. And all references relied upon are prior art under either priority date.

X. CLAIM CONSTRUCTION

Petitioner interprets the claims according to *Phillips*. 37 C.F.R. §42.100(b). To resolve this Petition, Petitioner does not believe that any term requires construction.⁵ Ex-1002 ¶¶123-124.

⁵ District court claim construction procedures have not yet begun. Petitioner reserves all rights to raise claim construction and other arguments in district court. Additionally, Petitioner will request leave to submit the district court’s claim construction as soon as it becomes available.

XI. BRIEF DESCRIPTION OF THE APPLIED PRIOR ART

A. Yeung (Ex-1005)

Yeung (U.S. Pat. Pub. 2009/0164219) was filed December 18, 2008, and published June 25, 2009. Yeung is prior art under pre-AIA 35 U.S.C. §102(b) because it published at least a year before both the effective filing date of the '085 Patent and the earlier Swiss application.

Yeung uses “accelerometer-based orientation and/or movement sensing to control wearable devices, such as wrist-worn audio recorders and wristwatches.” Ex-1005 ¶5.

In Figure 1, Yeung depicts a “wrist-worn audio recorder 30 incorporating a three-axis accelerometer 32” that “senses acceleration in three orthogonal axes X, Y, and Z.” Ex-1005 ¶37. Yeung’s device is an “audio recorder” and wristwatch that includes “a real-time clock, so that the recorder can provide additional time-keeping function.” *Id.* ¶36. The time of day can be shown on display 34. *Id.* ¶37; Fig. 1. This device is referred to herein as a “watch/recorder.”

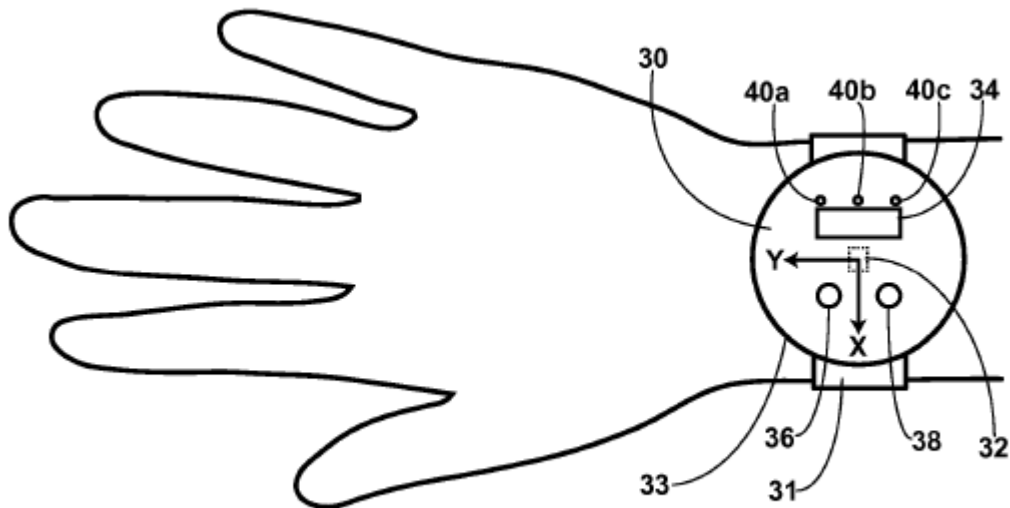


FIG. 1

Yeung explains the “audio recording function of audio recorder 30 turns on automatically when the user positions audio recorder 30 in a predetermined orientation ... and/or after audio recorder 30 has completed a predetermined movement.” Ex-1005 ¶48. As shown in Figure 6, the predetermined orientation may be such that the “angle between the X-axis and the direction of the gravitational acceleration G is about 45 degrees” and the “angle between the Z-axis and the gravitational acceleration G is about 135 [degrees].” *Id.* ¶47.

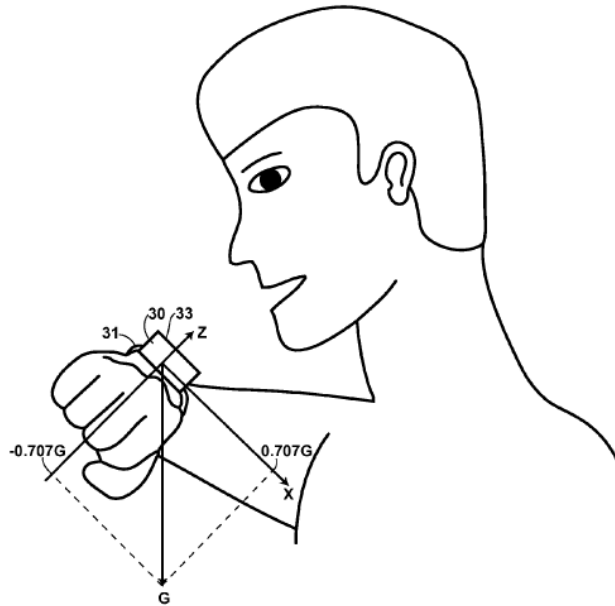


FIG. 6

“[F]or more robust detection, recorder controller 48 can ... detect a predetermined movement, such as the natural movement of lifting the arm upwards from a resting position (i.e., from the side of the body or from in front of the lower end of the torso) and tilting the [watch/recorder] towards the mouth to activate audio recording.” Ex-1005 ¶47. And “recorder controller 48 can be designed to activate an audio-recorder function ... only after audio recorder remains 30 in a static position for a predetermined period of time after a predetermined wrist and arm movement pattern has been detected.” *Id.* ¶52.

B. Ruiz (Ex-1006)

Ruiz (U.S. Patent No. 8,228,292) was filed September 30, 2011, is a continuation of U.S. Patent Application No. 12/770,325, filed April 29, 2010, and

claims priority to Provisional Application 61/320,663, filed April 2, 2010. Ruiz is prior art under at least pre-AIA 35 U.S.C. §102(e) because even its September 30, 2011 date is before the October 18, 2011 foreign priority date of the challenged patent (to which it is not entitled).

Ruiz discloses switching a mobile phone into a motion-gesture-detecting mode (like a Nintendo Wii remote) by performing a double-flip “delimiter motion.” Ex-1006, 4:26-31. “[T]he double flip delimiter is performed by quickly rotating the wrist such that the phone’s display is facing away from the user, then back to the original position with the display facing the user.” *Id.*, 16:62-65; 6:16-20; Fig. 1b.

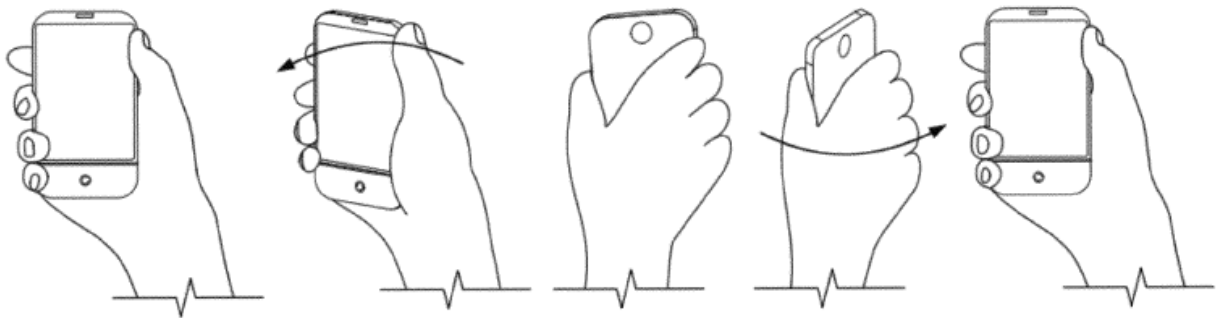


FIG. 1B

“The effect of this motion-based input may be to change an operating mode of the device.” Ex-1006, 5:5-6. Ruiz explains that the “motion-based delimiting input may either precede or follow other motion-based inputs that the delimiter is

aimed to identify for a device.” Ex-1006, 8:54-56. When it follows a motion input gesture, it must complete within predetermined time period (e.g., 200 ms) to confirm the input. *Id.*, 8:61-67. The “main goal of having a delimiter is to limit false positives,” and the double flip delimiter is advantageous because it is “a gesture that is unlikely to occur during normal use of the phone.” *Id.*, 16:46-50, 16:32-34. And it “is not dependent on hardware but instead relies on the sensors commonly available” in electronic devices, such as accelerometers; it is “unique so that it does not collide with a gesture that makes more sense in another context;” and it results in the screen being “visible after completing the gesture,” to allow the user to interact with the device once the gesture has been completed. Ex-1006, 16:41-58; *see also id.*, 1:28-29, 7:60-65.

a. To the extent it is necessary to show an earlier prior art date, Ruiz is prior art as of April 2, 2010 because its provisional application supports Claim 1

Ruiz’s Claim 1 is supported by Ruiz’s provisional application. Ex-1002

¶110. Ruiz is thus entitled to its provisional filing date of April 2, 2010. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1381 (Fed. Cir. 2015) (holding a reference is §102(e) prior art based on its provisional application date if the provisional application’s disclosure provides support for at least one claim).

Ruiz Claim 1 (Ex-1006)	Exemplary Provisional Citations (Ex-1013)
A computer-implemented method for identifying motion-based inputs to an electronic device, the method comprising:	¶1 (“This document relates to systems and techniques for interpreting motion-based user inputs to a mobile computing device.”)
placing the electronic device into an operating mode in which one or more functions are disabled;	¶17 (“[A] particular motion-based input may be assigned as a delimiter to indicate that a user would like to ... switch input modes on the device so that the other motion-based inputs that were previously disabled will be enabled.”).
determining that the electronic device has been rotated in a first direction of rotation past a first threshold orientation;	¶7 (“The process comprises determining that the electronic device has been rotated ... in a first direction of rotation past a first threshold orientation ...”).
after determining that the electronic device has been rotated in the first direction of rotation past the first threshold, maintaining the electronic device in the operating mode in which one or more functions are disabled;	¶7 (“The process comprises determining that the electronic device has been rotated ... in a first direction of rotation past a first threshold orientation; determining that the electronic device has been rotated in a second direction of rotation that is substantially the opposite of the first direction of rotation, past a second threshold, and switching a mode of the electronic device <i>based on the two determinations.</i> ”).
determining that the electronic device has been rotated in a second direction of rotation that is substantially the opposite of the first direction of rotation, past a second threshold; and	¶7 (“The process comprises ... determining that the electronic device has been rotated in a second direction of rotation that is substantially the opposite of the first direction of rotation ...”).

after determining that (i) the electronic device has been rotated in the first direction of rotation past the first threshold, and (ii) the electronic device has been rotated in the second direction of rotation that is substantially the opposite of the first direction of rotation, past the second threshold, placing the electronic device into an operating mode in which the one or more functions are enabled.	¶7 (“The process comprises determining that the electronic device has been rotated ... in a first direction of rotation past a first threshold orientation; determining that the electronic device has been rotated in a second direction of rotation that is substantially the opposite of the first direction of rotation, past a second threshold, and switching a mode of the electronic device based on the two determinations.”).
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C. Alameh (Ex-1007)

Alameh (U.S. Pat. Pub. 2011/0148752) was filed on December 18, 2009 and published on June 23, 2011. Alameh is prior art under at least pre-AIA 35 U.S.C. §§102(a) and (e) because it was both filed and published before both the effective filing date of the '085 Patent and the earlier Swiss application.

Alameh senses orientation states of a mobile device with an accelerometer and associates those movements with particular commands. Ex-1007 ¶17. For example:

This [accelerometer] information can be used to provide acceleration, motion, and orientation information for the mobile device. In addition, in conjunction with other information (e.g., information regarding an initial orientation and/or velocity of the mobile device), it can be used to further determine a change in the orientation and/or velocity of the mobile device 102.

Ex-1007 ¶28.

To interpret a command, Alameh detects a specific motion sequence. First, the device is “placed in a substantially motionless orientation for a preset amount of time,” which “serves as a cue to the mobile device that the mobile device is potentially about to be moved in a manner that signifies that a command selection is forthcoming.” Ex-1007 ¶¶31-32. If motion is detected after this period of motionlessness, “the processor 204 uses the accelerometer 104 to track the motion of the mobile device 102 during movement.” *Id.* ¶32. The “motion is tracked until the mobile device becomes relatively stationary” at which point the “processor 204 compares the tracked movement to a list of numerous predefined/pre-stored motions” and “marks the particular command” identified as corresponding to the tracked movement. *Id.* ¶¶32-33. Figure 6 illustrates this process:

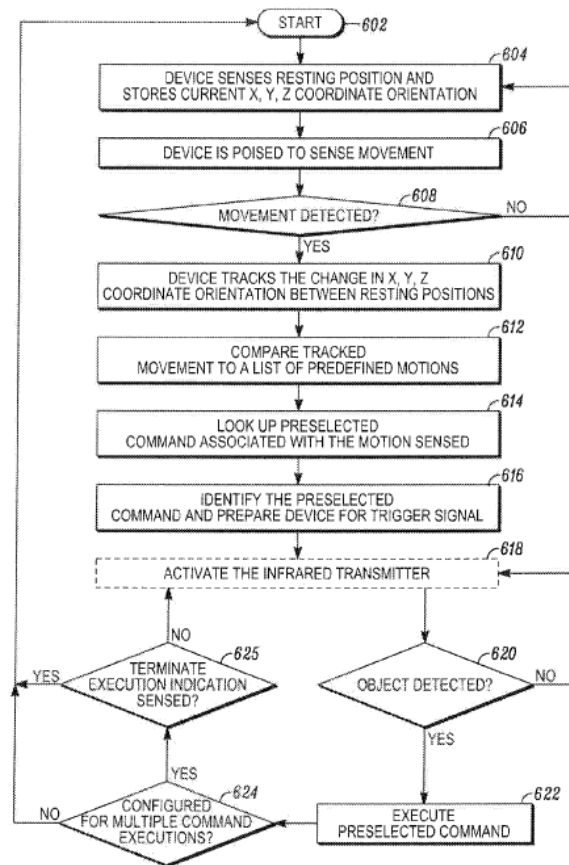


FIG. 6

D. Joselli (Ex-1008)

Joselli (“gRmobile: A Framework for Touch and Accelerometer Gesture Recognition for Mobile Games”) was presented at a symposium held on October 8-10, 2009 and published on IEEE Xplore on June 7, 2010. Ex-1046 (IEEE Declaration); Ex-1047 (screenshot of IEEE Xplore website for Joselli). Joselli is prior art under at least 35 U.S.C. § 102(b) because both its presentation date and its

later IEEE Xplore publication date are more than a year before both the effective filing date of the '085 Patent and the earlier Swiss application.⁶

Joselli uses “segmentation” to determine “the begin[ning] and the end[ing] of a gesture.” Ex-1008, 144. “In order to correct[ly] segmentate an accelerometer gesture, a definition of this kind of gesture is needed.” *Id.* Joselli builds gesture definitions by observing the acceleration and positional data of users performing a variety of defined gestures. *Id.* Joselli notes: “Normally [a] gesture[] begins with a fast acceleration, a continuous direction change during the gesture, and it ends with a stop of the movement.” *Id.*

E. Yano (Ex-1009)

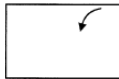
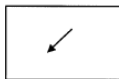
Yano (U.S. Patent No. 8,615,375) was filed on February 11, 2011. Yano is prior art under at least pre-AIA 35 U.S.C. §102(e) because it was filed before both the effective filing date of the '085 Patent and the earlier Swiss application.

Yano detects motion using a device that includes “a detection information acquisition unit for acquiring, at regular intervals, detection information indicating a change in a position [in] ... a device including the motion sensor.” Ex-1009,

⁶ In addition to being presented in 2009 and available on IEEE Xplore in 2010, Joselli was widely available to the public before the priority date, as evidenced by its citation by other IEEE prior art sources, such as Ex-1048, published in 2010 and Ex-1049, published in 2011. Joselli also appears on an international search report for a search run on September 3, 2011 regarding International Patent Application No. PCT/IB20 10/053057. *See* Ex-1050, 32, 34.

1:55-59. The motion sensor may be a “three-axis acceleration sensor” that detects the motion of a mobile device by measuring acceleration in each direction. *Id.*, 3:56-62. Yano takes the average acceleration over a certain period of time, such as 50 milliseconds, before moving to a subsequent step in its motion determination process. *Id.*, 6:4-30. Yano’s motion detection may be used to change modes or activate features of the electronic device, as shown in Figure 33, below.

FIG. 33

MOTION	INSTRUCTION (OPERATION)
FORWARD TILT TERMINAL 	SCROLL DOWN SCREEN 
BACKWARD TILT TERMINAL 	SCROLL UP SCREEN 
RIGHT TILT TERMINAL 	TURN TO NEXT PAGE 
LEFT TILT TERMINAL 	TURN TO PREVIOUS PAGE 
TAP TOP SIDE OF FRAME OF TERMINAL TWICE 	RETURN BACK TO LAUNCHER (INITIAL) SCREEN 
TAP RIGHT SIDE OF FRAME OF TERMINAL TWICE 	DISPLAY SUBMENU 

XII. DETAILED EXPLANATION OF THE UNPATENTABILITY GROUNDS

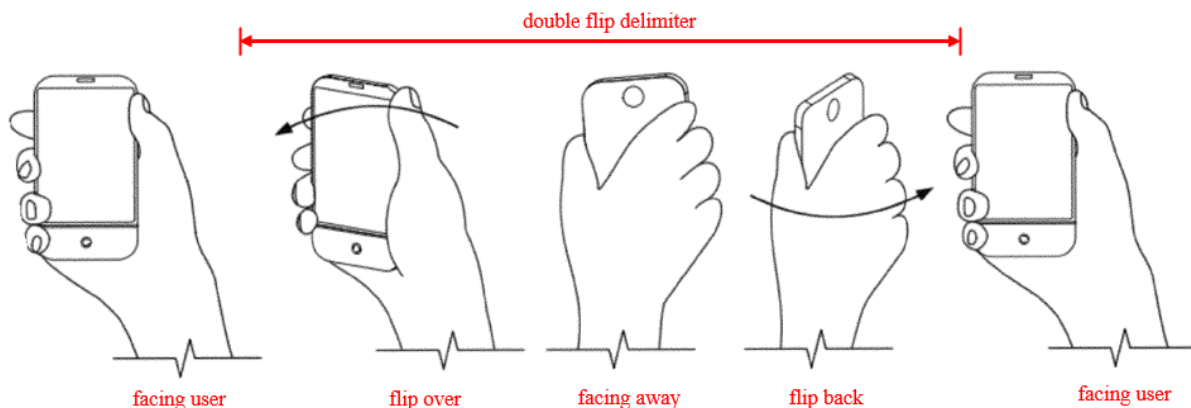
A. Ground 1: Claims 1-10 Are Obvious over Yeung in View of Ruiz

1. A POSITA would have been motivated to combine Yeung's teachings with Ruiz's teachings and would have had a reasonable expectation of success

A POSITA would have been motivated to combine Yeung with Ruiz and would have had a reasonable expectation of success in doing so because both use accelerometers to identify and interpret motion-based gestures. Ex-1002 ¶¶125-142. For example, Yeung activates a voice recorder in a watch/recorder only after detecting a particular movement sequence, “such as the natural movement of lifting the arm upwards from a resting position[,] ... tilting the wrist towards the mouth” (Ex-1005 ¶47), and remaining in a predetermined orientation for a period of time. Ex-1005 ¶52; *see also id.* ¶¶46-48. Yeung acknowledges that one potential problem with such a device is activating the recording function accidentally, which may result in unwanted recordings or unneeded mode switches. *See* Ex-1005 ¶52 (adding a static hold to minimize accidental activations). A POSITA would have recognized that switching to record mode would result in additional processing needs and therefore result in a higher power consumption. Ex-1002 ¶¶126, 145-147, 155.

Ruiz also detects motion-based gestures (Ex-1006, 6:46-61) and tries to minimize “false positives.” Ex-1006, 2:22-25. For example, Ruiz teaches that “a

user may not want to have their device be open to receiving motion-based input at all times (lest they accidentally provide input that they did not intend).” *Id.*, 2:22-25. To address this issue, Ruiz uses a particular predefined movement (a “delimiter”) “that is natural but is not likely to [] occur by accident.” *Id.*, 2:25-29. This delimiter is a “double flip.” *Id.*, 2:39-47, 4:31-34. Figures 1A and 1B illustrate this double flip gesture in the context of a phone.⁷ *See, e.g.*, Ex-1006, 4:42-5:4, 6:3-45. “The double flip delimiter is performed by quickly rotating the wrist such that the phone’s display is facing away from the user, then back to the original position with the display facing the user.” *Id.*, 16:62-66.



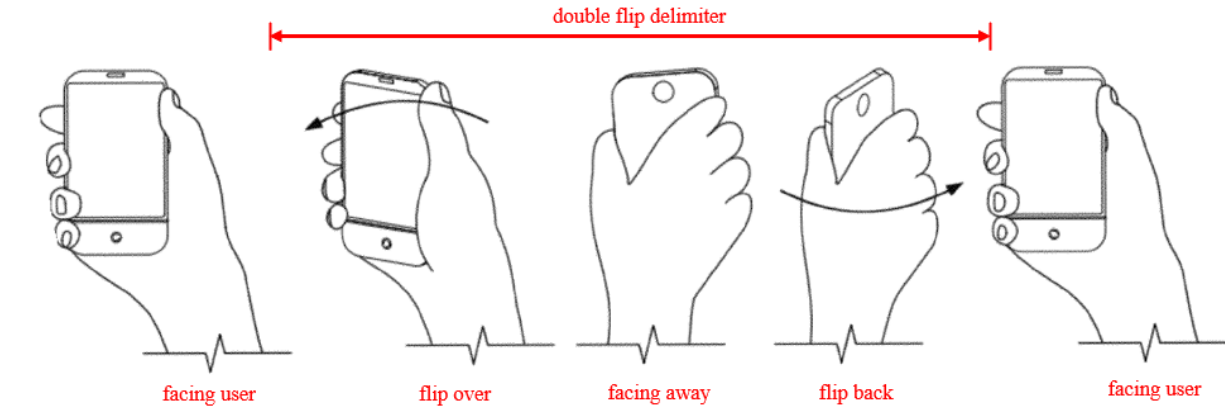
Ruiz Figure 1B

A POSITA would have applied these teachings of Ruiz to Yeung’s method of activating the voice recorder to prevent inadvertent mode switches to conserve

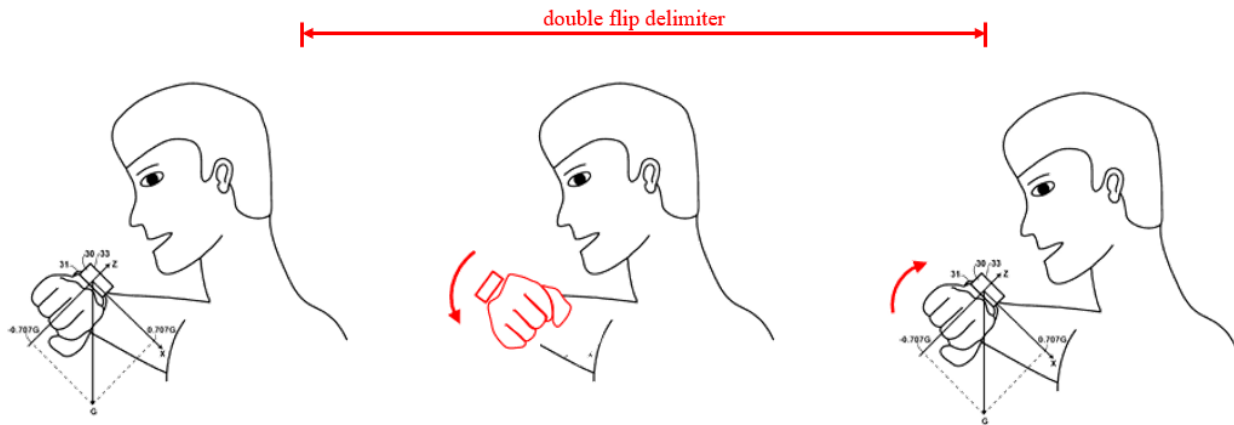
⁷ Ruiz explains that both Figures 1A and 1B illustrate the same double flip gesture. *See* Ex-1006, 4:42-46. For illustrative purposes, this petition relies primarily on Figure 1B, which shows the intermediate “flipping” steps, but the Figure 1A disclosures are generally applicable.

power and avoid unintentional audio recordings. *See* Ex-1002 ¶¶70-77, 126-130. For example, Yeung discloses “the audio recorder activates audio recording only when it is in a predetermined orientation and/or *after it has completed a predetermined movement.*” Ex-1005 ¶15; Ex-1002 ¶¶127, 133.

A POSITA would have been motivated to use Ruiz’s double flip delimiter motion as Yeung’s “predetermined movement” to indicate or confirm the watch/recorder has *intentionally* been placed in the “predetermined orientation” for recording and that the user actually desires to activate the audio recorder. For example, after raising Yeung’s watch/recorder to their mouth (Ex-1005 ¶47), the user would perform Ruiz’s double flip delimiter input by quickly turning the watch/recorder away from their face, pausing at the end of the away-movement, and then returning the watch to be oriented towards their face, based on Yeung’s Figure 6 and Ruiz’s Figure 1B. Ex-1002 ¶¶128-136. In the context of Yeung’s watch/recorder, a POSITA would have recognized the utility of a natural movement of quickly turning the watch away from a user’s face and then quickly back toward the user’s face as shown in the parallel series of images below to confirm that the user wanted to power up the recording function and not merely view the time. *Id.* ¶¶87-98, 128-136.



Ruiz Figure 1B (annotations in red)



Ex-1005, Fig. 6 (annotations in red)

A POSITA would have had a reasonable expectation of success in combining these teachings of Ruiz and Yeung because each discloses electronic devices having general purpose processors, memory, displays, sensors, and accelerometers, and each purports to solve the problem of excessive or unnecessary mode switches or false positive gesture detection in similar and predictable ways, namely, by requiring the device to be oriented within particular angle ranges for particular time durations before changing modes. Ex-1002 ¶¶78-98, 137-140. Indeed, Ruiz intended to “create a delimiter [motion] that is not

dependent on hardware but instead relies on the sensors commonly available in today's smart phones.” Ex-1006, 16:41-44. Thus, the accelerometer and electronics in Yeung—capable of detecting predetermined movements and orientations—could readily have been used to implement Ruiz’s technique. Ex-1002 ¶¶78-86, 140. Accordingly, a POSITA would have understood that their teachings could be combined with little to no change in their respective functions. Ex-1002 ¶¶78-98, 138-140.

A POSITA would have understood that Ruiz’s smartphone disclosures were equally applicable to Yeung’s watch/recorder. Ex-1002 ¶¶64-69, 141-142. A POSITA would have understood that Ruiz’s double flip delimiter would further Yeung’s goals of preventing unintentional activation of recorder functionality and would therefore improve the user experience. Ex-1002 ¶¶132-135, 141-142.

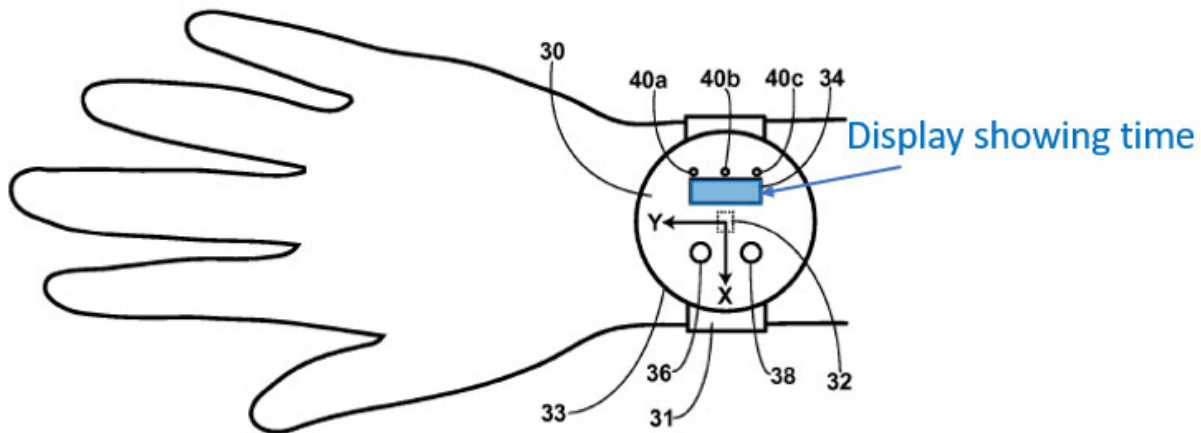
Implementing Ruiz in Yeung’s wristwatch form factor would have been straightforward, and a POSITA would have had a reasonable expectation of success in doing so. Yeung and Ruiz both disclose standard mobile computing devices detecting gestures with accelerometers, making the combination a matter of straightforward engineering that would have predictable results. *Id.* ¶¶141-142. Moreover, watches incorporating various smart phone features were well-known in the art and would not have presented any obstacle. Ex-1002 ¶¶64-69, 141-142. Thus, applying Ruiz to Yeung’s watch/recorder would have been well within the

capabilities of a POSITA and would have been a matter of ordinary engineering and not the product of innovation. *Id.*

2. Claim 1

- a. Element 1[pre]: A method for switching a wristwatch from a first power mode to a second power mode, comprising:**

Yeung in view of Ruiz (“Yeung-Ruiz”) discloses the preamble, to the extent it is limiting. Ex-1002 ¶¶99-110, 143-147. Yeung discloses “wearable devices, such as wrist-worn audio recorders and wristwatches.” Ex-1005 ¶14. Yeung’s wristwatch has a “display 34 on the front surface of audio recorder 30 [that] shows the time of day (hours, minutes, seconds), the date (month, date, day), or the current status (recording, playback, etc.) of audio recorder 30.” *Id.* ¶37.



Ex-1005, Fig. 1

Yeung teaches “switching a wristwatch from a first power mode to a second power mode,” because its “audio recorder activates audio recording only when it is

in a predetermined orientation and/or after it has completed a predetermined movement.” Ex-1005 ¶¶15, 36. A POSITA would have understood that when the audio recording functionality of the watch/recorder is disabled, the watch/recorder would be a lower-power “first power mode” and when the audio recorder activates, this would constitute switching to a higher-power “second power mode.” This is because audio recording would consume additional processing power compared to the state where audio recording was disabled, as described further below with reference to Element 1[b]. Ex-1002 ¶¶144-147; *infra* §XII.A.2.c.

b. Element 1[a]: using an accelerometer for detecting a wristturn, and

Yeung-Ruiz teaches Element 1[a]. Ex-1002 ¶¶99-110, 148-153. Yeung’s watch/recorder includes “an accelerometer for sensing the orientation and/or movement of the audio recorder.” Ex-1005 ¶¶15, 36. Yeung’s Figure 1 illustrates “a three-axis accelerometer 32 inside a housing 33 of audio recorder 30” that “senses acceleration in the three orthogonal axes X, Y, and Z.” *Id.* ¶37. Yeung’s accelerometer detects “a wristturn,” which it refers to as a “rotation of the wrist.” *Id.* ¶50 (describing the accelerometer output resulting from the “rotating movement of the wrist” illustrated in Figure 7).

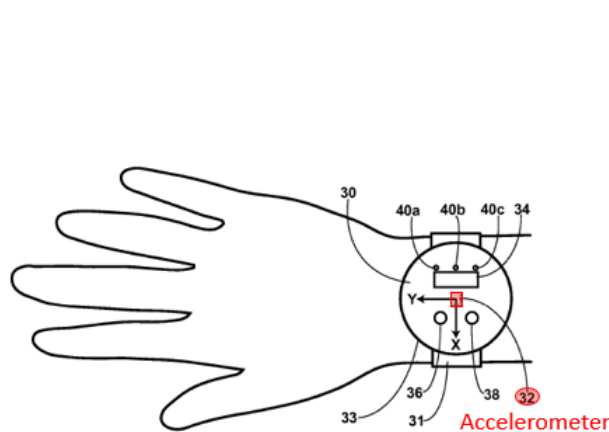


FIG. 1

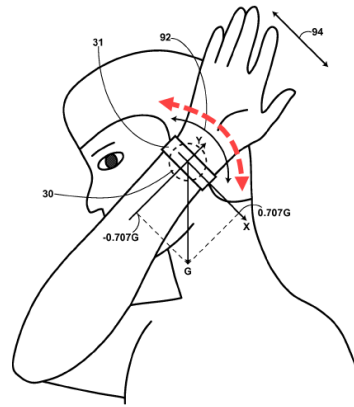


FIG. 7

Ex-1005, Figs. 1, 7

Yeung's wristturn initiates a mode switch. For example, Yeung explains the watch/recorder activates a recording function after detecting a predetermined movement such as raising the arm from a resting position to the position shown in Figure 6, which would naturally involve a wristturn. Ex-1005 ¶¶40, 46. Specifically, Yeung's Figure 6 below shows an example of a wristturn to an angle of 45 degrees in which the "user naturally positions audio recorder 30 in front of his or her mouth." *Id.* ¶47.

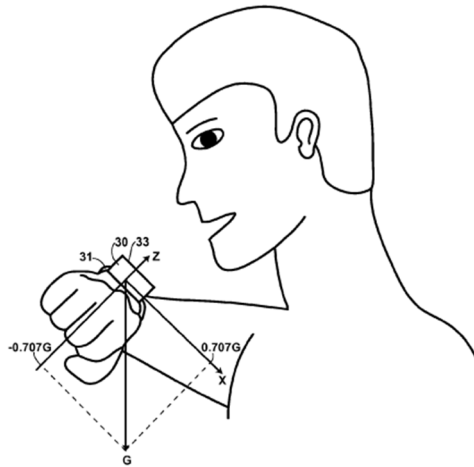
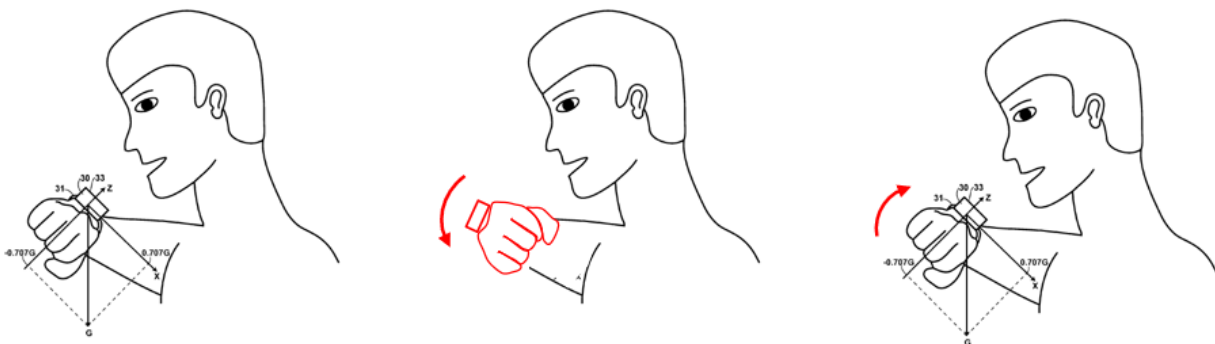


FIG. 6

Ex-1005, Fig. 6

The Yeung-Ruiz double flip delimiter wristturn would similarly be detected by Yeung's accelerometer. As explained above (§XII.A.1) and below, Element 1[c] (§§XII.a.2.d-g), Yeung-Ruiz's wristturn applies Ruiz's double flip gesture to Yeung, as shown in the following series of images adapted from Yeung's Figure 6. Ex-1002 ¶¶152-153. Indeed, in Ruiz the double flip motion is detected with an accelerometer or similar sensor. Ex-1006, 10:44-55, 12:53-65.



Ex-1005, Fig. 6 (annotations in red).

c. Element 1[b]: switching said wristwatch from said first power mode to said second power mode when a wristturn has been detected,

Yeung-Ruiz teaches or discloses Element 1[b]. Ex-1002 ¶¶99-110, 154-156. Yeung’s “audio recording function of audio recorder 30 turns on automatically when the user positions audio recorder 30 in a predetermined orientation, such as the natural orientation for recording shown in FIG. 6, and/or after audio recorder 30 has completed a predetermined movement.” Ex-1005 ¶48; *see also id.* ¶¶15, 36, 52. A POSITA would have understood that powering up the recording function would switch from a lower-power “first power mode” to a higher-power “second power mode” because audio recording would consume additional processing power, including continuous speech sampling, analog-to-digital conversion, and signal processing. Ex-1002 ¶¶143-146, 155-156. And Yeung also teaches its display is activated during recording to indicate the status of the recording. Ex-1005 ¶¶37-38; Ex-1002 ¶144-147, 155. This is similar to the challenged patent’s characterization of the second power mode as a “time display” mode as opposed to a “power saving” first power mode. Ex-1001, 6:2-6; *see also id.* 9:40-42 (“the wristwatch should be switched to a second power mode for example in order to activate the display.”). As described with reference to Elements 1[c]-1[c.3] (§§XII.A.2.e-g), in the context of the Yeung-Ruiz combination, the power mode switch would occur after detecting a wristturn.

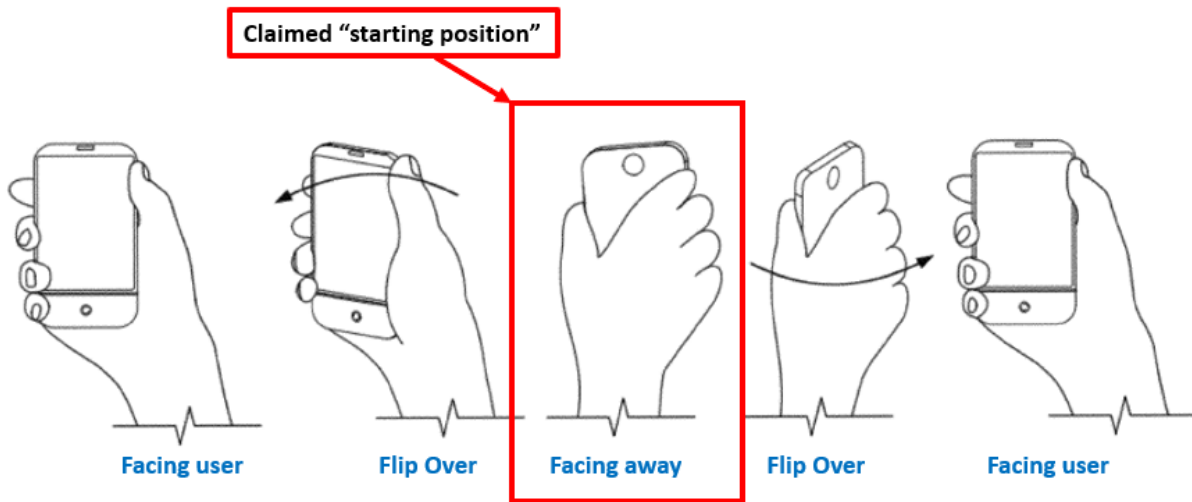
d. Element 1[c]: wherein said step of detecting a wristturn comprises:

Yeung-Ruiz teaches or discloses Element 1[c], as shown below, by detecting a wristturn based on the steps of Elements 1[c.1] – 1[c.3]. Ex-1002 ¶¶99-110, 157-178.

e. Element 1[c.1]: detecting that an orientation of the wristwatch is in a starting position, wherein said step of detecting that the orientation is in the starting position comprises detecting that the orientation of the wristwatch is held within a first range for a defined time;

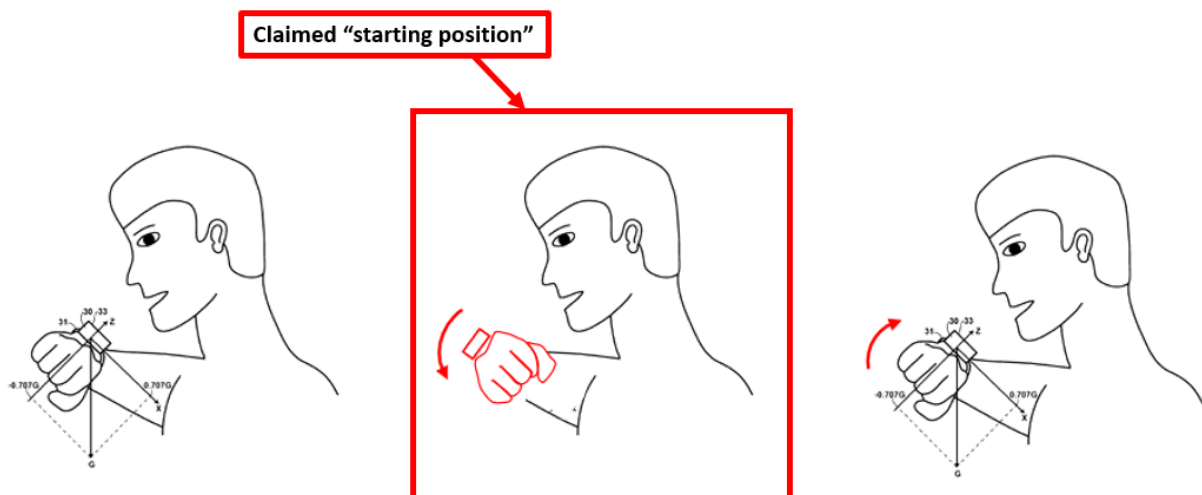
Yeung-Ruiz teaches or discloses Element 1[c.1]. Ex-1002 ¶¶99-110, 157-166. As explained above, a POSITA would have been motivated to add Ruiz’s double flip delimiter gesture before activating Yeung’s recording functionality. *Supra* §XII.A.1; Ex-1002 ¶¶125-142. The claimed “starting position” is the portion of the double flip delimiter gesture that occurs when the screen has been rotated away from the user, as shown in Figure 1B below.⁸

⁸ Element 1[c] is a “comprising” term, and the “wristturn” may include additional steps beyond those expressly claimed. Ruiz teaches a “pre-start” orientation in which the device faces the user, followed by what Petitioner identifies as the claimed “starting position,” which is the position in which the device is facing away from the user.



Ex-1006, Fig. 1B

In the Yeung-Ruiz combination, a POSITA would have understood the first flip of the double flip puts the watch face of Yeung in the position of facing away from the user (below, center), analogous to Ruiz's first flip of the phone into the face down position as shown above. Ex-1002 ¶¶158-159, 161-162.



Ex-1005, Fig. 6 (left and right images). The middle image and arrows have been added to illustrate the wristturn of Yeung-Ruiz.

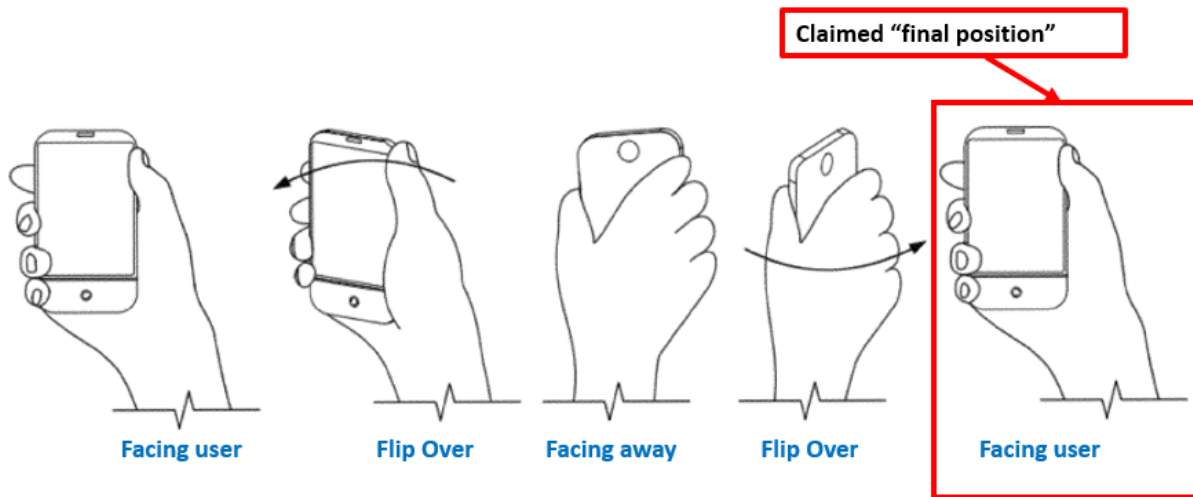
Yeung-Ruiz also teaches “detecting that the orientation of the wristwatch is held within a first range,” i.e., at the away position of the double flip. Ex-1002 ¶¶158, 163-165. Yeung explains that “[a]t step 84, recorder controller 48 uses the data stored in accelerometer-data memory 50 *to compute the orientation* and/or movement of audio recorder 30 and activates audio-recorder function ... *only if a predetermined orientation* and/or movement *is detected*.” Ex-1005 ¶46. It would have been obvious to a POSITA to similarly detect the orientation at the away position of the double flip in order to ensure that the double flip movement had been performed prior to activating the recorder functionality. Ex-1002 ¶¶163-164.

Yeung-Ruiz teaches that this “away” orientation is “within a first range.” Ruiz explains that the angle required for this starting orientation is “rotation past a first threshold orientation.” Ex-1006, 3:60-63. A full 180-degree rotation is not required; rather “substantial compliance is acceptable.” Ex-1006, 6:25-35, 5:37-39; Ex-1002 ¶¶164-165. Because a 180 degree flip of a watch could be impractical due to natural constraints on wrist mobility, it would have been obvious to a POSITA to choose a “first range” of orientations based on angles that would be comfortable for the user when rotating the wrist away. *Id.* Indeed, Ruiz discloses that the actual amount of angular rotation used to make the delimiting gesture can be tuned to the user’s natural motion. *See* Ex-1006, 5:43-60.

Yeung-Ruiz further discloses that the watch/recorder is “held” in this flipped “starting position” for “a defined time.” Ruiz discloses that the “user may hold the device in this orientation *for a time period*, which may be as little as a split instant.” Ex-1006, 4:53-63. The “time period” disclosed by Ruiz is a defined time. Ex-1002 ¶166. Moreover, it would have been obvious to a POSITA that this “time period” could be set to any defined time that enabled the position to be registered, as further described below with reference to Claim 5 (§XII.A.3.d), and ensure the device was not merely passing through the “first range” as it would be if the user were moving their hands while holding or wearing the device. Ex-1002 ¶¶87-98, 166.

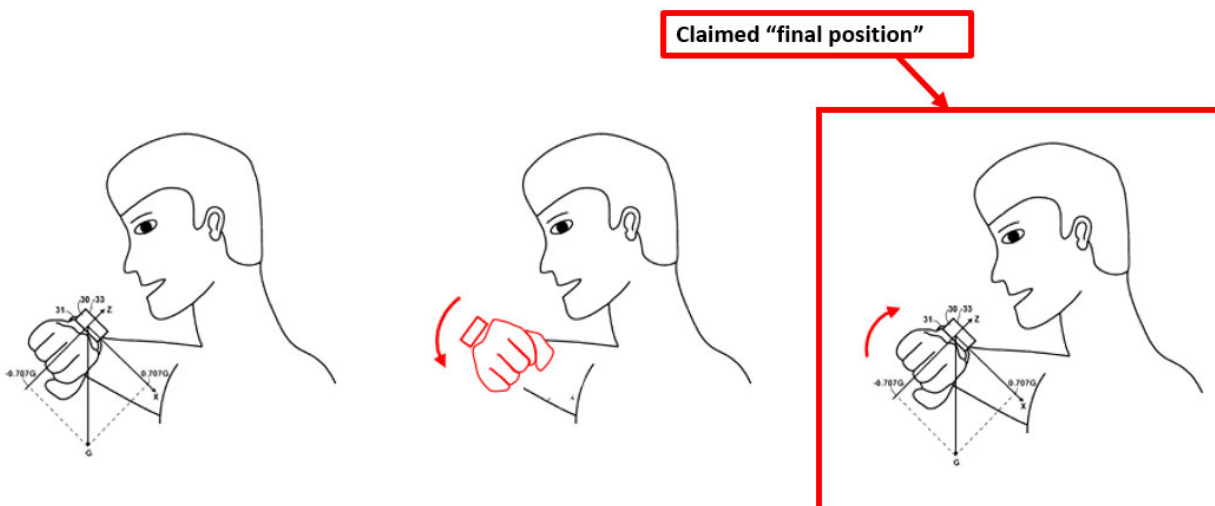
- f. Element 1[c.2]: detecting that an orientation of the wristwatch is then in a final position, wherein said step of detecting that the orientation is in the final position comprises detecting that the orientation is in a second range different from said first range,**

Yeung-Ruiz teaches or discloses Element 1[c.2]. Ex-1002 ¶¶99-110, 167-171. The claimed “final position” occurs when the screen has been rotated back toward the user, as shown in Figure 1B of Ruiz below.



Ex-1006, Fig. 1B

In the Yeung-Ruiz combination, a POSITA would understand the second flip of the double flip puts the watch face of Yeung in the position of facing towards the user (below, right), analogous to Ruiz's second flip of the phone into the face up position as shown above. Ex-1002 ¶¶167-168.



Ex-1005, Fig. 6 (red annotations added)

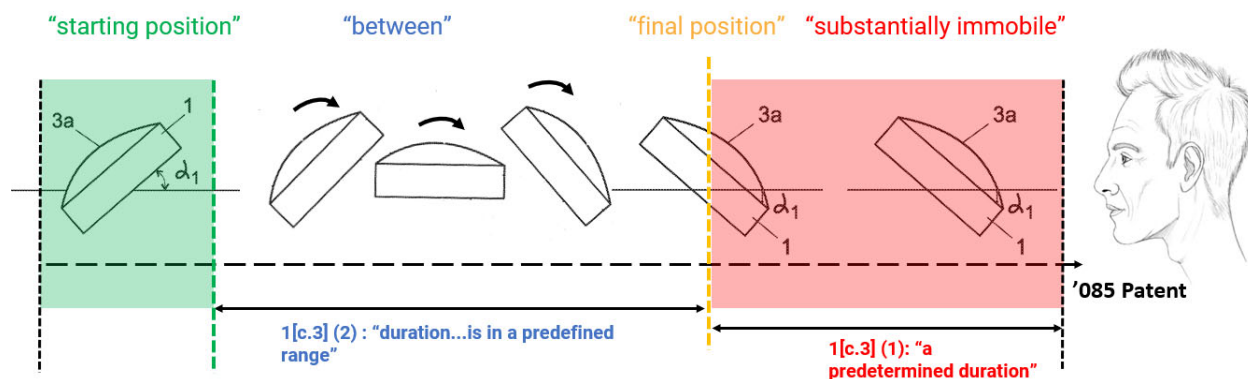
Yeung-Ruiz also teaches “detecting that the orientation is in a second range.” Ex-1002 ¶¶169-170. Yeung activates audio recording functionality only when the accelerometer indicates a certain orientation: “[a]t step 84, recorder controller 48 uses the data stored in accelerometer-data memory 50 *to compute the orientation* and/or movement of audio recorder 30 and activates audio-recorder function ... *only if a predetermined orientation* and/or movement *is detected*.” Ex-1005 ¶46. This “predetermined orientation” is “*the natural orientation for recording shown in FIG. 6*” above. Ex-1005 ¶48; *see also id.* ¶¶15, 47.

A POSITA applying Ruiz’s teachings would have known to choose a “second range” of orientations that would be comfortable for the user when rotating the wrist back for the screen to face the user. Ex-1006, 6:25-35. *See supra* §XII.A.2.e; Ex-1002 ¶170. This “second range” of orientations is “different from the first range,” as required by the claim. Ruiz’s “double flip” detects two different orientations: “[t]he module is programmed to use information from the motions sensors to determine whether the electronic device has been: (a) rotated in a first direction of rotation *past a first threshold orientation*, and (b) rotated in a second direction of rotation that is substantially the opposite of the first direction of rotation, *past a second threshold*.” Ex-1006, 3:60-65. Thus a POSITA would have understood that Yeung-Ruiz’s second range of orientations was different

from its first range of orientations to confirm that a double flip motion has occurred. Ex-1002 ¶171.

- g. **Element 1[c.3]: in response to a detection that the orientation of the wristwatch is in the second range, detecting that the wristwatch remains substantially immobile during a predetermined duration and that a duration between the starting position and the final position is in a predefined range.**

Yeung-Ruiz teaches Element 1[c.3]. Ex-1002 ¶¶99-110, 172-178. This element recites two durations—(1) the wristwatch must remain “substantially immobile” during “a predetermined duration” in the final orientation range and (2) the “duration between” the starting and final positions must be in “a predefined range.” Petitioner addresses these in chronological order (i.e., from left to right).⁹



Ex-1001, Figs. 7a (left, green) and 7b/7c (right, red). Other images and color annotations have been added.

⁹ Note that Element 1[c.3] does not specify a relationship between the “predefined range” and the “predetermined duration” except that both are detected “in response to a detection that the orientation of the wristwatch is in the second range.”

“duration between”

Yeung-Ruiz teaches that the duration between the starting position and the final position is in a “predefined range.” A POSITA would have been motivated to implement Ruiz’s double flip delimiter as Yeung’s “predetermined movement” to activate the recorder. *Supra* §XII.A.1. The period of time from when the user begins the double flip to when the user completes the double flip is *within* a predefined range of 200 ms (purple arrow in the illustration below). Ex-1006, 8:61-65. Because Ruiz’s entire delimiter gesture (the double flip) must be completed within 200 ms, the duration between the “starting position” and final position in Element 1[c.3] (2) (“predefined range”) must necessarily be completed in less than 200 ms, as shown below. Ex-1002 ¶¶173-175.

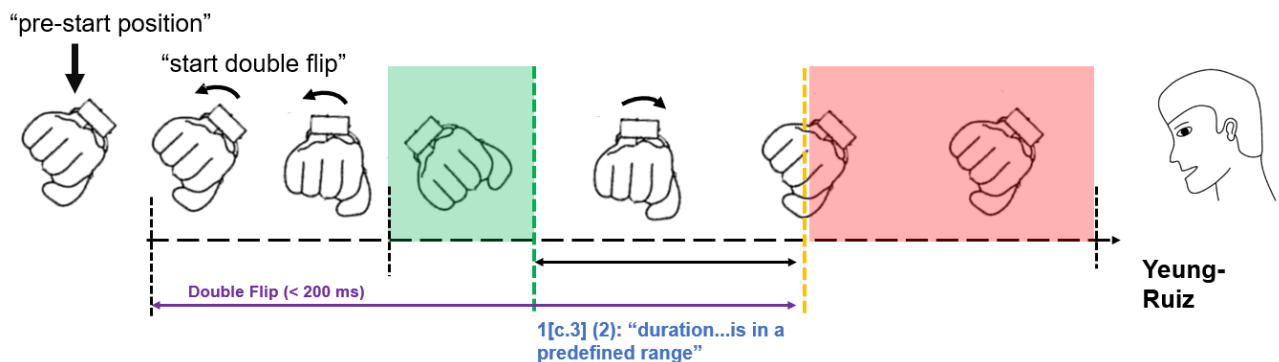


Illustration based on Ex-1005, Fig. 6 showing the implementation of Ruiz’s “double flip” in the context of the Yeung-Ruiz combination.

Thus, completing the double flip within 200 ms of the user first placing the watch/recorder in the proper orientation (“pre-start”) would confirm the user’s intention to begin recording. Ex-1002 ¶174. *See* Ex-1006, 8:61-65. Although

Ruiz discloses 200 ms to complete the double flip gesture, a POSITA would have understood that another time period could have also been used, so long as the entirety of the double flip is completed within a relatively short time. Ex-1006, 16:46-50; Ex-1002 ¶176.

“substantially immobile”

Yeung-Ruiz also teaches “remains substantially immobile during a predetermined duration.” Yeung discloses that “[t]o minimize accidental activation of these audio-recorder functions by normal daily activities, recorder controller 48 can be designed to activate an audio-recorder function such as recording or playback *only after audio recorder 30 remains in a static position for a predetermined period of time after a predetermined wrist and arm movement pattern has been detected.*” Ex-1005 ¶52; Ex-1002 ¶¶177-178.

The timeline below illustrates how Yeung-Ruiz aligns with the entire sequence of movements required by Claim 1, including the two timing requirements claimed in Element 1[c.3]. Ex-1002 ¶178.

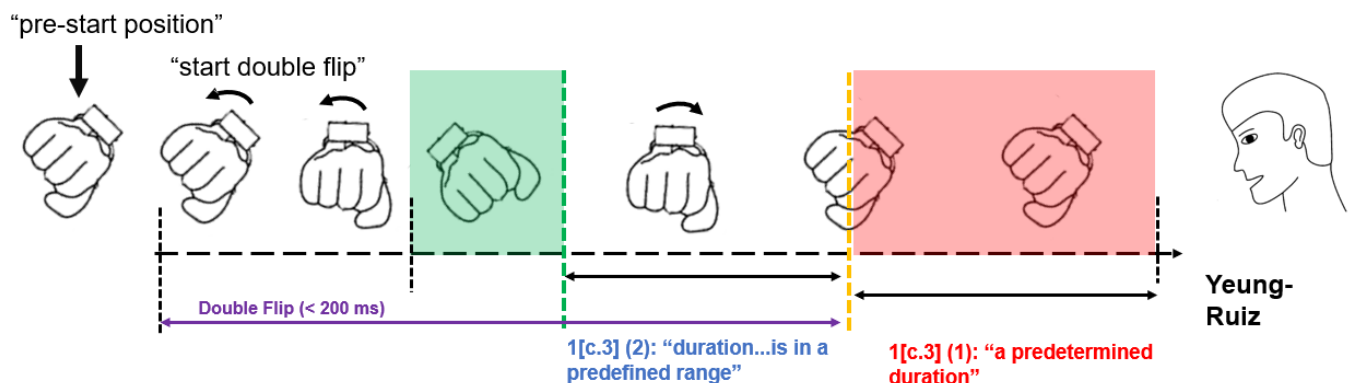


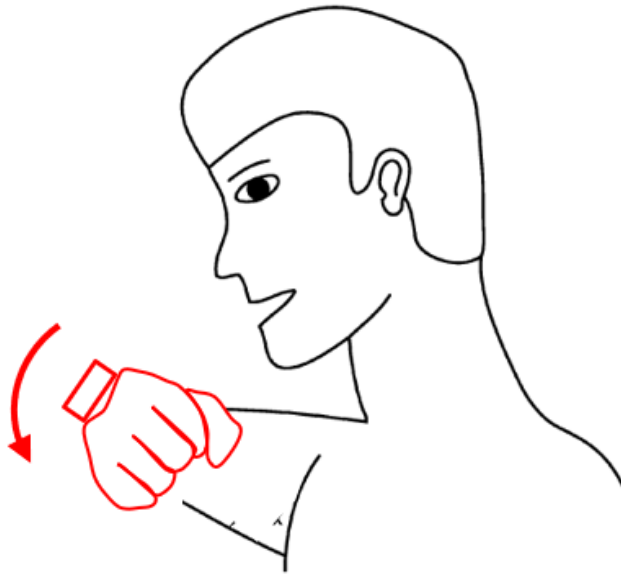
**Illustration based on Ex-1005, Fig. 6, showing the implementation of Ruiz's
“double flip” in the context of the Yeung-Ruiz combination.**

Thus, Yeung-Ruiz renders Claim 1 obvious.

3. Dependent Claims 2-10

- a. Dependent Claim 2: The method of claim 1, wherein
said first range is an angle range from 25° to 155°
relatively to the horizontal.**

Yeung-Ruiz teaches Claim 2. Ex-1002 ¶¶99-110, 180-184. The '085 Specification explains that angles at which the face of the claimed wristwatch is oriented away from the user have positive values. Ex-1001, 9:58-10:9, Fig. 7a. As explained above with reference to Element 1[c.1], which requires detecting an orientation within a first range, a POSITA would have understood that the double flip delimiter motion described in Ruiz, as applied to the watch/recorder of Yeung, would result in the watch/recorder being oriented away from the user as shown in the modified version of Yeung's Figure 6 below. *See supra* §XII.A.2.e.



Ex-1005, Fig. 6 (color annotations added)

The range of orientations that would serve as the “starting position” in Claim 1 where the watch/recorder is faced away from the user would fall within the claimed 25 to 155 degree range. For example, in the modified Figure 6 above, the watch/recorder is oriented at about a 45 degree angle relative to horizontal. Ex-1002 ¶¶182-183; *see also supra* §XII.A.2.e. Ruiz explains that for the double flip delimiter “substantial compliance” with the designated range is “acceptable,” such that, for example, if a 180 degree rotation away is nominally required, a smaller would be still recognized as the “away” portion of the double flip. Ex-1006, 6:23-35. A POSITA would have been motivated to include a range of orientation angles because humans naturally make any gesture with some degree of variability. Ex-1002 ¶¶182-183. Thus, a range of acceptable orientation angles would have been obvious. *Id.*

To the extent this claim requires a disclosure of precisely 25 to 155 degrees, it would have been obvious to a POSITA to use 25 to 155 degrees or would have at least been obvious to try. Ex-1002 ¶¶183-184. This is because angles less than 25 degrees would not indicate intentionality in making the gesture while angles beyond 155 degrees would be uncomfortable for the user. *Id.*

b. Dependent Claim 3: The method of claim 1, wherein said second range is an angle range from -25° to -75° relatively to the horizontal.

Yeung-Ruiz discloses or renders obvious Claim 3. Ex 1002 ¶¶99-110, 185-188. The '085 Specification explains that angles at which the face of the claimed wristwatch is oriented toward from the user have negative values. Ex-1001, 10:4-9, Fig. 7b. As explained above with reference to Element 1[c.2], Yeung discloses activating the watch/recorder when the watch/recorder is “*in a predetermined orientation, such as the natural orientation for recording shown in FIG. 6, and/or after audio recorder 30 has completed a predetermined movement.*” Ex-1005 ¶48; *see also id.* ¶¶15, 47.

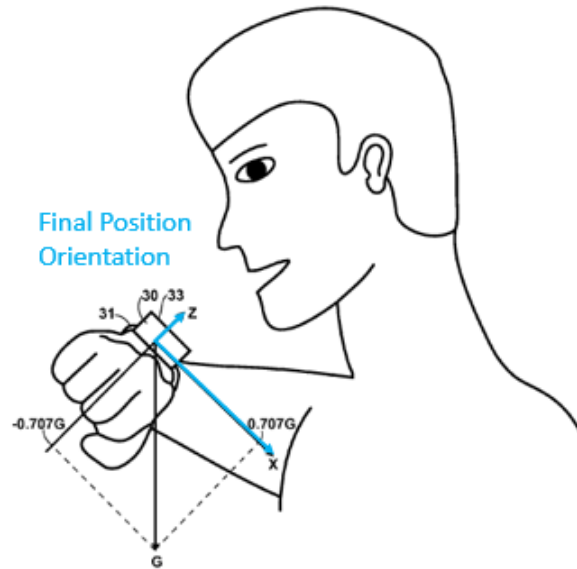


FIG. 6

Ex-1005, Fig. 6

Yeung explains that in this position, the cover glass on the face of the watch/recorder, is at 45 degrees (or -45 degrees from the horizontal in the angle conventions of the '085 Patent). Ex-1005 ¶45; Ex-1002 ¶187. This falls within the claimed range of -25 to -75 degrees. Ex-1002 ¶187. Moreover, as explained above, it would have been obvious to a POSITA to include a range of acceptable orientation angles. *Supra* §XII.A.2.f; Ex-1002 ¶187.

To the extent that this claim requires a disclosure of precisely -25 to -75 degrees, that range would have been obvious to a POSITA or would have at least been obvious to try. Ex-1002 ¶185. This is because angles less than -25 degrees would not allow the user to see the watch face well, while -75 degrees provides a

wide range that would allow the user to perform the gesture reliably but also cancel the movement by moving beyond -75 degrees. Ex-1002 ¶188.

- c. **Dependent Claim 4: The method of claim 1, wherein said step of detecting that the wristwatch remains substantially immobile during a predetermined duration comprises: detecting that an orientation of the wristwatch is held in a range from -25° to -60° relatively to the horizontal during said predetermined duration.**

Yeung-Ruiz discloses or renders obvious Claim 4. Ex 1002 ¶¶99-110, 189-191. The '085 Specification explains that angles at which the face of the claimed wristwatch is oriented toward from the user have negative values. Ex-1001, 10:4-9, Figs. 7b, 7c. Moreover, the “predetermined duration” referred to corresponds to the time required in Element 1[c.3] in which the watch remains “substantially immobile” in the final position orientation range.

As explained with reference to Element 1[c.3], Yeung’s watch/recorder is “designed to activate an audio-recorder function such as recording or playback *only after audio recorder 30 remains in a static position for a predetermined period of time after a predetermined wrist and arm movement pattern has been detected.*” Ex-1005 ¶52. As explained with reference to Claim 3 (§XII.A.3.b), which requires detecting a second range of orientations, in Yeung this final position corresponds to -45 degrees from the horizontal, which falls within the claimed range of -25 to -60 degrees. *See, e.g.*, Ex-1005 ¶45; Ex-1002 ¶190.

Moreover, as explained above, it would have been obvious to a POSITA to include a range of acceptable orientation angles. *Supra* §XII.A.2.f; Ex-1002 ¶190.

To the extent that this claim requires a precise disclosure of -25 to -60 degrees, that would have been obvious to a POSITA or would have at least been obvious to try. Ex-1002 ¶191. This is because angles less than -25 degrees would not allow the user to see the watch face well, while holding angles beyond -60 degrees would be uncomfortable for the user.

d. Dependent Claim 5: The method of claim 1, wherein said defined time is 50 ms

Yeung-Ruiz renders obvious Claim 5. Ex 1002, ¶¶99-110, 192-193. The “defined time” in Claim 5 is the time that the device remains in the starting position. As shown below (and explained above, §XII.A.2.e), the starting position for the Yeung-Ruiz combination is at the away position of the double flip delimiter motion, where Ruiz discloses that the “user may hold the device in this orientation *for a time period*, which may be as little as a split instant.” Ex-1006, 4:53-63. In determining an appropriate time period for the watch/recorder to remain in the facing away position, a POSITA would have looked to other teachings in Ruiz explaining that incoming movement patterns must be compared against all templates or models to determine which command the movement corresponds to. Ex-1006, 13:1-3; Ex 1002 ¶193. Ruiz discloses that if there are a modest number

of such templates, such as 30, “the time needed to match the incoming gesture was *around 50 ms/per recognition task.*” Ex-1006, 13:13-15. Accordingly, a POSITA would have understood that to ensure recognition of the time period at the away position of the double flip, the device should remain there for about 50 ms. Ex-1002 ¶193. Finally, a POSITA would further understand that 50 ms would be obvious to try given that the entire time window of the double flip movement pattern is 200 ms. Ex-1002 ¶193; Ex-1006, 8:61-67.

- e. **Dependent Claim 6: The method of claim 1, wherein comprising a step of in response to a detection that the orientation of the wristwatch is held within this second range for a defined time, [1] registering that an orientation of the wristwatch is in the final position; [2] wherein said duration between the starting position and the final position is provided by measuring a duration between the starting position and the registering of the final position.**

Yeung-Ruiz discloses Claim 6. Ex-1002 ¶¶99-110, 194-199. As discussed with reference to Element 1[c.3], regarding detecting the orientation of the wristwatch in the second range, Yeung-Ruiz teaches detecting that the watch/recorder is in a second range or final position, as shown below.

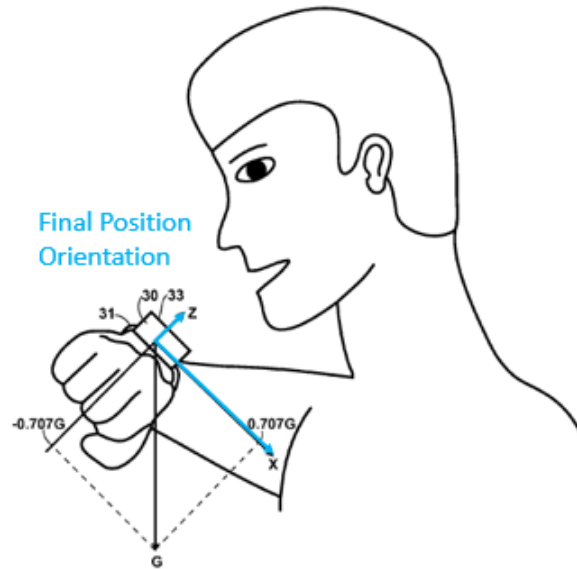
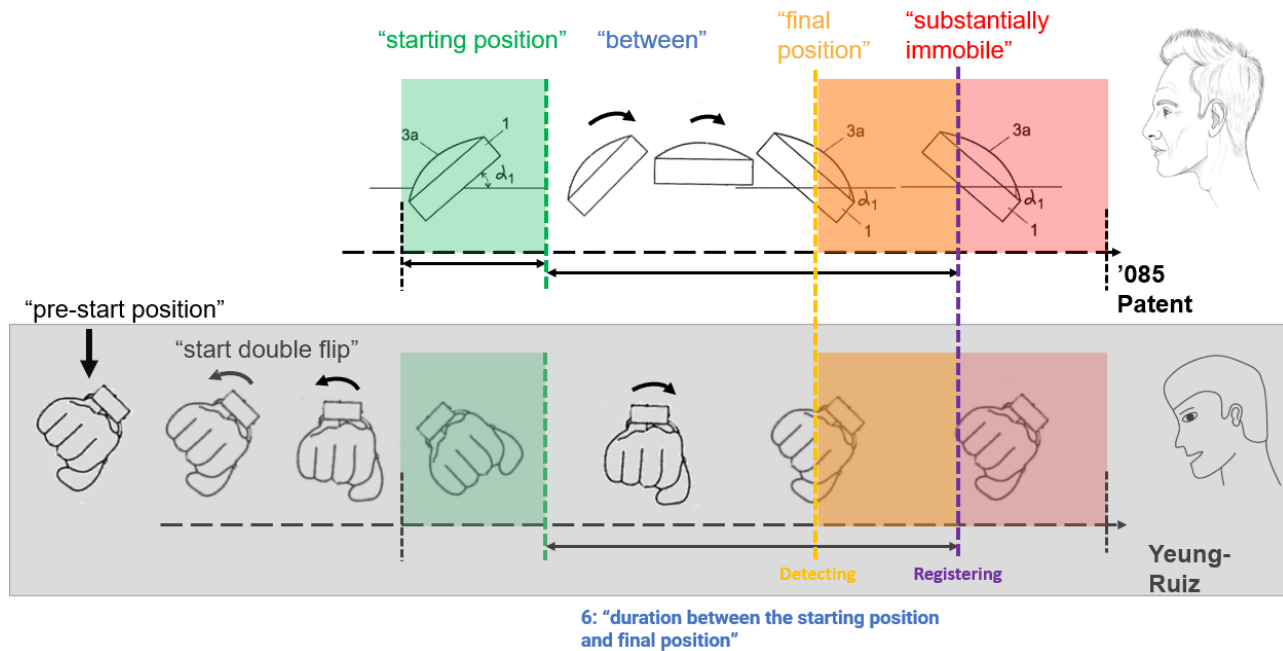


FIG. 6

Ex-1005, Fig. 6

Unlike Claim 1, which is agnostic as to the exact point after “detecting” at which the duration between the starting position and ending position is to be measured, Claim 6 requires “registering” the position after “detecting” the position and that the “duration between” is to be measured at the “registering” of the position, as shown below. Ex-1002 ¶195.



(Top) Ex-1001, Figs. 7a (left) and 7b/7c (right). The images in the middle, rotation arrows, and face have been added to illustrate the timing and orientation requirements for Claim 1's wristturn.

(Bottom) Illustration based on Ex-1005, Fig. 6 showing the implementation of Ruiz's "double flip" in the context of the Yeung-Ruiz combination.

A POSITA would have understood that it would take a certain period of time after the device is detected in a particular orientation for the position to be registered. Ex-1002 ¶¶196-198. Specifically, Yeung teaches that after the "analog signal components of the accelerometer" are selected by a multiplexer and converted to "digital datum," that information is sent to the recorder controller, "which stores the digital datum in an accelerometer-data memory." *Id.* ¶40. A POSITA would have understood this storing to be a part of "registering." Ex-1002 ¶196. This is consistent with the '085 Patent which discusses "registering" a position and later checking to see if a certain position "was registered" during a

previous step. Ex-1001, 10:9-15; *see also id.*, 9:61-10:3 (“The fact that a valid start position has been reach is then registered, for example in the accelerometer.”). Registering the position would be a natural way for a POSITA to implement the disclosure of Yeung to have a baseline from which to determine if the device had deviated from that position such that the voice recorder should be deactivated. *See* Ex-1005 ¶45.

A POSITA would have understood that the 200 ms double flip taught by Yeung-Ruiz would include the time to complete the gesture, detect the completion, and register the completion, or at least that this was one of a finite number of options for timing the double flip and would have been obvious to try. Ex-1002 ¶¶197-199. Because Ruiz requires that the double flip gesture be completed within 200 ms (Ex-1006, 8:61-65), it would have been obvious to a POSITA that Ruiz includes a mechanism for measuring the durations between different orientations. Ex-1002 ¶¶197-199.

f. Dependent Claim 7: The method of claim 6, wherein said defined time is 50 ms.

Yeung-Ruiz renders obvious Claim 7. Ex-1002 ¶¶99-110, 200-201. The “defined time” in Claim 7 is the time between detecting the device is in the final position and registering that the device is in the final position, as required by Claim 6. As explained above, (§XII.A.2.f), the final position for the Yeung-Ruiz

combination is at the top of the double flip delimiter motion (facing towards the user), as shown below.

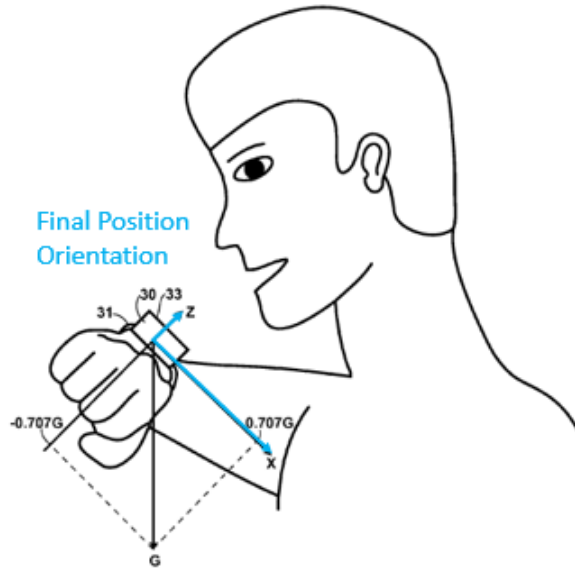


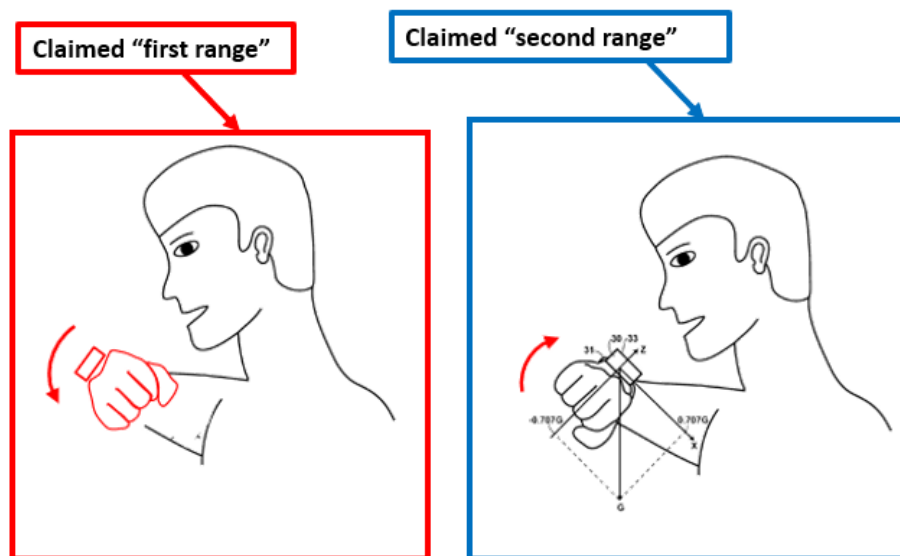
FIG. 6

Ex-1005, Fig. 6

As described in connection with Claim 6 (§XII.A.3.e), it would have been obvious to a POSITA that this position would have been held for a certain period of time to allow the device to register the final position. And as described with respect to Claim 5 (§XII.A.3.d), Ruiz discloses a 50ms time period for recognizing a gesture and that it would have been obvious to a POSITA that to ensure recognition of the time period at the top of the double flip, the device should remain there for about 50 ms or at least that 50 ms would have been obvious to try in the context of Yeung-Ruiz. Ex-1006, 13:13-15 (“the time needed to match the incoming gesture was *around 50 ms/per recognition task.*”); Ex-1002 ¶201.

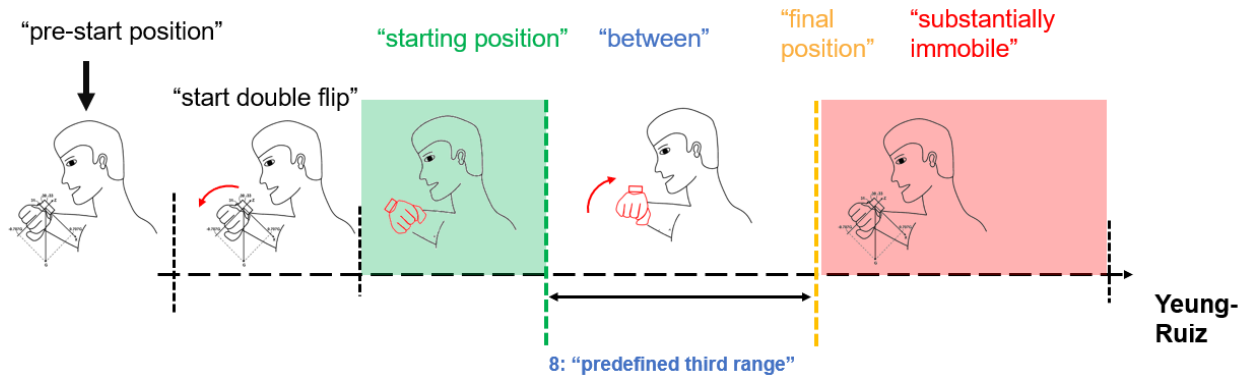
- g. Dependent Claim 8: The method of claim 1, wherein said step of detecting that the orientation of the wristwatch is in a second range comprises: detecting that a duration between the wristwatch being held in the first range and the wristwatch being held in the second range is in a predefined third range.**

Yeung-Ruiz renders obvious Claim 8. Ex 1002, ¶¶99-110, 202-204. As discussed with reference to Claim 1 (§§XII.A.2.f-g), Yeung-Ruiz discloses the watch/recorder being held in a “first range” (facing away) and then being held in a “second range” (facing towards), as shown below.



Ex-1005, Fig. 6 (left side has been modified to show the watch position at the away position of the double flip)

A POSITA would have understood that the duration between the watch/recorder being held in the first range and the watch/recorder being held in the second range would have a particular duration corresponding to the “predefined third range,” as shown in the illustration below. Ex-1002 ¶203.



(Bottom) Illustration based on Ex-1005, Fig. 6 showing the implementation of Ruiz's "double flip" in the context of the Yeung-Ruiz combination.

A POSITA would have measured this range starting after the device was "held" in the starting position and ending when it was detected (and before being "held") in the final position. Because the double flip motion has a particular time period, it would have been obvious to a POSITA to require the portion of the double flip between being held in the starting position and final position to also have a particular time period corresponding to the "predefined range." Ex 1002 ¶204.

- h. Dependent Claim 9: The method of claim 1, wherein said step of detecting that the orientation of the wristwatch is then in a second range comprises detecting that a display of the wristwatch is oriented towards a face of the user**

Yeung-Ruiz discloses Claim 9. Ex 1002 ¶¶99-110, 205-206. As discussed above with reference to Element 1[c.2], Yeung discloses that the "second range" is when the orientation of the watch/recorder is oriented towards the mouth of the user, as shown in Figure 6:

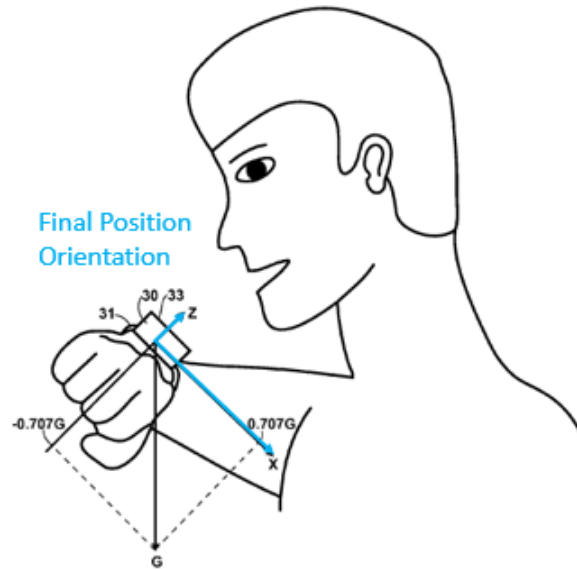


FIG. 6

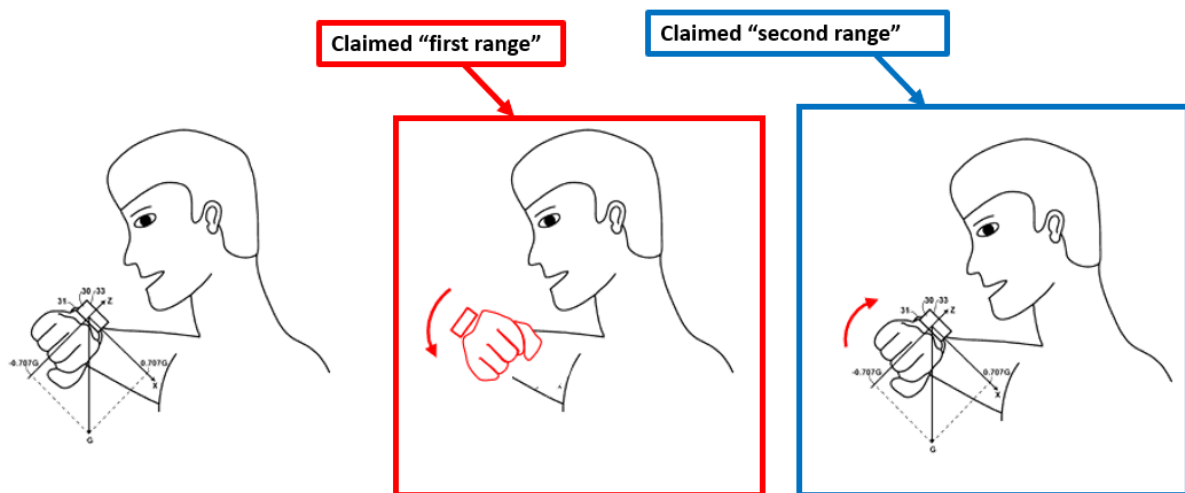
Ex-1005, Fig. 6

As seen above, in this position the “display of the wristwatch is oriented towards a face of the user,” as required by Claim 9. Indeed, with reference to Figure 6, Yeung explains that the watch/recorder is positioned “in front of his or her mouth ... *with the front surface of housing 33 of audio recorder 30 facing the mouth.*” Ex-1005 ¶47. “Detecting” whether the watch/recorder is oriented in such a fashion, as required by Claim 9, is part of detecting whether it is in the “second orientation” where the audio recorder turns on because Yeung explains that Figure 6 is one example of “a predetermined orientation” in which the audio recorder “turns on automatically.” *Id.* ¶48. In addition, Yeung discloses that “audio recorder 30 can be designed to take the user’s position or posture into

consideration, so that it activates audio recording[s]” when the audio recorder is oriented in the “natural recording orientation in front of the mouth (as shown in FIG. 6) for a range of user postures.” *Id.*; Ex-1002 ¶206.

- i. **Dependent Claim 10: The method of claim 1, wherein said steps of detecting that the orientation of the wristwatch is in a first range and then in a second range comprise: in response of a detection of the orientation of the wristwatch is in the second range, checking if the orientation of the wristwatch was in the first range during a previous step.**

Yeung-Ruiz discloses or renders obvious Claim 10. Ex 1002 ¶¶99-110, 207-209. As described in Elements 1[c.1] and 1[c.2], Yeung-Ruiz discloses detecting the orientation of the watch/recorder in a first range (oriented away from the user) and then a second range (oriented towards the user) as shown below.



Ex-1005, Fig. 6 (left and right images). The middle image and arrows have been added to illustrate the wristturn of Yeung-Ruiz.

Yeung-Ruiz further teaches that when the orientation is in the second range, checking previously stored orientation data to determine if the watch/recorder was

in the first range during a previous step. For example, Ruiz discloses using the double flip delimiter to trigger its system to analyze previous motion data for possible gesture input: “[M]otion-based data may be cached across a trailing window of time on a device, and if a delimiter input is received within a predetermined time period of such input (e.g., 200 ms), *the data in the cache may be processed* to determine what additional motion-based input the user of the device would like to perform.” Ex-1006, 8:61-67. Ruiz further explains that this processing means that “the cache may be checked to determine if the data in the cache matches any motion-based input” and, if so, is “provided to an application as an input.” *Id.*, 9:2-6. In the context of Yeung-Ruiz’s turning on a recorder in response to a predetermined movement, a POSITA would have understood that this cache of data collected during the “trailing window of time” would include the motion data showing when the watch/recorder was oriented in the start position. Ex-1002 ¶¶208-209. It would have been obvious to use this collected motion data to validate the gesture by “checking if the orientation of the watch/recorder was in the first range during a previous step” to reduce the rate of false positive triggers into the higher power mode. Ex-1002 ¶209.

B. Ground 2: Claims 1-4, 6, 8-10 Are Obvious over Yeung in View of Alameh and Further in View of Joselli

1. A POSITA would have been motivated to combine Yeung's teachings with Alameh's and Joselli's teachings and would have had a reasonable expectation of success

A POSITA would have been motivated to combine the teachings of Yeung, Alameh, and Joselli and would have had a reasonable expectation of success in doing so, because all three relate to interpreting movement patterns based on detected orientation and acceleration data in a handheld or wrist-worn electronic devices. *See* Ex-1002 ¶¶99-103, 111-119, 210-218. Yeung, Alameh, and Joselli provide compatible solutions for detecting when a user is providing an intentional movement pattern that should trigger a response, such as switching power modes or activating functionality in an electronic device. *Compare* Ex-1005 ¶15 with Ex-1007 ¶¶5, 17 *and* Ex-1008, 143-144. For example, Yeung provides various embodiments for determining if recorder functionality should be activated based on movement or orientation data. Ex-1005 ¶¶46-48.

Yeung identifies a problem of activating the recording function accidentally, which may result in unwanted recordings or unneeded mode switches. *See* Ex-1005 ¶¶48, 52. Yeung addresses this problem in some embodiments by first detecting a “predetermined movement” that includes first “lifting the arm upwards from a resting position” and then “tilting the wrist towards the mouth.” *Id.* ¶47. Yeung also discloses activating the recorder function (i.e., entering the higher

power mode) “only after audio recorder 30 remains in a static position for a predetermined period of time after a predetermined wrist and arm movement pattern has been detected.” *Id.* ¶52. In other words, Yeung first requires a specific gesture—lifting the arm, then rotating the wrist—and then requires holding the device static in the final position for a specific time duration before switching to a higher power mode. Ex-1002 ¶¶210-211.

Alameh similarly teaches identifying specific movement patterns “to initiate a command.” Ex-1007 ¶31. In particular, Alameh teaches that the mobile device is readied for detecting movement corresponding to a command by being “placed in a substantially motionless orientation for a preset amount of time,” which “serves as a cue to the mobile device that the mobile device is potentially about to be moved in a manner that signifies that a command selection is forthcoming.” Ex-1007 ¶¶31-32; *see also* Ex-1002 ¶212. Figure 6 below illustrates Alameh’s sequence of steps for identifying and executing a command based on the movement sensed by the accelerometer.

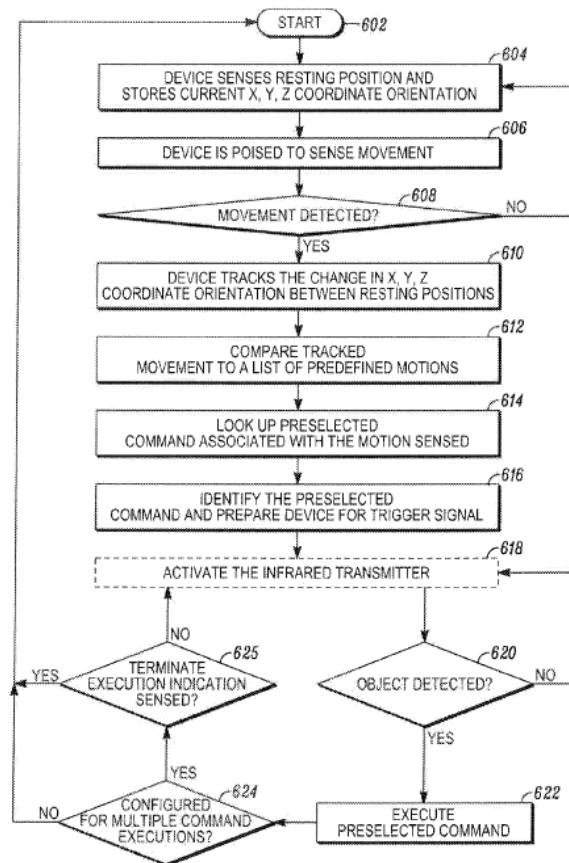


FIG. 6

Joselli addresses the related issue of “segmentation” which is used to automatically determine “the begin[ning] and the end[ing] of a gesture.” Ex-1008, 144; *see also* Ex-1002 ¶213. Joselli explains that “[i]n order to correct[ly] segmentate an accelerometer gesture, a definition of this kind of gesture is needed.” *Id.* Joselli observes that “a good gesture needs a duration of more than 0.6 seconds and less than 2 seconds.” *Id.*

A POSITA seeking to minimize false positives to avoid unnecessary power consumption would have known of and consulted all these proposed solutions. Ex-1002 ¶¶ 87-98, 214. For example, identifying a gesture based on particular time spent in a particular orientation was well known in the prior art to improve accuracy and limit unnecessary mode switches. *See* Ex-1002 ¶¶78-98, 214. It would have been obvious to a POSITA to apply these teachings of Alameh and Joselli to Yeung’s method of activating a watch/recorder to reduce the likelihood of inadvertent mode switches. Ex-1002 ¶¶214-217.

For example, Alameh’s detection of “relative motionlessness of the mobile device” serving “as a cue to the mobile device that the mobile device is potentially about to be moved in a manner that signifies that a command selection is forthcoming” could be applied to Yeung’s disclosure of “detect[ing] a predetermined movement, such as the natural movement of lifting the arm upwards from a resting position” by requiring the resting position to be maintained for a certain period of time. Ex-1005 ¶47; Ex-1007 ¶¶31-32; *see also* Ex-1002 ¶215.

Similarly, a POSITA would have been motivated to apply Joselli’s teaching that “a good gesture needs a duration of more than 0.6 seconds and less than 2 seconds” by requiring that the movement pattern in Yeung, from resting position to the final orientation where the recorder functionality turns on, take place in a defined period of time, such as 0.6 to 2 seconds. Ex-1008, 144; Ex-1002 ¶215. It

would have been obvious to a POSITA to make this change because a POSITA would have understood that a movement that is performed too quickly or slowly is likely not intentional. Ex-1002 ¶215. Based on Joselli, a POSITA would be motivated to measure the time between the starting position and final position and constrain the movement pattern to a particular defined window of time. Ex-1002 ¶¶215-217. Doing so would be advantageous because it would reduce the number of inadvertent recorder activations. Ex-1002 ¶¶215-217. Thus, a POSITA would have been motivated to improve Yeung's watch/recorder by modifying its algorithm for changing power modes by applying Alameh's minimum time duration requirement and Joselli's range of times in which the gesture must be completed. Ex-1002 ¶¶215-217.

A POSITA would have had a reasonable expectation of success in combining these teachings of Joselli, Alameh, and Yeung because each purports to solve the problem of identifying movement patterns and using them to activate certain device functionality in similar and predictable ways, namely, by requiring the device to be oriented within particular angle ranges for particular time durations before effectuating a mode change and using similar sensors to detect the orientation of the device. Ex-1002 ¶218. A POSITA would have understood that they could have combined these teachings with no change in their respective functions because they teach compatible systems. *Id.*

2. Claim 1

- a. Element 1[pre]: A method for switching a wristwatch from a first power mode to a second power mode, comprising:**

Yeung in view of Alameh and Joselli (“Yeung-Alameh-Joselli”) discloses the preamble, to the extent it is limiting based on disclosures in Yeung for the same reasons described with reference to Ground 1. *See supra* §XII.A.2.a; *see also* Ex-1002 ¶219.

- b. Element 1[a]: using an accelerometer for detecting a wristturn, and**

Yeung-Alameh-Joselli teaches or discloses Element 1[a]. Ex-1002 ¶220. As described with reference to Ground 1, Yeung’s wrist-worn device includes an accelerometer. *See supra* §XII.A.2.b. Yeung discloses that one movement detected using the accelerometer comprises a wristturn: “the natural movement of lifting the arm upwards from a resting position (i.e., from the side of the body or from in front of the lower end of the torso) and tilting the wrist towards the mouth to activate audio recording.” Ex-1005 ¶47.

- c. Element 1[b]: switching said wristwatch from said first power mode to said second power mode when a wristturn has been detected,**

Yeung-Alameh-Joselli discloses Element 1[b] based on disclosures in Yeung for the same reasons described with reference to Ground 1. *See supra* §XII.A.2.c; *see also* Ex-1002 ¶221. As described with reference to Element 1[a], the Yeung

the power mode switch would occur after the predetermined movement of the user raising their arm from the resting position and rotating the screen of the watch/recorder to face the user, which involves a wristturn. *See supra* §XII.B.2.b.

d. Element 1[c]: wherein said step of detecting a wristturn comprises:

Yeung-Alameh-Joselli teaches or discloses Element 1[c], as shown below, by detecting a wristturn based on the steps of Elements 1[c.1] – 1[c.3]. Ex-1002 ¶¶111-119, 222-234.

e. Element 1[c.1]: detecting that an orientation of the wristwatch is in a starting position, wherein said step of detecting that the orientation is in the starting position comprises detecting that the orientation of the wristwatch is held within a first range for a defined time;

Yeung-Alameh-Joselli teaches or discloses Element 1[c.1]. Ex-1002 ¶¶99-103, 111-114, 223-226. Yeung’s accelerometer determines when the accelerometer is at rest in a particular starting position. Ex-1005 ¶39. One particular movement Yeung discloses for activating the recording function is detecting “a predetermined movement, such as the natural movement of lifting the arm upwards *from a resting position* (i.e., from the side of the body or from in front of the lower end of the torso) and tilting the wrist towards the mouth.” *Id.* ¶47. The claimed “starting position” is the range of angles at which Yeung’s

watch/recorder is in this “resting position” with the arm at the side of the body or in front of the lower end of the torso. Ex-1002 ¶¶223-224.

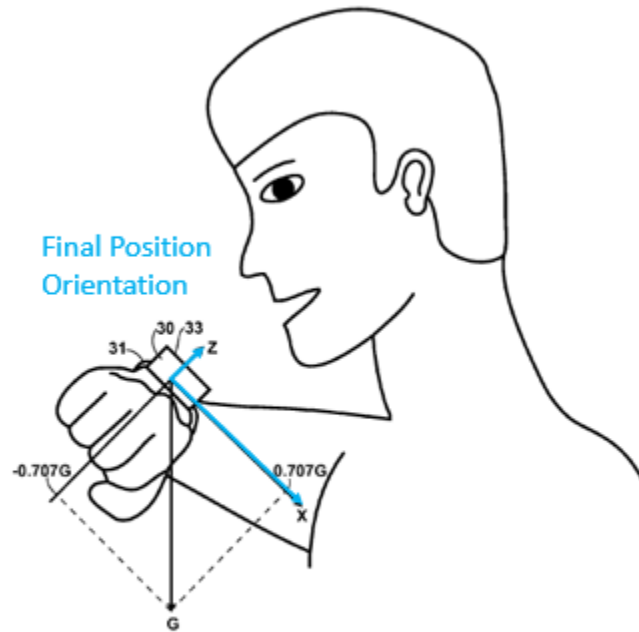
Although Yeung discloses that this is a *resting* position, which a POSITA would understand necessarily requires being held in a particular orientation for some period of time, Yeung does not disclose detecting the period of time in which the watch/recorder is in the resting position and, as explained above, a POSITA would have turned to the teachings of Alameh for this detail. *Supra* §XII.B.1; Ex-1002 ¶¶224-225. Alameh explains that to initiate a command based on a movement pattern (like activating the recording function in Yeung based on a predetermined movement) “the mobile device 102 is placed in a substantially motionless orientation *for a preset amount of time*, as detected by a lack of significant acceleration in any direction.” Ex-1007 ¶31. Alameh describes the benefit of detecting the “relative motionlessness of the mobile device” before the command sequence is that it “serves as a cue to the mobile device that the mobile device is potentially about to be moved in a manner that signifies that a command selection is forthcoming.” *Id.* ¶32.

A POSITA would have been motivated to modify Yeung to include this step of detecting relative motionlessness for a certain period of time at the start of the required movement pattern because it would further Yeung’s aim of avoiding inadvertent activations of the wrist-worn recorder. Ex-1005 ¶52. It would also

allow for more reliability in detecting the motion by providing the watch/recorder's processor with a cue that a movement pattern may be forthcoming. Ex-1007 ¶32. Ex-1002 ¶226.

- f. **Element 1[c.2]: detecting that an orientation of the wristwatch is then in a final position, wherein said step of detecting that the orientation is in the final position comprises detecting that the orientation is in a second range different from said first range,**

Yeung-Alameh-Joselli teaches or discloses Element 1[c.2]. Ex-1002 ¶¶99-103, 227-229. Yeung discloses activating the recorder when the orientation of the device is in a final orientation with the watch/recorder raised towards the user's head and oriented towards the user's face, as shown in Figure 6. For example, "the audio recording function of audio recorder 30 turns on automatically when the user positions audio recorder 30 *in a predetermined orientation, such as the natural orientation for recording shown in FIG. 6*, and/or after audio recorder 30 has completed a predetermined movement." Ex-1005 ¶48; *see also id.* ¶¶15, 47.



The range of angles when the watch/recorder is oriented towards the face in the final position is different than orientation during the starting “resting position,” which Yeung describes as being with the wrist resting “on the side of the body” or “in front of the lower end of the torso.” Ex-1005 ¶47; Ex-1002 ¶228. Moreover, Yeung discloses that the wrist-worn device detects these different orientations by turning on “when the user positions the audio recorder 30 in a predetermined orientation” and by deactivating the audio recording “as soon as the user moves audio recorder 30 away from the predetermined orientation.” Ex-1005 ¶48. It would have been obvious to a POSITA to define the “predetermined orientation” by a range of orientation angles since requiring a single precise angle would lead to

a frustrating user experience if the recorder continually shut off while still oriented toward the user's face in a natural way based on a slight angle deviation. Ex-1002 ¶229.

- g. Element 1[c.3]: in response to a detection that the orientation of the wristwatch is in the second range, detecting that the wristwatch remains substantially immobile during a predetermined duration and that a duration between the starting position and the final position is in a predefined range.**

Yeung-Alameh-Joselli teaches Element 1[c.3]. Ex-1002 ¶¶99-103, 115-119, 230-234. This claim element requires two separate timing requirements—the watch/recorder must remain “substantially immobile” for a certain duration in the final orientation range and the “duration between” the starting and final positions must be in a predefined range.

“substantially immobile”

Yeung discloses the first of these limitations for the reasons described in connection with Ground 1. *See supra* §XII.A.2.g; Ex-1002 ¶231.

“duration between”

Yeung does not explicitly disclose that the duration between the starting position and the final position is of a particular duration. However, Yeung discloses a particular movement pattern requiring: first, “lifting the arm upwards from a resting position;” second, “tilting the wrist towards the mouth;” and finally,

activating the recorder function (i.e., entering the higher power mode) “only after audio recorder 30 remains in a static position for a predetermined period of time after a predetermined wrist and arm movement pattern has been detected.” Ex-1005 ¶¶47, 52. Joselli explains that to determine the beginning and ending of a movement, a definition of the movement, including the duration, is needed. Ex-1008, 144. Thus, Joselli discloses that “the authors have observed that normally, a good gesture needs a duration of more than 0.6 seconds and less than 2 seconds. *Id.*

In applying Joselli’s teachings to Yeung’s wrist raise and twist movement pattern, it would have been obvious to require a predefined range for the time it takes to complete the movement from the starting position (with the watch/recorder resting by the user’s side) to the final position (with the watch/recorder raised to the user’s mouth and facing the user), such as 0.6 seconds to 2 seconds, as disclosed by Joselli. Ex-1002 ¶233.

A POSITA would have been motivated to implement this feature of Joselli in Yeung to further minimize the accidental activations of Yeung’s recording device. Ex-1002 ¶234. Joselli would be an improvement in this regard by adding another redundancy to the mechanisms already disclosed by Yeung to limit unwanted recordings. *See, e.g.*, Ex-1005 ¶48 (minimizing the “recording of irrelevant audio information”) ¶52; (minimizing “accidental activation of these

audio-recorder functions by normal daily activities”); Ex-1002 ¶234. In addition to minimizing unwanted recordings, a POSITA would have been motivated to conserve battery life by not activating the recording hardware when it was not needed. Ex-1002 ¶¶70-77, 234.

Thus, Yeung-Alameh-Joselli renders Claim 1 obvious.

3. Dependent Claims 2-4, 6, 8-10

- a. Dependent Claim 2: The method of claim 1, wherein said first range is an angle range from 25° to 155° relatively to the horizontal.**

Yeung-Alameh-Joselli discloses or renders obvious Claim 2. Ex-1002 ¶¶99-103, 236-238. As explained above with reference to Element 1[c.1], which requires detecting an orientation within a first range, Yeung discloses a “first range” starting position where the arm is in “*a resting position* (i.e., from the side of the body or from in front of the lower end of the torso)” Ex-1005 ¶47. A POSITA would have understood that when an individual wearing a watch/recorder has the arm in a resting position the watch/recorder would naturally be oriented faced away from the user at about 90 degrees from the horizontal, as shown in the picture below. Ex-1002 ¶¶237-238.



A POSITA would have understood that the resting positions described by Yeung encompass a range of angles. Ex-1002 ¶238. To the extent that this claim requires not only that the claimed “first range” be within 25 and 155 degrees but instead requires the “first range” be exactly 25 to 155 degrees, it would have been obvious to a POSITA to use 25 to 155 degrees or would have at least been obvious to try. Ex-1002 ¶238. This is because these angles correspond roughly to angles where the watch face is oriented away from the user and thus may be the “resting position” described by Yeung. Ex-1002 ¶238.

b. Dependent Claim 3: The method of claim 1, wherein said second range is an angle range from -25° to -75° relatively to the horizontal.

Yeung-Alameh-Joselli discloses or renders obvious Claim 3 based on disclosures in Yeung for the same reasons as in connection with Ground 1. Ex 1002 ¶239. *See supra* §XII.A.3.b.

- c. **Dependent Claim 4: The method of claim 1, wherein said step of detecting that the wristwatch remains substantially immobile during a predetermined duration comprises: detecting that an orientation of the wristwatch is held in a range from -25° to -60° relatively to the horizontal during said predetermined duration.**

Yeung-Alameh-Joselli discloses or renders obvious Claim 4 based on disclosures in Yeung for the same reasons as in connection with Ground 1. Ex 1002 ¶240. *See supra* §XII.A.3.c.

- d. **Dependent Claim 6: The method of claim 1, wherein comprising a step of in response to a detection that the orientation of the wristwatch is held within this second range for a defined time, [1]registering that an orientation of the wristwatch is in the final position; [2] wherein said duration between the starting position and the final position is provided by measuring a duration between the starting position and the registering of the final position.**

Yeung-Alameh-Joselli discloses or renders obvious Claim 6. *See* Ex 1002 ¶¶99-103, 241-243.

A POSITA would have understood that it would take a certain period of time after the device is detected in a particular orientation for the position to be registered. Ex-1002 ¶241. Specifically, Yeung teaches that after the “analog signal components of the accelerometer” are selected by a multiplexer and converted to “digital datum,” that information is sent to the recorder controller, “which stores the digital datum in an accelerometer-data memory.” Ex-1005 ¶40.

A POSITA would have understood this storing to be a part of “registering.” Ex-1002 ¶241. This is consistent with the ’085 Patent which discusses “registering” a position and later checking to see if a certain position “was registered” during a previous step. Ex-1001, 10:9-15; *see also id.*, 9:61-10:3 (“The fact that a valid start position has been reach is then registered, for example in the accelerometer.”). Registering the position would be a natural way for a POSITA to implement the disclosure of Yeung to have a baseline from which to determine if the device had deviated from that position such that the voice recorder should be deactivated. *See* Ex-1005 ¶45.

A POSITA would have understood that the duration of the gesture, as taught by Joselli (Ex-1008, 144) would have included this time for registering the completion of the gesture or at least that this was one of a finite number of options for timing the gesture and would have been obvious to try. Ex-1002 ¶242.

- e. **Dependent Claim 8: The method of claim 1, wherein said step of detecting that the orientation of the wristwatch is in a second range comprises: detecting that a duration between the wristwatch being held in the first range and the wristwatch being held in the second range is in a predefined third range.**

Yeung-Alameh-Joselli renders obvious Claim 8. Ex 1002 ¶¶99-103, 115-119, 244-246. As discussed with reference to Claim 1 (§§XII.A.2.e-f), the combination discloses the watch/recorder being held in a “first range”

(corresponding to Yeung's arm hanging by the user's side) and then being held in a "second range" (corresponding to Yeung's final position of -45 degrees toward the user's mouth).

A POSITA would have understood that the duration between the watch/recorder being held in the first range the second range would have a particular duration corresponding to the "predefined third range." Ex-1002 ¶¶244-245. A POSITA would have measured this range starting after the device was "held" in the starting position and ending when it was detected (and before being "held") in the final position. Ex-1002 ¶245.

- f. Dependent Claim 9: The method of claim 1, wherein said step of detecting that the orientation of the wristwatch is then in a second range comprises detecting that a display of the wristwatch is oriented towards a face of the user**

Yeung-Alameh-Joselli discloses Claim 9 based on disclosures in Yeung for the same reasons discussed in connection with Ground 1. *See supra* §XII.3.h; Ex 1002, ¶247.

- g. **Dependent Claim 10: The method of claim 1, wherein said steps of detecting that the orientation of the wristwatch is in a first range and then in a second range comprise: in response of a detection of the orientation of the wristwatch is in the second range, checking if the orientation of the wristwatch was in the first range during a previous step.**

Yeung-Alameh-Joselli discloses or renders obvious Claim 10. Ex 1002, ¶¶99-103, 248. Yeung discloses that “the audio recording function of audio recorder 30 turns on automatically” when the user correctly positions the watch/recorder and “*after* audio recorder 30 *has completed a predetermined movement.*” Ex-1005 ¶48. Thus, Yeung requires detecting not only that the watch/recorder in an orientation corresponding to the “second range,” but also that it has already “completed a predetermined movement.” Ex-1002 ¶248. Because Yeung uses accelerometer data to determine position and movement, Ex-1005 ¶¶46-48, detecting that a predetermined movement has been completed amounts to “checking if the orientation of the wristwatch was in the first range during a previous step.” Ex-1002 ¶248.

This would have been a natural design choice because it would have led to less processing and more efficient power management than the alternatives. Ex-1002 ¶248. For example, this method would merely require detecting and storing the starting position of the watch/recorder, as required by Claim 1 but only performing the processing of determining if the mode should be switched if the

orientation arrived at a final position and then checking back at the positional data to see if the watch/recorder was in the starting position at the required time. Ex-1002 ¶248. The alternative—beginning the processing each time the watch/recorder deviated from the resting position—would result in far more processing because every movement, even those not resulting in the correct final position would require at least some additional processing before determining that no mode change should occur. Ex-1002 ¶248.

C. Ground 3: Claims 5 and 7 Are Obvious over Yeung-Alameh-Joselli Further in View of Yano

1. A POSITA would have been motivated to combine the Yeung-Alameh-Joselli combination with Yano and would have had a reasonable expectation of success

A POSITA would have been motivated to combine Yeung-Alameh-Joselli's teachings with Yano's teachings and would have had a reasonable expectation of success because they are all from the same field of utilizing accelerometer data to detect movement patterns and using those patterns as inputs to modify the functionality of an electronic device. Ex-1002 ¶¶ 99-103, 111-122, 249-252. Yano provides compatible solutions for detecting and analyzing movement patterns. For example, Yeung, Alameh, and Joselli focus on general device positioning, movement patterns, and orientation using accelerometers while Yano provides additional detail regarding precise techniques for generating reliable data from triaxial accelerometers. *Compare* Ex-1005 ¶15, Ex-1006 ¶¶18-20, and Ex-

1008, 144 *with* Ex-1009, 4:1-10. A POSITA would have realized that the techniques in Yano would have led to more consistent and reliable data and would have been motivated to incorporate them into the Yeung-Alameh-Joselli combination for that reason. Ex-1002 ¶¶249-251.

As one example, Yeung teaches utilizing an accelerometer to detect a starting orientation, a particular movement pattern, and a final orientation. *See, e.g.,* Ex-1005 ¶¶39, 46-47. But Yeung does not teach precisely how to account for minor deviations in movement at these positions beyond explaining that “if audio recorder 30 does not move too fast over each cycle of the accelerometer-data acquisition, the acquired and stored X, Y, and Z signal data in each cycle are approximately simultaneous. Ex-1005 ¶46, Ex-1002 ¶250. Yano, on the other hand, discloses that when a certain orientation is detected, taking an average value of the acceleration signal over a short period of time:

If the absolute value of the average value AGy exceeds the threshold value a (yes from #602), the pre/post-action feature quantity remover 1322 selects the average value AGy at time Tb ***at which a time period S has elapsed*** since time Ta at which the absolute value of the average value AGy exceeded the threshold value a. The pre/post-action feature quantity remover 1322 then stores the average value AGy as a first feature quantity average value AGyl (#603). **The time period S is a constant time period, and may be 50 milliseconds, for example.**

Ex-1009, 6:21-30. A POSITA would have understood Yano to be teaching that taking an average measurement over a short time period improves accuracy and reduces the chance that the desired orientation was arrived at through inadvertent motion. Ex-1002 ¶251. It would have been obvious to a POSITA to apply these teachings of Yano to Yeung-Alameh-Joselli's methods of activating a device to ensure the reliability of the data provided by the accelerometer and ultimately to ensure accurate mode switches. Ex-1002 ¶251.

A POSITA would have had a reasonable expectation of success in combining these teachings of Yano with Yeung-Alameh-Joselli because each purports to solve these problems in similar and predictable ways, for example, by using well-known implementations and techniques, such as requiring the device to be in certain orientations for certain periods of time before moving on to a subsequent step of movement recognition. Ex-1005 ¶¶46, 52; Ex-1009, 6:4-30. A POSITA would have understood that they could have combined these teachings with no change in the respective functions of Yeung-Alameh-Joselli because they teach compatible systems. Ex-1002 ¶252.

2. Dependent Claims 5 and 7

a. Dependent Claim 5: The method of claim 1, wherein said defined time is 50 ms;

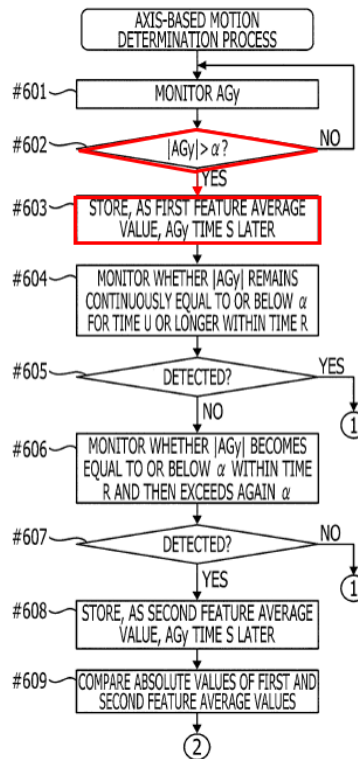
Dependent Claim 7: The method of claim 6, wherein said defined time is 50 ms

Yeung-Alameh-Joselli-Yano renders obvious Claims 5 and 7.¹⁰ Ex 1002

¶¶99-103, 120-122, 253-254. First, Yeung-Alameh-Joselli renders obvious Claims 1 and 6. *See supra* §§XII.A.2, 3.e. Second, Yano discloses that when a certain orientation is detected, taking an average value of the acceleration signal over a short period of time called “S” before moving onto the next step of the detection process, as shown in the flow diagram below. Ex-1009, 6:21-30.

¹⁰ These claims are identical except that the “defined time” in Claim 5 appears to refer to the time in the “starting position” and the “defined time” in Claim 7 appears to refer to the time in the “final position.” Because the arguments are identical they have been addressed together.

FIG. 6A



Yano discloses that the “time period S is a constant time period, and may be 50 milliseconds, for example.” Ex-1009, 6:28-30. Accordingly, a POSITA would have understood that, in view of Yano, it would have been obvious to set the “defined time” in Claim 1 that Yeung’s watch/recorder remained in the starting position at 50 ms and that the same would have been true of the “defined time” between detecting and registering described in Claim 6 Ex-1002 ¶254.

Yeung-Alameh-Joselli-Yano discloses Claim 7 for the same reasons discussed in conjunction with Claims 5 and 6. *See supra* §§XII.A.3.e-f; Ex-1002 ¶¶253-254.

XIII. THE BOARD SHOULD NOT USE ITS DISCRETION TO DENY INSTITUTION UNDER *FINTIV*

The Board should decline to exercise its discretion to deny institution under 35 U.S.C. §314(a). While Director Vidal’s June 21, 2022 Guidance made clear that “*Fintiv* is limited to facts of that case,” for completeness, Petitioner addresses the factors set forth in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential). As explained below, the six factors set out in *Fintiv* do not justify denying institution.

The **first *Fintiv* factor** is neutral here because Samsung has not yet moved to stay the district court proceedings pending IPR, and the PTAB will not infer how the district court would rule should a stay be requested. *See, e.g., Hulu LLC v. SITO Mobile R&D IP, LLC et al.*, IPR2021-00298, Paper 11 at 10-11 (PTAB May 19, 2021).

For the **second *Fintiv* factor**, the district court has set February 18, 2025 as the trial date in the *Samsung* matter. Even if trial proceeds in February 2025, the above timing does not tip in favor of denying the petition in this case. *See, e.g., Apple Inc. v. Koss Corp.*, IPR2021-00305, Paper 14, 13 (PTAB June 3, 2021). This Petition is filed in November 2023. An institution decision should be issued within six months of docketing, around May 2024. And a final written decision (FWD) should be issued in May 2025. Thus, the earliest estimated trial date is

around the same time as the FWD. Recent PTAB cases analyzing similar schedules have weighed the second factor as neutral or, at most, slightly in favor of denial. *See, e.g., Google LLC et al. v. Parus Holdings, Inc.*, IPR2020-00847, Paper 9, 12 (PTAB Oct. 21, 2020) (trial scheduled for three months before FWD weighs “at best, neutral”); *Apple Inc. v. Koss Corp.*, IPR2021-00305, Paper 14, 13-14 (PTAB June 3, 2021) (trial scheduled for two months before FWD weighs “at most, minimally in favor” of denial).

The **third *Fintiv* factor** weighs strongly against denial. No hearing has been set and no substantive activity has occurred in the case. Because the investment in the trial has been minimal and Petitioner acted diligently, this factor weighs strongly against discretionary denial. *See, e.g., Hulu*, Paper 11, 13.

The **fourth *Fintiv* factor** also weighs against denial. As explained above, a FWD in this matter will occur within about three months of the currently-scheduled trial in the district court. Thus, “there is a reasonable likelihood that the Board will address the overlapping validity issues prior to the district court reaching them at trial ..., thereby providing the possibility of simplifying issues for trial.” *Juniper Networks, Inc. v. Packet Intelligence LLC*, IPR2020-0039, Paper 21, 18 (PTAB Sept. 10, 2020); *see also MED-EL Elektromedizinische Geraete GmbH v. Sonova AG*, IPR2020-00176, Paper 13, 15 (PTAB June 3, 2020) (“[Overlap exists between the invalidity issues in this case and in the district court.

This overlap may inure to the district court’s benefit, however, by simplifying issues for trial should we reach our determination on the challenges raised in the Petition before trial.”).

On the **fifth *Fintiv* factor**, the Board should give little weight to the fact that Petitioner and PO are the same parties as in district court. *See Weatherford U.S., L.P., v. Enventure Global Tech., Inc.*, Paper 16, 11-13 (PTAB Apr. 14, 2021). Although Samsung is both petitioner and litigation defendant, this factor does not outweigh the other factors that strongly weigh against discretionary denial.

“Other circumstances” under the **sixth *Fintiv* factor** further weigh against discretionary denial. The merits of the Petition are especially strong. *See Align Technology, Inc. v. 3Shape A/S*, IPR2020-01087, Paper 15, 42-43 (PTAB Jan. 20, 2021). *See supra* §XII.

Taken together holistically, the *Fintiv* factors strongly weigh against denial.

XIV. CONCLUSION

Petitioner requests institution of IPR for Claims 1-10 of the ’085 Patent based on each of the grounds in this Petition.

Respectfully Submitted,

/s/ William M. Fink

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Petitioner certifies that this petition includes 13,984 words, as measured by Microsoft Word, exclusive of the table of contents, mandatory notices under §42.8, certificates of service, word count, and exhibits.

CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e)(1))

The undersigned hereby certifies that the above document was served on November 2, 2023, by filing this document through the Patent Trial and Appeal Board P-TACTS System, as well as delivering a copy via express mail upon the following attorneys of record for the Patent Owner and Petitioner:

Blank Rome LLP
1858 Eye Street NW
Washington, DC 20006

A courtesy copy was sent to the below counsel via electronic mail:

Alfred R. Fabricant
Vincent J. Rubino III
Fabricant LLP
230 Park Avenue
3rd Floor W.
New York, NY 10169
Email: ffabricant@fabricantllp.com
Email: vrubino@fabricantllp.com

Peter Lambrianakos
Fabricant LLP
411 Theodore Fremd Avenue
Suite 206 South
Rye, NY 10580
Email: plambrianakos@fabricantllp.com

John A. Rubino
Michael Mondelli III
Rubino Law LLC
51 John F Kennedy Pkwy
Short Hills, NJ 07078
Email: jarubino@rubinoip.com
Email: mmondelli@rubinoip.com

Dated: November 2, 2023

Respectfully submitted,

/s/ William M. Fink

William M. Fink (Reg. No. 72,332)

O'Melveny & Myers LLP

1625 Eye Street, NW

Washington, DC 20006

Telephone: (202) 383-5300

Fax: (202) 383-5414

E-Mail: tfink@omm.com

Attorney for Petitioner