

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.
OURARING, INC.,
Patent Owner

Case No. PGR2024-00039
U.S. Patent No. 11,868,178

**REPLY DECLARATION OF MR. MICHAEL A M DAVIES
IN SUPPORT OF
PETITION FOR POST-GRANT REVIEW
OF U.S. PATENT NO. 11,868,178**

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Ex-1327	Weast, et al. "U.S. Patent Application Publication No. 2012/9253485 A1, Wearable Device Having Athletic Functionality." United States Patent and Trademark Office. Filed November 1, 2011. https://patentimages.storage.googleapis.com/ee/e7/fc/3bc746f8f4a601/US20120253485A1.pdf
Ex-1328	INTENTIONALLY LEFT BLANK
Ex-1001	U.S. Patent No. 11,868,178 ("the '178 Patent")
Ex-1083	Deposition transcript of Andrew Clarke ("Clarke deposition")
Ex-2018	Declaration of Patrick Mercier
Ex-2019	Declaration of Andrew Clarke ("Clarke declaration")
Ex-2031	Patent Owner Response

I. INTRODUCTION

A. Assignment

1. I have been asked to submit a response to Ouraring, Inc.'s Patent Owner Response on behalf of the petitioner, Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. In particular, I have been asked to opine on the secondary indicia of non-obviousness as a person of ordinary skill in the art ("POSITA").¹

¹ "Ultimately, the fact finder must weigh the secondary considerations evidence presented in the context of whether the claimed invention as a whole would have been obvious to a skilled artisan." Source: Ex-1090 (Xie, Wen. "When Commercial Success Can Prove Non-Obviousness." IP WatchDog. February 10, 2022.
[https://ipwatchdog.com/2022/02/10/commercial-success-can-prove-non-obviousness/id=145576/.](https://ipwatchdog.com/2022/02/10/commercial-success-can-prove-non-obviousness/id=145576/))

2. I understand that an analysis of whether a claimed invention would have been obvious should be considered in view of (1) the scope and content of the prior art, (2) any differences between the prior art and the claimed invention, (3) the level of ordinary skill in the relevant art, and (4) secondary considerations of non-obviousness.
3. As to secondary considerations of non-obviousness, sometimes referred to as “objective indicia” of non-obviousness, I understand that the patent owner (that is, the Plaintiff in this case) bears the burden of establishing a nexus between the claims of the patent and any such secondary considerations. Mr. Clarke has opined on this in his Declaration, but he conflates sales of Oura Ring’s Gen 3 and Gen 4 by not properly accounting for transition periods between generations and his analysis only considers Gen 3 and 4.²
4. I further understand that “secondary considerations” of non-obviousness include:
 - 1) Whether there was a nexus between the commercial performance of the plaintiff’s claimed invention and the claims of the challenged patent
 - 2) Whether the technologies were well known and not inventive
 - 3) Whether the plaintiff’s claimed invention contributed to commercial success

² Ex-1083 (“Clarke deposition”), 106:8-19

- 4) Whether the plaintiff's claimed invention filled a long-felt, but unresolved need
 - 5) Whether there was a demonstrated failure by others to achieve the plaintiff's claimed invention
 - 6) Whether the plaintiff's claimed invention was praised by others in the field
 - 7) Whether the plaintiff's claimed invention was copied by others
5. I understand, however, that for any such objective evidence to be relevant to the obviousness of a claim, there must be a causal relationship (known as a "nexus") between the claim and the evidence of secondary considerations and that this nexus must be based on a **novel** element of the claim rather than an element that is in the prior art.
6. I also understand that, even when present, secondary considerations of non-obviousness may be unable to overcome primary evidence of obviousness (for example, motivation to combine and predictable results) that is sufficiently strong.

B. Michael A. M. Davies background

7. I am Michael A M Davies, the Founder and Chairman of Endeavour Partners, LLC, a boutique strategy consulting and expert advisory firm.

8. I also serve as a Senior Lecturer and Principal Investigator in the Sloan School of Management and the Engineering School at the Massachusetts Institute of Technology (“MIT”), and teach in the programs such as the Integrated Design and Management and Professional Education programs. I also serve as a Guest Lecturer at London Business School for programs involving strategy, entrepreneurship, technology, and innovation and am the creator and director of the Business of AI program.
9. I received a Bachelor of Arts and a Master of Arts in Engineering and in Electrical Sciences from St. Catharine’s College at the University of Cambridge; a Master of Engineering in Cybernetics, Robotics, and Microelectronics from the University of Durham; and a Master of Business Administration from London Business School (with Distinction). My educational work focused on engineering, physics, computer science and mathematics; cybernetics and robotics; microelectronics including the design of microchips; and management science with particular focus on technology, innovation, and business strategy.
10. For approximately the last 35 years, I have worked in the telecommunications, mobile devices, consumer electronics, computing, semiconductor, software and related sectors, and with other organizations harnessing these digital technologies. I worked first for approximately a decade as an engineer in high-tech manufacturing, then for approximately a decade as a manager and

executive, focusing on the wireless network, mobile device, telecommunications, and internet services sectors, and for the last twenty-five years or so as an expert advisor, educator, and entrepreneur.

11. I have worked for a wide variety of technology and manufacturing companies on issues relating to research and development, product development (in particular the characteristics of novel products), manufacturing, logistics, supply chain, technology, strategy, and innovation. My work primarily involves the connections amongst technology, research and development, innovation, new product adoption and diffusion, consumer choice and behavior, business models, and the emergence and evolution of product platforms and business ecosystems.
12. I have experience working throughout the digital and mobile sectors, including at the convergence of mobile, broadband Internet, consumer electronics, software, semiconductors, and other digital technologies. My work in this area extends to mobile devices including cellphones, smartphones, tablets, and wearables, communication services and networks (wireless and broadband Internet), computers (components, hardware, and software), electronic hardware (semiconductors and Integrated Circuits, Printed Circuit Board design, and manufacturing), consumer electronics, the Internet of Things (“IoT”), robotics, and the related areas of content (video, audio, applications and software),

software (including cloud services and artificial intelligence), and electronic commerce (“e-commerce”).

13. I began my work in the manufacturing sector on the design, development, and deployment of mechanical, electrical, and high-tech products. For example, as Chief of Strategy for BellSouth International’s venture in New Zealand (BellSouth NZ, then Vodafone New Zealand, now One NZ), I collaborated with Apple and Nokia on digital connectivity for the Apple Newton and then worked with Nokia on the development and testing of the Nokia Communicator 9000, the first smartphone that used digital connectivity. Since then, I have focused on mobile-, communications-, and computing-related issues, including developing effective business strategies. In particular, I have done extensive work on what is involved in designing, developing, and bringing to market state-of-the-art mobile devices and consumer electronics, including smartphones, tablets, wearables, and personal computers; building new business models; the challenges of harnessing state-of-the-art technologies; and supply chain management.
14. I have significant relevant experience serving as an expert consultant. I served as the U.S. Department of Justice’s (“DoJ”) industry expert in the 2011 antitrust investigation of the proposed AT&T and T-Mobile merger. In this role, I analyzed the impact of the proposed merger, in particular as it related to consumer choice and to the technology and economics of mobile networks and wireless services.

15. I also served as the DoJ's industry expert for its antitrust investigation into the proposed T-Mobile and Sprint merger, for a criminal trade secrets case against Chinese device vendor Huawei, and for the civil antitrust case against Google and for a number of other matters that are confidential.
16. I have served as an expert witness in numerous International Trade Commission ("ITC" or the "Commission") investigations related to the information and communications technology industry and public interest matters. A full list of those investigations is attached in my C.V.
17. My curriculum vitae, provided as Appendix A to this report, includes additional details about my education, professional background, and prior testifying experience.

II. SUMMARY OF OPINIONS

18. There is no nexus between the commercial performance of Ouraring Inc. ("Oura") and any **features** or **characteristics** of the product that embody the claims of the '178 Patent.
19. The enabling technologies were well known and widely used in other wearable devices, and are unremarkable and not inventive.
20. The products' features or characteristics that are purported to embody the claims **do not differentiate the products** and do not **determine its commercial performance or success**.

21. Conversely, the features and characteristics that Oura emphasizes about its products – which influence customers’ purchase decisions – are **not** claimed in these patents. In fact, there is no evidence that the market had any significant awareness of the patented technologies, or that it placed significant value on them.
22. The commercial performance of Oura is not a significant commercial success for several reasons:
 - 1) Oura’s growth is restricted to a product category that has limited use cases
 - 2) Oura is a miniscule part of the current wearables market
 - 3) The cumulative shipments of Oura’s products are miniscule compared to those of other wearables
 - 4) Oura benefited from serendipitous timing of its market entry
 - 5) Oura’s sales of Gen 3 and Gen 4 rings are not impressive
 - 6) Oura’s subscriptions are falling off despite the subscriptions being critical to the functionality of Oura’s products
 - 7) The Oura Ring’s current commercial performance only reflects the growth of the overall wearables market
 - 8) Samsung’s entry into the market says nothing about Oura’s commercial success

23. At this time, and based on my review of the '178 and '702 Patents, and the materials cited herein, the secondary considerations do not demonstrate the invention was non-obvious.
24. Specifically, Oura's invention does not meet the objective indicia of non-obviousness:
- 1) The technologies were **well known and not inventive**
 - 2) The plaintiff's invention **did not contribute to commercial success**
 - 3) The plaintiff's invention **did not fill a long-felt, but unresolved need**
 - 4) There was **no demonstrated failure by others** to achieve the plaintiff's invention
 - 5) The plaintiff's invention **was not praised by others** in the field
 - 6) The plaintiff's invention **was not copied by others**

III. SECONDARY INDICIA OF NON-OBVIOUSNESS

A. Overview

25. The Patent Owner's Response asserts that "Oura Ring is a commercial embodiment of the '178 Patent and coextensive with challenged claims."³

³ Ex-2031 ("Patent Owner Response"), p. 88

26. As explained below there is, however, no nexus between Oura's commercial performance and any features or characteristics of Oura Ring's products that are purported to embody the claims of the '178 Patent.
27. The technologies that made the Oura Ring possible were well known and already widely used in other wearable devices.
28. The features or characteristics purportedly covered by the '178 Patent (i.e., those related to the overall form factor of the wearable device, optical sensors required light to shine on them in order to function, wireless charging, communication modules communicatively coupled with one or more processors, curved batteries, and PCBs and batteries encased in a cavity) had no bearing on the commercial performance of Oura's Ring products. They were not novel generally and were practiced by other vendors of smart rings prior to the launch of Oura Ring Gen 3 and Oura Ring Gen 4. Moreover, these features and characteristics related to ring construction were **not required** to differentiate Oura ring from other rings in ways that drove consumer choice.
29. In fact, there is no evidence that the market knew or even cared about such things as transmitting light through windows in transparent epoxy or curved batteries, or that it placed significant value on these purported embodiments of the '178 Patent.

30. Oura's commercial performance, which in itself was not a significant success, was primarily due to the serendipitous timing of its entrance into this small market niche, and its access to resources through venture funding.

31. Overall, the evidence shows that the Oura Ring is an obvious, incremental innovation, which does not reflect the patent; indeed Oura had already designed its product before the '178 Patent's filing date.

B. The patented technologies were well known and widely used in wearables prior to the '178 Patent priority date, and are unremarkable and not inventive

1. Ring construction was well known at the time of the '178 Patent priority date

32. Ring construction concepts were well known at the time of the '178 Patent priority date.

33. Limitation 1[a] describes an external housing component of a wearable ring device:

An external housing component defining an outer circumferential surface of the finger-worn wearable ring device;⁴

⁴ Ex-1001 ("U.S. Patent No. 11,868,178") at limitation 1[a]

34. Limitation 1[b] describes wearable ring device with an internal and external housing component:

An internal housing component defining an inner circumferential surface of a finger-worn wearable ring device, the internal housing component coupled with the external housing component, wherein at least a portion of the inner circumferential surface of the internal housing component is configured to contact a tissue of a user when the finger-worn wearable ring devices is being worn by the user;⁵

35. The idea of finger-worn wearable rings was not novel at the time of the '178 Patent, in fact Immersion Corporation devised U.S. Patent No. 8,405,612 B2, published in January 2011, which discusses a wearable haptic ring that functions as a remote interface device capable of detecting inputs from movement.⁶

a. McLear NFC Ring

36. McLear was founded in 2012 and used the crowd-sourced funding platform Kickstarter to gain traction and funding for its first smart ring, the NFC Ring. The NFC ring featured a very simple design where a titanium band was inlaid with two NFC chips (one on the outside circumference and one on the inside circumference). The NFC inlays were sandwiched between an RFID reflective intermediate layer that prevented the ring's metal from absorbing the NFC chip's

⁵ U.S. Patent No. 11,868,178 at limitation 1[b]

⁶ U.S. Patent 8,405,612 B2

RFID signals and a clear RFID passive coating that enabled the NFC chip's RFID signals to be transmitted.



Figure 1 *McLear's NFC ring cross section showing the build-up for an NFC inlay. Notice the NFC inlay is sandwiched between an RFID reflective material and a clear RFID passive coating.*⁷



Figure 2 *McLear's initial NFC Ring, launched in 2013. Notice the NFC portion, which is signified by the colored (black, grey, or white) portion of the ring*⁸

37. This design enabled the NFC Ring to transmit unique identities (“UIDs”) via RFID signals when in range of an NFC reader. The rings

⁷ Ex-1140 (McLear, John. “NFC Ring - One Smart Ring, Unlimited Possibilities.” Kickstarter. July 20, 2013. <https://www.kickstarter.com/projects/mclear/nfc-ring>.)

⁸ Ex-1140 (McLear, John. “NFC Ring - One Smart Ring, Unlimited Possibilities.” Kickstarter. July 20, 2013. <https://www.kickstarter.com/projects/mclear/nfc-ring>.)

were used to open NFC enabled locks on doors or smartphones and could be programmed to work as a key fob.

38. By the priority date of the '178 Patent, McLear's NFC Ring (2013) had already entered the market and practiced limitation 1[a] which describes the "outer circumferential surface" of a finger-worn wearable device as shown in the image below:⁹



Figure 3 *McLear NFC Ring*¹⁰

39. One of ordinary skill in the art would have understood that the cross section of the McLear NFC ring practiced limitation 1[b], which states, "an internal housing component defining an inner circumferential surface of a finger-worn wearable ring device, the internal housing component coupled with the external housing component, wherein at least a portion of the inner circumferential surface of the internal housing component is configured to contact a tissue of a user when the finger-worn wearable ring device is being

⁹ See section E.4.b.c.d below for several examples.

¹⁰ Ex-1140 (McLear, John. "NFC Ring - One Smart Ring, Unlimited Possibilities." Kickstarter. July 20, 2013. <https://www.kickstarter.com/projects/mclear/nfc-ring>.)

worn by the user;” as the McLear NFC ring has an inlay with an internal component and an external housing component. While the inlay in the McLear NFC ring does not go around the entire circumference of the ring, one of ordinary skill in the art could have extended the concept to cover the entire circumference of the ring. One of ordinary skill in the art would have also understood that the inner portion of the McLear NFC ring contacts the tissue of the finger that it is placed on.

40. McLear’s creator John McLear was keen on democratizing innovation, using Kickstarter to raise funds in July 2013 and even put the Computer-aided design (“CAD”) files for the ring on the Kickstarter campaign page so people could hack the design and 3D print the ring for themselves.¹¹

2. It was well known that sensors could be electrically coupled with the printed circuit board and the battery and configured to acquire data from the user at the time of the ’178 Patent priority date

41. It was well known that sensors could be electrically coupled with the printed circuit board and the battery and configured to acquire data from the user at the time of the ’178 Patent priority date.
42. There is one claim limitation of the ’178 Patent that focuses on sensors.

¹¹ Ex-1324 (McLear, John. “After a year of hard work my Kickstarter is live!” John McLear. July 20, 2013. <https://mclear.co.uk/tag/clothing/>.)

43. Limitation 1[e] discusses the configuration of sensors:

One or more sensors electrically coupled with the printed circuit board and the battery and configured to acquire data from the user through the internal housing component¹²

44. Optical sensors utilizing reflection photoplethysmography (“PPG”), a non-invasive technique dating back to the 1930s, were a well-established technology for measuring heart rate prior to invention.¹³ The creation of a PPG waveform requires two key components: a light source (typically an LED) and a photodetector.¹⁴ By emitting light and then receiving back the reflected wave, PPG technology can measure the volumetric variations of blood circulation, data which can be used to approximate heart rate.¹⁵
45. Because the two components of PPG as a technology work by emitting and then detecting the reflection of a light, use of PPG technology necessarily involves a photo detective sensor.¹⁶

¹² U.S. Patent No. 11,868,178, claim limitation 1[e]

¹³ Ex-1091 (Lee, Jihyoung, Kenta Matsumura, Ken-ichi Yamakoshi, & Peter Rolfe. “Comparison between red, green and blue light reflection photoplethysmography for heart rate monitoring during motion.” Conference Proceedings: Annual International Conference of the IEEE Engineering in Medicine and Biology Society 2013. July 1, 2013. https://www.researchgate.net/publication/257601230_Comparison_between_red_green_and_blue_light_reflection_photoplethysmography_for_heart_rate_monitoring_during_motion.)

¹⁴ Ex-1092 (De Ridder, Benjamin, Bart Van Rompaey, Jarl K Kampen, Steven Haine, & Tinne Dilles. “Smartphone Apps Using Photoplethysmography for Heart Rate Monitoring: Meta-Analysis.” JMIR Cardio. February 27, 2018. <https://pmc.ncbi.nlm.nih.gov/articles/PMC6834218/>.)

¹⁵ Ex-1093 (Castaneda, Denisse, Aibhlin Esparza, Mohammad Ghamari, Cinna Soltanpur, & Homer Nazeran. “A review on wearable photoplethysmography sensors and their potential future applications in health care.” National Library of Medicine. August 6, 2018. <https://pmc.ncbi.nlm.nih.gov/articles/PMC6426305/>.)

¹⁶ Ex-1094 (Marston, William. “Photoelectric Plethysmography.” ScienceDirect. July 1, 2025. <https://www.sciencedirect.com/topics/medicine-and-dentistry/photoelectric-plethysmography>.)

46. By 2013, PPG was explicitly recognized as popular for the specific purpose of use in wearable, at-home devices for heart rate monitoring.¹⁷
47. The PPG technology employed in smart watches was widely recognized as the technology of choice for wearable devices before and during the time of invention, and PPG technology definitionally involves light being shone on an optical sensor.
48. Optical sensors utilizing reflection PPG were a well-established technology for measuring heart rate prior to the filing of the '178 Patent.¹⁸

a. Mio Alpha

49. Mio Alpha was a wearable that incorporated sensors that were electrically coupled with the printed circuit board and the battery and configured to acquire data from the user and existed prior to the priority date of the '178 Patent.

¹⁷ Ex-1091 (Lee, Jihyoung, Kenta Matsumura, Ken-ichi Yamakoshi, & Peter Rolfe. "Comparison between red, green and blue light reflection photoplethysmography for heart rate monitoring during motion." Conference Proceedings: Annual International Conference of the IEEE Engineering in Medicine and Biology Society 2013. July 1, 2013.
https://www.researchgate.net/publication/257601230_Comparison_between_red_green_and_blue_light_reflection_photoplethysmography_for_heart_rate_monitoring_during_motion.)

¹⁸ Ex-1091 (Lee, Jihyoung, Kenta Matsumura, Ken-ichi Yamakoshi, & Peter Rolfe. "Comparison between red, green and blue light reflection photoplethysmography for heart rate monitoring during motion." Conference Proceedings: Annual International Conference of the IEEE Engineering in Medicine and Biology Society 2013. July 1, 2013.
https://www.researchgate.net/publication/257601230_Comparison_between_red_green_and_blue_light_reflection_photoplethysmography_for_heart_rate_monitoring_during_motion.)

50. Mio Global launched the Mio Alpha, a heart-rate monitor wristwatch that used Bluetooth wireless to connect with compatible smartphones, in December 2012.¹⁹



Figure 4 *Alpha Mio heart-rate monitor wristwatch*²⁰



Figure 5 *Mio Alpha with the optical sensor lit up*^{21 22}

51. Specifically, the Mio Alpha practices the limitation 1[e], which states, “one or more sensors electrically coupled with the printed circuit

¹⁹ Ex-1097 (Takahashi, Dean. “Precise heart-rate monitor wristwatch Mio Alpha debuts today.” VentureBeat. December 3, 2012. <https://venturebeat.com/business/precise-heart-rate-monitor-wristwatch-mio-alpha-debuts-today/>.)

²⁰ Ex-1098 (Dickinson, Liz. “ALPHA - the Holy Grail of Heart Rate (Look Ma, no hands!).” Kickstarter. June 25, 2012. <https://www.kickstarter.com/projects/alphaheartrate/alpha-the-holy-grail-of-heart-rate-look-ma-no-hand/description>.)

²¹ Ex-1099 (Wearables. “Mio Alpha.” Wearables.com. July 1, 2025. <https://wearables.com/products/mio-alpha>.)

²² Ex-1100 (Mio. “ALPHA: Complete User Guide.” Physical Enterprises Inc. December 3, 2012. https://www.swimmershop.it/upload/MIO_Alpha_UserGuide_Eng.pdf.)

board and the battery and configured to acquire data from the user through the internal housing component.” This can be seen by looking at the language in the user manual for and press descriptions of the Mio Alpha:

To measure heart rate, the Alpha shines a green light that’s reflected off the capillaries in the top of your wrist. The watch then monitors how much light is reflected back to pull a reading.²³

The Mio Alpha uses electro-optical technology to sense the heartbeat.²⁴

The Mio Alpha uses two light beams and an electro-optical cell to ‘sense’ the volume of blood under your skin.

“Because the blood volume pulsates in the rhythm of the heart, so does the signal from the electro-optical cell,” the company said in its Kickstarter campaign. “This signal is processed by an advanced electronics circuit and passed on to a highly specialized computer program that is embedded in the Alpha.”²⁵

52. One of ordinary skill in the art would have understood that the electro-optical cell was a sensor. Additionally, since the electro-optical cell’s signal was processed by an advanced electronics circuit, one of

²³ Ex-1101 (D’Orazio, Dante. “Mio Alpha is a less cumbersome heart rate watch for athletes.” The Verge. January 10, 2013. <https://www.theverge.com/2013/1/10/3863712/mio-alpha-heart-rate-watch-reads-pulse-with-a-green-light>.)

²⁴ Ex-1097 (Takahashi, Dean. “Precise heart-rate monitor wristwatch Mio Alpha debuts today.” VentureBeat. December 3, 2012. <https://venturebeat.com/business/precise-heart-rate-monitor-wristwatch-mio-alpha-debuts-today/>.)

²⁵ Ex-1097 (Takahashi, Dean. “Precise heart-rate monitor wristwatch Mio Alpha debuts today.” VentureBeat. December 3, 2012. <https://venturebeat.com/business/precise-heart-rate-monitor-wristwatch-mio-alpha-debuts-today/>.)

ordinary skill in the art would have understood it was electrically coupled with a printed circuit board.

53. Likewise, Mio Alpha practices the limitation 1[e], which states, “one or more sensors electrically coupled with the printed circuit board and the battery and configured to acquire data from the user through the internal housing component.” Given the above excerpts from press descriptions, one of ordinary skill in the art would have understood that the sensor acquired data from the user through the internal housing component since the sensor shines light from the top of the user’s wrist which was adjacent to the internal housing component of the Mio Alpha. One of ordinary art would have also understood that in addition to being electrically coupled to a PCB, the sensor would also need to be electrically coupled with a battery to provide it power.

b. U.S. Patent No. 7,728,438 B2

54. U.S. Patent No. 7,728,438 B2 described sensors that were electrically coupled to a PCB and battery and existed prior to the priority date of the ’178 Patent.
55. U.S. Patent No. 7,728,438 B2 titled “Optical semiconductor device and method of manufacturing the same” was published in June 2010 by Semiconductor Components Industries, LLC and discusses how to improve the moisture resistance of an optical semiconductor.
56. To the extent that Mio Alpha materials do not disclose the portion of limitation 1[e] that deal with the sensor being electrically coupled

with the printed circuit board, U.S. Patent No. 7,728,438 B2 titled “Optical semiconductor device and method of manufacturing the same,” which was published June 1, 2010, does:

An optical semiconductor device of the embodiment is configured to include an optical semiconductor element on a surface of which a circuit portion including a light-receiving or light-emitting element is formed; **a terminal portion which is provided on a back of the optical semiconductor element and electrically connected with the circuit portion;** a covering layer which covers the surface of the optical semiconductor element and is made of a transparent material²⁶

57. One of ordinary skill in the art would have understood from the disclosures of U.S. Patent No. 7,728,438 B2 that the sensor (optical semiconductor element) had a terminal portion that was electrically connected with a circuit portion.

c. Basis B1 Watch

58. The Basis B1 was a wearable that incorporated sensors that were electrically coupled with the printed circuit board and the battery and existed prior to the priority date of the '178 Patent.
59. The Basis B1 watch was released by Basis Science in early 2013 (March or earlier). It was a smartwatch equipped with an optical sensor to detect heart rate.

²⁶ Ex-1095 (Kameyama, Koujiro & Kiyoshi Mita. “U.S. Patent Application US 7,728,438 B2, 'Optical semiconductor device and method of manufacturing the same'.” United States Patent and Trademark Office. Filed September 29, 2006. <https://patentimages.storage.googleapis.com/e6/f7/c7/f31e1b8d0deeb2/US7728438.pdf>.) (“U.S. Patent No. 7,728,438 B2”) at abstract.



Figure 6 *Basis B1 smartwatch from Basis Science was equipped with an optical heart rate sensor*²⁷

60. Basis B1 watch much like the Mio Alpha practiced patent '178 limitations 1[e] as:

Perhaps the most interesting part of the Basis B1 watch is its ability to measure heart rate optically... This is accomplished by measuring changes in blood flow within your capillaries. In doing so it's measuring the reflection of light emitted by the green sensor.²⁸

On the bottom of the device are six stud-shaped sensors and two green LED lights. The Basis use these to measure your heart rate by estimating blood flow through your skin.²⁹

²⁷ Ex-1102 (Bolestsis, Costas, Simon McCallum, & Brynjar F. Landmark. "The Use of Smartwatches for Health Monitoring in Home-Based Dementia Care." Lecture Notes in Computer Science. July 1, 2015. https://www.researchgate.net/publication/280946621_The_Use_of_Smartwatches_for_Health_Monitoring_in_Home-Based_Dementia_Care.)

²⁸ Ex-1103 (Biggs, John. "The Basis B1 Fitness Band Is Amazing But Still Needs Polish." TechCrunch. March 18, 2013. <https://techcrunch.com/2013/03/18/the-basis-b1-fitness-band-is-amazing-but-still-needs-polish/>.)

²⁹ Ex-1325 (Bennett, Brian. "Basis Science Basis B1 Band review: 24-7 fitness watch isn't small but motivates well." CNet. June 11, 2013. <https://www.cnet.com/reviews/basis-band-review/>.)

On the left edge of the watch are four metal contacts. They connect to the Basis Band's wired charging cradle, which in turn plugs into USB ports. The folks at Basis Science claim the watch's lithium polymer battery can run the Band for four days straight between charges.³⁰

61. One of ordinary skill in the art would recognize that the sensors within the Basis B1 would be electrically coupled with a PCB and battery in order to measure heart rate optically as a matter of routine. One of ordinary skill in the art would have understood the light emitting/receiving components would need to be electrically coupled with a PCB as a matter of routine.

d. Scosche RHYTHM

62. The Scosche RHYTHM was a wearable that incorporated sensors that were electrically coupled to a PCB and battery and existed prior to the priority date of the '178 Patent.
63. Scosche, a company known for making iPhone accessories, launched the Scosche RHYTHM smart armband that measured pulse using a combination of two alternating LEDs and an optical sensor in September 2013.³¹ The Scosche RHYTHM was capable of working with iPhone and Android smartphones via Bluetooth.

³⁰ Ex-1325 (Bennett, Brian. "Basis Science Basis B1 Band review: 24-7 fitness watch isn't small but motivates well." CNet. June 11, 2013. <https://www.cnet.com/reviews/basis-band-review/>.)

³¹ Ex-1104 (Weiss, C. C. "Scosche RHYTHM simplifies fitness monitoring." New Atlas. October 16, 2012. <https://newatlas.com/scosche-rhythm-fitness-monitor/24569/>.)

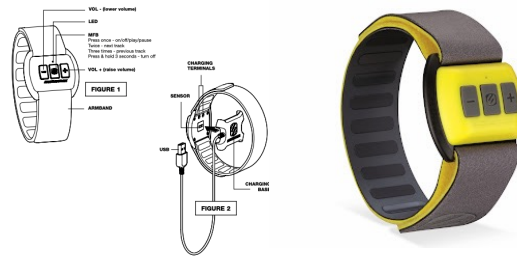


Figure 7 *Scosche RHYTHM smart armband used an optical sensor to measure pulse*³²

64. Scosche RHYTHM smart pulse monitor, much like the Mio Alpha and Basis B1, practiced patent '178 limitation 1[e] as:

Scosche RHYTHM armband detects blood movement by shining light onto the skin and measuring the amount of light that is absorbed by the skin.³³

The RHYTHM straps around an arm and measures a pulse using a combination of two alternating LEDs and a photo sensor.³⁴

65. One of ordinary skill in the art would recognize that sensor within the RHYTHM would need to be electrical coupled with a PCB and a battery in order to detect blood movement as a matter of routine.

³² Ex-1104 (Weiss, C. C. "Scosche RHYTHM simplifies fitness monitoring." New Atlas. October 16, 2012. <https://newatlas.com/scosche-rhythm-fitness-monitor/24569/>); Ex-1105 (Scosche. "User Guide." RHYTHM: WIRELESS PULSE MONITOR. October 18, 2012. https://www.scosche.com/media/wysiwyg/PDFs/RTHM_web_ENGLISH.pdf.)

³³ Ex-1105 (Scosche. "User Guide." RHYTHM: WIRELESS PULSE MONITOR. October 18, 2012. https://www.scosche.com/media/wysiwyg/PDFs/RTHM_web_ENGLISH.pdf.)

³⁴ Ex-1104 (Weiss, C. C. "Scosche RHYTHM simplifies fitness monitoring." New Atlas. October 16, 2012. <https://newatlas.com/scosche-rhythm-fitness-monitor/24569/>.)

3. Curved batteries were well known components of wearables at the time of the '178 Patent priority date

66. Curved batteries were well known components of consumer electronics such as wearables devices before the release of Oura's first product, and at the time of the '178 priority date.
67. There is one relevant claims of the '178 Patent related to the curved battery.
68. Claim 12 discusses the curved battery conforming to the arc of a cavity:

Wherein the battery comprises a curved battery, wherein the arc of the curved battery approximates a corresponding arc of the external housing component

69. A curved battery is a type of battery designed to conform to the curved shape of a device or surface. It differs from other batteries that are typically rectangular or cylindrical in shape.
70. Originally electronics used lithium ion cell batteries as a power storage medium after Sony incorporated them in its video cameras and notebooks in 1991.³⁵ The first mobile phone to use a lithium ion battery was Siemens S4 using two cylindrical lithium ion battery cells in the mid 1990s.³⁶ Soon after mobile phones began using prismatic

³⁵ Ex-1120 (Jauch. "White Paper: Introduction to Lithium Polymer Battery Technology." Jauch. November 1, 2018. https://www.jauch.com/downloadfile/5c5050fa5b6510e9a8ad76299baae4e53/white_paper_introduction_to_lipo_battery_technology_11-2018_en.pdf.)

³⁶ Ex-1120 (Jauch. "White Paper: Introduction to Lithium Polymer Battery Technology." Jauch. November 1, 2018. https://www.jauch.com/downloadfile/5c5050fa5b6510e9a8ad76299baae4e53/white_paper_introduction_to_lipo_battery_technology_11-2018_en.pdf.)

Li-ion cells from producers like Asahi, Toshiba, and Varta which had a fixed housing in stainless steel or aluminum.³⁷ In 1999, Ericsson was the first to use a flat lithium polymer (Li-po) cell in their TS28s to achieve a thinner form factor.³⁸ Lithium polymer batteries, also known as soft cells, feature a thin housing composed of deep-drawn aluminum foil, making them both thin and lightweight, while enabling them to be produced in a wide range of shapes and sizes.

a. U.S. Patent Application Publication No. 2011/0097615

71. U.S. Patent Application Publication No. 2011/0097615 was a patent application from LG Chem that described curved batteries prior to the '178 Patent priority date.
72. In 2009 LG Electronics filed a patent for a curved battery cell (U.S. Patent Application Publication No. 2011/0097615 titled "Battery Cell of Curved Shape and Battery Pack Employed with the Same").³⁹ This patent application disclosed the portions of claim 12 that deal with curved batteries: "wherein the battery comprises a curved battery,

³⁷ Ex-1120 (Jauch. "White Paper: Introduction to Lithium Polymer Battery Technology." Jauch. November 1, 2018. https://www.jauch.com/downloadfile/5c5050fa5b6510e9a8ad76299baae4e53/white_paper_introduction_to_lipo_battery_technology_11-2018_en.pdf.)

³⁸ Ex-1120 (Jauch. "White Paper: Introduction to Lithium Polymer Battery Technology." Jauch. November 1, 2018. https://www.jauch.com/downloadfile/5c5050fa5b6510e9a8ad76299baae4e53/white_paper_introduction_to_lipo_battery_technology_11-2018_en.pdf.)

³⁹ Ex-1121 (LG Electronics. "Battery Cell of Curved Shape and Battery Pack Employed With The Same." Justia. March 10, 2009. <https://patents.justia.com/patent/20110097615>.)

wherein an arc of the curved battery approximates a corresponding arc of the external housing component.” The patent application discloses:

In accordance with one aspect of the present invention, the above and other objects can be accomplished by the provision of a battery cell configured such that an electrode assembly of a cathode/separator/anode stack structure is mounted in a changeable cell case in a state in which the electrode assembly is impregnated with an electrolyte, wherein the electrode assembly and the cell case are curved in the same direction on axial vertical sections thereof in a state in which opposite ends of the electrode assembly and opposite ends of the cell case are directed in the same direction about a middle part of the electrode assembly and a middle part of the cell case.

Consequently, when the battery cell according to the present invention, which is curved in the axial direction thereof, is mounted in an electronic device the external shape of which is curved or in an electronic device the external shape of which is flat but which is configured such that a battery mounting region thereof is curved, the tight contact between the battery cell and the electronic device is achieved, thereby maximizing space utilization and thus providing high efficiency. Also, it is possible to develop electronic devices having various designs satisfying liking of consumers.⁴⁰

73. One of ordinary skill in the art would have understood that LG Electronics patent application pertained to the curved battery of claim 12 as the battery cell was curved to conform with the external curved shape. One of ordinary skill in the art would have understood that a finger-worn wearable ring device is a type of electronic device and

⁴⁰ Ex-1121 (LG Electronics. “Battery Cell of Curved Shape and Battery Pack Employed With The Same.” Justia. March 10, 2009. <https://patents.justia.com/patent/20110097615>.)

that the patent application envisioned a finger-worn wearable ring when it stated, “electronic devices having various designs satisfying liking of consumers.”

b. LG Chem curved batteries and LG G Flex

74. LG Chem produced curved batteries that were utilized in the LG G Flex smartphone prior to the '178 Patent priority date.
75. In October 2013, LG Chem, a lithium ion battery manufacturer based in Seoul, South Korea announced it had begun mass production of curved batteries, after having commenced manufacturing curved batteries in July 2013.⁴¹ These curved batteries were used to power the G2 and LG G Flex smartphone produced by LG Chem’s affiliate LG Electronics.⁴²

LG Chem developed the world’s first curved battery technology specifically for application in LG G Flex. The curved battery in the G Flex is designed with LG Chem’s patented Stack & Folding technology, which reduces the physical stress on the battery pack when in the curved form and provides better stability and performance. Despite its thin form, the LG G Flex battery has a capacity of 3,500 mAh, enough power for more than a full day of use.⁴³

⁴¹ Ex-1122 (Cohen, Nancy. “LG Chem turns to stepped, curve and cable batteries.” Phys.Org. October 9, 2013. <https://phys.org/news/2013-10-lg-chem-cable-batteries.html>.)

⁴² Ex-1122 (Cohen, Nancy. “LG Chem turns to stepped, curve and cable batteries.” Phys.Org. October 9, 2013. <https://phys.org/news/2013-10-lg-chem-cable-batteries.html>.); Ex-1123 (LG Electronics. “Press Release: LG Unveils World’s First “Real” Curved Smartphone.” LG. October 30, 2013. https://www.lg.com/levant_en/about-lg/press-and-media/lg-unveils-worlds-first-real-curved-smartphone.)

⁴³ Ex-1123 (LG Electronics. “Press Release: LG Unveils World’s First “Real” Curved Smartphone.” LG. October 30, 2013. https://www.lg.com/levant_en/about-lg/press-and-media/lg-unveils-worlds-first-real-curved-smartphone.)



Figure 8 *LG G Flex smart phone incorporating LG Chem's curved battery*⁴⁴

76. One of ordinary skill in the art would have understood that LG Chem's curved battery pertained to the curved battery of claim 12. They also would have understood that a curved battery mounted in an electronic device (smartphone) that is curved predicts the portion of claim 12 that states, "approximates a corresponding arc of the external housing component." One of ordinary skill in the art would also recognize that although the curved battery was applied to a smartphone in this example, it would be obvious to apply the known technique of housing a curved battery in the cavity between an internal and external housing to a smart ring to achieve predictable results.

⁴⁴ Ex-1124 (Pierce, David. "LG G Flex Review." The Verge via WayBack Machine. December 6, 2013. <https://web.archive.org/web/20250114175821/https://www.theverge.com/2013/12/6/5181536/lg-g-flex-review.>)

c. Samsung SDI U.S. Patent No. 8,053,104

77. Samsung SDI published U.S. Patent No. 8,053,104 for pouch type batteries, which could be curved, prior to the '178 Patent priority date.
78. Samsung SDI Co. Ltd. devised the invention disclosed in U.S. Patent No. 8,053,104 B2, which was published in 2011 and describes a “[p]ouch type battery and method of making the same.” This patent disclosed the portions of claim 12 that deal with curved batteries: “wherein the battery comprises a curved battery, wherein an arc of the curved battery approximates a corresponding arc of the external housing component.” The patent discloses:

The pouch type battery may further include an electrode assembly disposed inside the pouch case in the recess, the electrode assembly including first and second electrodes with a separator interposed between the electrodes, the first electrode having a first electrode tab extending therefrom.

The pouch type battery may further include two flange portions that extend from upper and lower sides of the recess, the upper and lower sides being opposite to one another, wherein the flange portions may be bonded to the extending portions to form an upper seal and a lower seal, the electrode tabs may project from the electrode assembly through the upper seal so as to extend the outside pouch case, and the lower seal may be folded against a lower side of the recess.

The first seal may extend longitudinally along the front region and may be disposed substantially in a center of the front region. Sides of the recess may be curved. The pouch type battery may further include an electrode assembly disposed in the recess, wherein the curved sides of the recess may have a curvature that is substantially the same as a curvature of a corresponding outer surface of the electrode assembly.”⁴⁵

79. One of ordinary skill in the art would have understood that Samsung SDI’s patent pertained to the curved battery of claim 12. One of ordinary skill in the art would have understood that Samsung SDI’s patent could pertain to a curved battery for a finger-worn wearable ring device, as it would have been obvious to try the invention in a finger-worn wearable device.

d. Samsung SDI curved battery

80. Samsung SDI released a curved battery for wearables, utilizing the technology described in U.S. Patent No. 8,053,104, which was available prior to the ’178 Patent priority date.
81. Samsung SDI released a curved battery for wearables devices in April 2014.⁴⁶

⁴⁵ U.S. Patent No. 8,053,104 B2 at 3:5-27

⁴⁶ Ex-1125 (Sridhar, Srivatsan. “Samsung SDI introduces curved battery for wearable devices.” fonearena. April 15, 2014. <https://www.fonearena.com/blog/101236/samsung-sdi-introduces-curved-battery-for-wearable-devices.html>.)



Figure 9 *Samsung SDI's curved battery for wearables*⁴⁷

82. According to Samsung SDI, it was the first to apply the “V-bending” stacking technique to an ultra-small battery with a curved surface, allowing it to reduce the battery size while enlarging its capacity.⁴⁸ Samsung used its curved battery in the Samsung Gear Fit activity tracker launched at the Mobile World Congress in late February 2014.⁴⁹

⁴⁷ Ex-1126 (Sheetal. “Samsung SDI tends to invest more in batteries for wearable devices.” SammyFans. April 22, 2022. <https://www.sammyfans.com/2022/04/22/samsung-sdi-to-invest-more-in-batteries-for-wearable/>.)

⁴⁸ Ex-1127 (Samsung. “[Battery101] Innovation Creates Batteries for Wearables.” Samsung SDI Newsroom. August 09, 2024. <https://news.samsungsdi.com/global/articleView?seq=166>.); Ex-1128 (Kyung-Don, Joo. “Samsung SDI curved battery is tops.” Korea JoongAng Daily. April 15, 2014. <https://koreajoongangdaily.joins.com/2014/04/15/industry/Samsung-SDI-curved-battery-is-tops/2987967.html>.)

⁴⁹ Ex-1129 (Samsung. “Samsung Gear Fit Awarded “The Best Mobile Device” at the MWC 2014.” Samsung Newsroom. February 28, 2014. <https://news.samsung.com/global/samsung-gear-fit-awarded-the-best-mobile-device-at-the-mwc-2014>.)



Figure 10 *Samsung Gear Fit launched at Mobile World Congress in February 2014 featured Samsung SDI's curved battery*⁵⁰

⁵⁰ Ex-1130 (Summerson, Cameron. "[MWC 2014] Samsung Announces The Gear Fit, A Fitness Tracker Smartwatch Band Thingy." Android Police. February 24, 2014. <https://www.androidpolice.com/2014/02/24/mwn-2014-samsung-announces-the-gear-fit-a-fitness-tracker-smarwatch-band-thingy/>.)

83. One of ordinary skill in the art would have understood that Samsung SDI's curved battery pertained to the curved battery of claim 12. They also would have understood that the Samsung Gear Fit discloses a curved battery mounted in an electronic device (wearable) that is curved predicts "wherein an arc of the curved battery approximates a corresponding arc of the external housing component" from claim 12. While the Samsung SDI's curved battery and Samsung Gear Fit demonstrate that curved battery technology was possible and being used by Samsung long before Oura. Additionally, Samsung SDI's curved battery was applied to Samsung Gear Fit, one of ordinary skill in the art would have understood that it could easily also be applied to a finger-worn wearable ring device as it would be obvious to try and would achieve a predictable result.

4. PCBs and batteries were often encased in a cavity between an internal and external housing of a wearable at the time of the '178 Patent priority date

84. PCBs and batteries were often encased in a cavity between an internal and external housing of a wearable at the time of the '178 Patent priority date.
85. There are two relevant claim of the '178 Patent related to the cavity between the internal and external housing components encapsulating curved batteries and curved PCBs.

86. Limitation 1[c] discusses the integration of the curved battery within the cavity between the internal and external housing:

A battery positioned within a cavity formed between the internal housing component and the external housing component, wherein the battery comprises a shape and size configured to fit within the cavity between the outer circumferential surface of the external housing component and the inner circumferential surface of the internal housing component, and wherein the battery extends through at least a first portion of the cavity of the finger-worn wearable ring device;⁵¹

87. Limitation 1[d] discusses a PCB situated in a cavity between an internal and external housing:

a printed circuit board disposed between the internal housing component and the external housing component, wherein the printed circuit board extends through at least a second portion of the cavity of the finger-worn wearable ring device different from the first portion; and⁵²

a. Nike+ Fuel Band

88. Nike+ Fuel Band was a wearable whose PCBs and batteries were encased between an inner and outer housing and was available prior to the '178 Patent priority date.
89. The Nike+ Fuel Band was first shipped by Nike on February 22, 2013. The band was a wrist-worn activity tracker that came in 3 different sizes (small, medium, and large) and featured an interactive light

⁵¹ U.S. Patent No. 11,868,178 at limitation 1[c]

⁵² U.S. Patent No. 11,868,178 limitation 1[d]

display.⁵³ During the manufacturing of the Nike+ Fuel Band, an entire miniaturized 3-axis accelerometer, an ambient light sensor, two curved batteries, and an LED display were all embedded in a molten plastic known as Thermoplastic Elastomer (TPC).⁵⁴



Figure 11 *Nike+ Fuel Band Ice (right) reveals the inner workings of the tracker, notably a flexible PCB. Potential messages displayed on the Nike+ Fuel Band (left)*

90. The Nike+ Fuel Band practiced limitation 1[d], which states, “a printed circuit board disposed between the internal housing component and the external housing component.” This can be seen by

⁵³ Ex-1131 (Harden, Dan. “The Making of the Nike Fuelband.” Whipsaw. June 6, 2015. <https://www.whipsaw.com/latest/the-making-of-the-nike-fuelband>.)

⁵⁴ Ex-1131 (Harden, Dan. “The Making of the Nike Fuelband.” Whipsaw. June 6, 2015. <https://www.whipsaw.com/latest/the-making-of-the-nike-fuelband>.); Ex-1132 (Nike. “Nike+ Fuelband.” FCC ID Database. January 5, 2012. <https://fccid.io/QYUM411/User-Manual/user-manual-1630150.pdf>.)

looking at the language in the press description of the Nike+ Fuel Bands' manufacturing process:

Molding hot translucent rubber directly over all the electronics and display, leaving no air inside the device, was a crazy idea that worked. Creating a multi-step material lamination within a 7mm thickness that provided strength, bend-ability, and water resistance⁵⁵

91. Additionally, a teardown conducted by mikeselectric stuff on YouTube indicated that the Nike+ Fuel Band contained 2 curved li-po battery cells encased in polypropylene plastic cavities that were reinforced with a magnesium shell that could be accessed by unscrewing panels located on the inner housing.⁵⁶ One of ordinary skill in the art would have understood that these curved batteries practiced the claim 1[c]: “a battery positioned within a cavity formed between the internal housing component and the external housing component, wherein the battery comprises a shape and size configured to fit within the cavity between the outer circumferential surface of the external housing component and the internal circumferential surface of the internal housing component, and wherein the battery extends through at least a first portion of the cavity of the finger-worn wearable ring device.” Mikeselectric stuff indicates that the TPC

⁵⁵ Ex-1131 (Harden, Dan. “The Making of the Nike Fuelband.” Whipsaw. June 6, 2015. <https://www.whipsaw.com/latest/the-making-of-the-nike-fuelband>.)

⁵⁶ Ex-1132 (Nike. “Nike+ Fuelband.” FCC ID Database. January 5, 2012. <https://fccid.io/QYUM411/User-Manual/user-manual-1630150.pdf>.); Ex-1133 (mikeselectricstuff. “Nike+ Fuelband teardown.” YouTube. May 31, 2012. https://www.youtube.com/watch?v=7xdajSS_cOU.)

embedded PCB was a flexible PCB.⁵⁷ The fact that the PCB embedded in the translucent rubber was a flexible PCB was confirmed by another tear down as shown in the figure below.

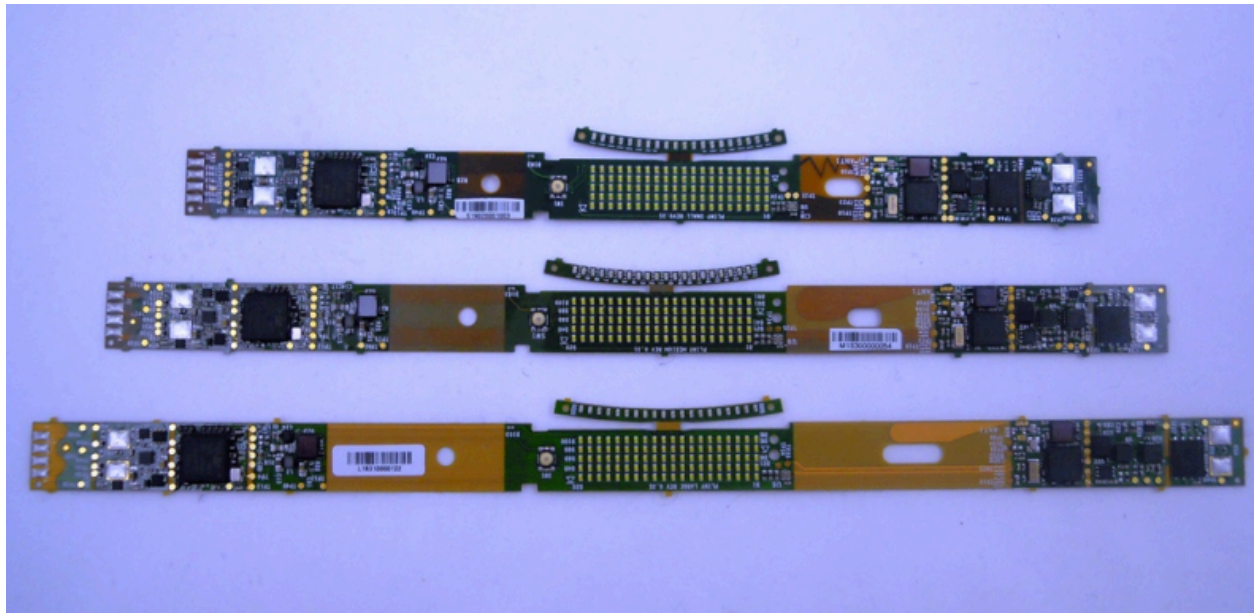


Figure 12 *The Nike+ Fuel Band flexible PCBs in small (top), medium (middle), and large (bottom) which was embedded in TPC during manufacturing.*⁵⁸

92. While the Nike+ Fuel Band’s flexible PCB was embedded in TPC rather than “disposed between the internal housing component and the external housing component” as embodied in the patent, one of ordinary skill in the art would have found it obvious to replace embedding a flexible PCB in TPC with encasing it in an internal and external housing component, as both define a cavity. Additionally, to

⁵⁷ Ex-1133 (mikeselectricstuff. “Nike+ Fuelband teardown.” YouTube. May 31, 2012. https://www.youtube.com/watch?v=7xdajSS_cOU.)

⁵⁸ Ex-1134 (“M411 Nike+ FuelBand Teardown Internal Photos Nike.” FCC ID Database. January 24, 2012. <https://fccid.io/QYUM411/Internal-Photos/internal-photos-1630135>.)

the extent that Nike+ Fuel Band applies to a wrist-worn wearable rather than a finger worn wearable, it could be combined with McLear's NFC Ring to practice the portion of limitation 1[d] that states "wherein the printed circuit board extends through at least a second portion of the cavity of the finger-worn wearable ring." One of ordinary skill in the art would have been motivated to combine McLear's NFC Ring's ring with the Nike+ Fuel Band to provide the predictable results of a finger-worn wearable ring with a printed circuit board that extends through at least a second portion of the cavity of the finger-worn wearable ring.

b. JP Patent No. 6,071,890: Wearable device assembly with athletic function

93. JP Patent No. 6,071,890 described PCBs and batteries encased between an inner and outer housing for Nike+ Fuel Band.
94. In 2011 Nike Innovate CV USA filed a patent application for JP Patent No. 6,071,890 titled "Wearable device assembly with athletic function." The patent did not publish until 2017; however, the Nike+ Fuel Band it specifies was already on the market by the 2013 priority date of the '178 Patent.

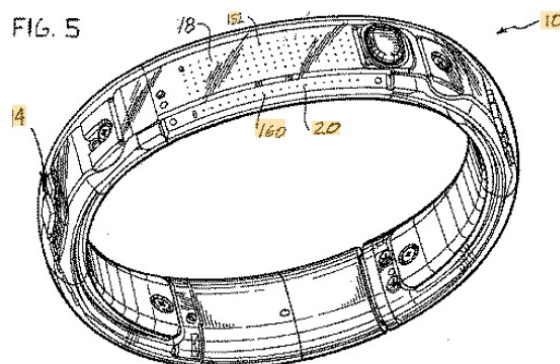


Figure 13 Nike+ Fuel Band from JP 6,071,890 B2 “Wearable device assembly with athletic function” notice the flexible PCB within the inner spine and the receiving recesses for the batteries toward the back of the device.⁵⁹

95. This patent discloses limitation 1[d], which states, “a printed circuit board disposed between the internal housing component and the external housing component.” This can be seen by looking at the language in the patent specification:

The apparatus according to claim 1, wherein the first light emitting member group is disposed on one side of the housing, and the second light emitting member group is disposed on the opposite side of the housing. The **housing has an inner spine member that supports** the controller, the display, and the sign system; The apparatus of claim 1, wherein the **housing further comprises an elastomeric member disposed around the inner spine member, the controller, the display, and the sign system.**

⁵⁹ Ex-1135 (アーロン ビー ウィースト, アーロン ビー ウィースト, ジャミアン アール コベット, & ジャミアン アール コベット. “JP 6,071,890 B2, 'Wearable device assembly with athletic function'.” Japan Patent Office. Filed November 1, 2011. <https://patents.google.com/patent/JP6071890B2/en>.) (“JP Patent No. 6,071,890 B2”)

A wearable device configured to be worn by a person.
A housing having a first end and a second end;
A controller supported by the housing and having a sensor;
A display supported by the housing;
A sign system supported by the housing;
... The sensor is operatively connected to the controller to
detect activity of the person;
The display is operatively connected to the controller;
The sign system is operatively connected to the controller and
illuminates to indicate the activity level of the person;

The housing has an inner spine member;
The inner spine member has at least one generally inflexible
portion and at least one flexible region;
The inflexible portion is pivotable about the flexible region;
The flexible region has a hollow shape, and the central
portion of the hollow shape is thinner than the remaining
portion of the hollow shape.

The apparatus of claim 1, wherein **the housing has a generally**
annular shape and is dimensioned to be worn on a user's
arm. The housing includes an inner spine member, and a
thermoplastic elastomer member disposed around the inner
spine member.

As described above, the **spine member 24 functions as a chassis member that supports various components of the device 10.** The spine member 24 may be omitted or combined with other components. The flexible PCB member may partially include a member having high rigidity. Other components can be attached to the flexible PCB member. In such a configuration, the spine member 24 is not used. **In configuring the apparatus, the interior of the exterior member can be formed by an injection molding process, and the flexible PCB member can be mounted in the interior.** The outer part of the remaining exterior member is formed so as to cover the PCB member.⁶⁰

96. One of ordinary skill in the art would have understood that the spine member forming a chassis or cavity inside of which the flexible PCB is placed embodies the “a printed circuit board disposed between the internal housing component and the external housing component” of limitation 1[d].
97. One of ordinary skill in the art would also have understood that the flexible PCB of JP Patent No. 6,071,890 B2 could “extend through at least a second portion of the cavity of the finger-worn wearable ring device different from the first portion” as described by limitation 1[d] by applying a known technique to a known device.
98. One of ordinary skill in the art would have understood that the spine member forming a chassis or cavity inside of which the flexible PCB is placed embodies the “a printed circuit board disposed between the

⁶⁰ JP Patent No. 6,071,890 B2

internal housing component and the external housing component” of limitation 1[d].

99. Additionally, to the extent that JP Patent No. 6,071,890 B2 applies to a wrist-worn wearable rather than a finger worn wearable, it could be combined with McLear’s NFC Ring to practice the portion of limitation 1[d] that states “wherein the printed circuit board extends through at least a second portion of the cavity of the finger-worn wearable ring.” One of ordinary skill in the art would have been motivated to combine McLear’s NFC Ring’s ring with JP Patent No. 6,071,890 B2 to provide the predictable results of a finger-worn wearable ring with a printed circuit board that extends through at least a second portion of the cavity of the finger-worn wearable ring
100. One of ordinary skill in the art would also recognize that JP Patent No. 6,071,890 B2 discloses limitation 1[c], which states, “a battery positioned within a cavity formed between the internal housing component and the external housing component, wherein the battery comprises a shape and size configured to fit within the cavity between the outer circumferential surface of the external housing component and the inner circumferential surface of the internal housing component, and wherein the battery extends through at least a first

portion of the cavity of the finger-worn wearable ring device,” as shown in the following excerpt:

apparatus according to claim 24, wherein the receiving recess comprises a metal housing. The first segment has a curved shape and defines a first accommodating recess. The second segment has a curved shape and defines a second receiving recess. The first accommodating recess is composed of a thixo-formed member and a first metal housing member, The thixo-shaped member receives **a first battery having a curved shape connected to the controller**, and the first metal housing member is arranged to cover the first battery,⁶¹

The apparatus of claim 1, wherein the controller comprises a battery disposed in the receiving recess and operably connected to the controller. The apparatus according to claim 24, wherein **the receiving recess comprises a metal housing. The first segment has a curved shape and defines a first accommodating recess. The second segment has a curved shape and defines a second receiving recess.**

The first accommodating recess is composed of a thixo-formed member and a first metal housing member, The thixo-shaped member receives a first battery having a curved shape connected to the controller, and the first metal housing member is arranged to cover the first battery, The second accommodating recess is composed of thixo-formed member and a second metal casing member, The thixo-shaped member receives a second battery having a curved shape connected to the controller, and the second metal housing member is arranged to cover the second battery.⁶²

⁶¹ JP Patent No. 6,071,890 B2

⁶² JP Patent No. 6,071,890 B2

101. One of ordinary skill in the art would have understood that while in JP Patent No. 6,071,890 B2 this receiving recess was in the first segment of the apparatus and has a curved shape which the battery conforms with.

c. U.S. Patent Application Publication No. 2012/0253485 A1

102. Nike, Inc. filed U.S. Patent Application Publication No. 2012/0253485 A1 entitled “Wearable Device Having Athletic Functionality” on October 2012.⁶³ In it, Nike described PCBs and batteries encased between an inner and outer housing for Nike+ Fuel Band.
103. U.S. Patent Application Publication No. 2012/0253485 A1 disclosed limitation 1[d], which states, “a printed circuit board disposed between the internal housing component and the external housing component, wherein the printed circuit board extends through at least a second portion of the cavity.” The language in the patent describes a flexible PCB being encased in a spine member:

⁶³ Ex-1327 (Weast, et al. [U.S. Patent Application Publication No. 2012/9253485 A1, Wearable Device Having Athletic Functionality.” United States Patent and Trademark Office. Filed November 1, 2011. <https://patentimages.storage.googleapis.com/ee/e7/fc/3bc746f8f4a601/US20120253485A1.pdf>.) (“U.S. Patent Application Publication No. 2012/9253485”)

Figure 14 shows a schematic view of the printed circuit board (PCB member) 140. In an exemplary embodiment, the PCB member 140 is a flexible circuit member. The PCB member has various regions or sections to support the various components thereon.... The PCB member also has flex regions 140b that will correspond in position to the flexible zones 46, 48 of the spine member 22.... As shown in FIGS. 15 and 16, the PCB member 140 is wrapped around and mounted to the spine member 22.... The PCB member 140 generally follows the contours of the spine member 22 including the contours of the flexible zones 46,48.⁶⁴

⁶⁴ U.S. Patent Application Publication No. 2012/0258485 A1 at 7

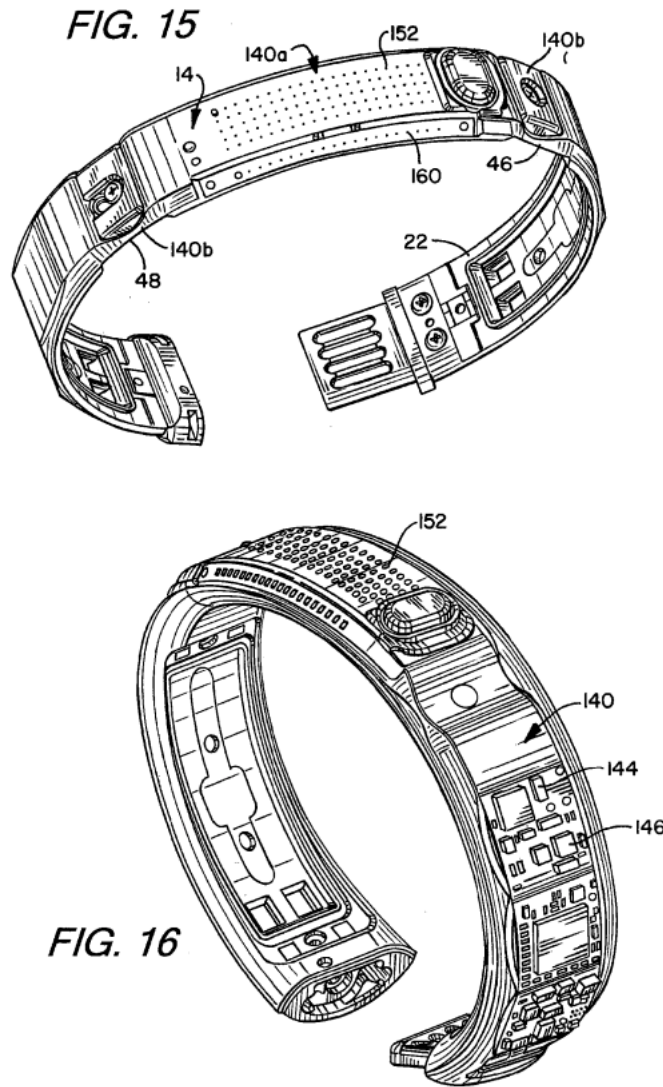


Figure 14 Figure 15 and 16 of patent US 2012/0253485 A1 illustrating a flexible PCB within a spine member.⁶⁵

104. One of ordinary skill in the art would have appreciated that the PCB was flexible and disposed in an annulus that was the spine member and extends through the 2nd portion of the cavity.

⁶⁵ U.S. Patent Application Publication No. 2012/0253485 A1 at Figure 15 and 16

105. To the extent that the annulus created by the spine member does not practice limitation 1[d] (“a printed circuit board disposed between the internal housing component and the external housing component”), one of ordinary skill in the art would have seen the following excerpt of the patent related to the battery and extended it to the PCB:

It is understood that a single battery 142 could be utilized in the design... In an exemplary embodiment, however, the power supply 142 utilizes a pair of batteries 142. **As can be appreciated from FIGs. 6 and 20, the batteries 142 have a curvilinear or curved configuration and are generally rigid members. The batteries 142 define curved planar surfaces.** In an exemplary embodiment, the device 10 utilizes the pair of batteries 142. **The first battery 142 is positioned in the first recessed compartment 50** of the spine member 22, and the second battery 142 is positioned in the second recessed compartment 52 of the spine member 22.⁶⁶

The inner surface 58 of the outer encasement member 24 has a first opening 68 and a second opening 70 proximate to the location of the power supplies supported by the spine member 22. **The first opening 68 is covered by a first cap 72 or closure member secured over the first opening 68 by fasteners,** and the second opening 70 is covered by a second cap 74 or closure member secured over the second opening 70 by fasteners.⁶⁷

106. One of ordinary skill in the art would have understood the recessed compartment and the closure member are the external and internal housing components respectively. And while these external and

⁶⁶ U.S. Patent Application Publication No. 2012/0253485 A1 at pg. 6

⁶⁷ U.S. Patent Application Publication No. 2012/0253485 A1 at pg. 6

internal housing components were used for the battery, they could have just as easily been used to house the PCB.

107. Additionally, to the extent that U.S. Patent Application Publication No. 2012/0253485 A1 applies to a wrist-worn wearable rather than a finger worn wearable, it could be combined with McLear's NFC Ring to practice the portion of limitation 1[d] that states "wherein the printed circuit board extends through at least a second portion of the cavity of the finger-worn wearable ring." One of ordinary skill in the art would have been motivated to combine McLear's NFC Ring's ring with U.S. Patent Application Publication No. 2012/0253485 A1 to provide the predictable results of a finger-worn wearable ring with a printed circuit board that extends through at least a second portion of the cavity of the finger-worn wearable ring. One of ordinary skill in the art would have also understood that U.S. Patent Application Publication No. 2012/0253485 A1 also disclosed claim 12 with the above excerpts, as the battery was curved and approximates the arc of the external housing component.

d. McLear NFC Ring

108. McLear was founded in 2012 and used the crowd-sourced funding platform Kickstarter to gain traction and funding for its first smart ring, the NFC Ring. The NFC ring featured a very simple design where a titanium band was inlaid with two NFC chips (one on the outside circumference and one on the inside circumference). The NFC inlays were sandwiched between an RFID reflective intermediate

layer that prevented the ring's metal from absorbing the NFC chip's RFID signals and a clear RFID passive coating that enabled the NFC chip's RFID signals to be transmitted.



Figure 15 *McLear's NFC ring cross section showing the build-up for an NFC inlay. Notice the NFC inlay is sandwiched between an RFID reflective material and a clear RFID passive coating.*⁶⁸



Figure 16 *McLear's initial NFC Ring, launched in 2013. Notice the NFC portion, which is signified by the colored (black, grey, or white) portion of the ring*⁶⁹

109. This design enabled the NFC Ring to transmit unique identities (“UIDs”) via RFID signals when in range of an NFC reader. The rings

⁶⁸ Ex-1140 (McLear, John. “NFC Ring - One Smart Ring, Unlimited Possibilities.” Kickstarter. July 20, 2013. <https://www.kickstarter.com/projects/mclear/nfc-ring>.)

⁶⁹ Ex-1140 (McLear, John. “NFC Ring - One Smart Ring, Unlimited Possibilities.” Kickstarter. July 20, 2013. <https://www.kickstarter.com/projects/mclear/nfc-ring>.)

were used to open NFC enabled locks on doors or smartphones and could be programmed to work as a key fob.

110. One of ordinary skill in the art would have understood that McLear's NFC Ring practices limitation 1[d], which states, "a printed circuit board disposed between the internal housing component and the external housing component, wherein the printed circuit board extends through at least a second portion of the cavity of the finger-worn wearable ring device different from the first portion." McLear's NFC Ring features an NFC circuit sandwiched between a titanium/steel ring and a clear RFID passive coating. One of ordinary skill in the art would have understood the titanium/steel ring and the clear RFID passive coating represent the internal and external housing components of the ring respectively.
111. One of ordinary skill in the art would also have understood that while the recess only covered a portion of the NFC ring, it could be extended around its entire circumference. One of ordinary skill in the art would have also recognized that the printed circuit board extends through at least a second portion of the cavity of the finger-worn wearable device different from the first portion, since there was no inlay in first portion just titanium steel.

C. The features that are purported to embody the claims of the patents do not differentiate Oura's products and drive commercial success

1. Ring construction described in the '178 Patent was not novel and does not differentiate Oura's products as it had already been employed by other smart rings before Oura Gen 3's launch

112. Ring construction described in the '178 Patent was not novel and does not differentiate Oura's products as it had already been employed by other smart rings before Oura Gen 3's launch.

113. There are three relevant claims of the '178 Patent related to ring construction.

114. The preamble of claim 1 defines "a finger-worn wearable ring device."⁷⁰

115. Limitation 1[a] discusses a finger-worn wearable ring:

an external housing component defining an outer circumferential surface of the finger-worn wearable ring device⁷¹

⁷⁰ U.S. Patent No. 11,868,178 at preamble

⁷¹ U.S. Patent No. 11,868,178 at limitation 1[a]

116. Limitation 1[b] discusses an internal and external housing component of finger-worn wearable ring device:

An internal housing component defining an inner circumferential surface of a finger-worn wearable ring device, the internal housing component coupled with the external housing component, wherein at least a portion of the inner circumferential surface of the internal housing component is configured to contact a tissue of the user when the finger-worn wearable ring device is being worn by the user;⁷²

117. While Oura does not contend that the Oura Ring Gen 1 and Oura Ring Gen 2 Heritage and Balance practice these claims, the Gens. 1-3 clearly are a “finger-worn wearable device,” and have a portion of the “external housing component” that defines an “outer circumferential surface.”⁷³

⁷² U.S. Patent No. 11,868,178 at limitation 1[b]

⁷³ Dr. Mercier’s declaration does not claim that Oura Ring Gens 1 and 2 practice the claims in the ’178 patents. Ex-2018. The Oura Ring Gen 3 Horizon did have the wedding band form factor. Clarke deposition, 77:10 - 78:24

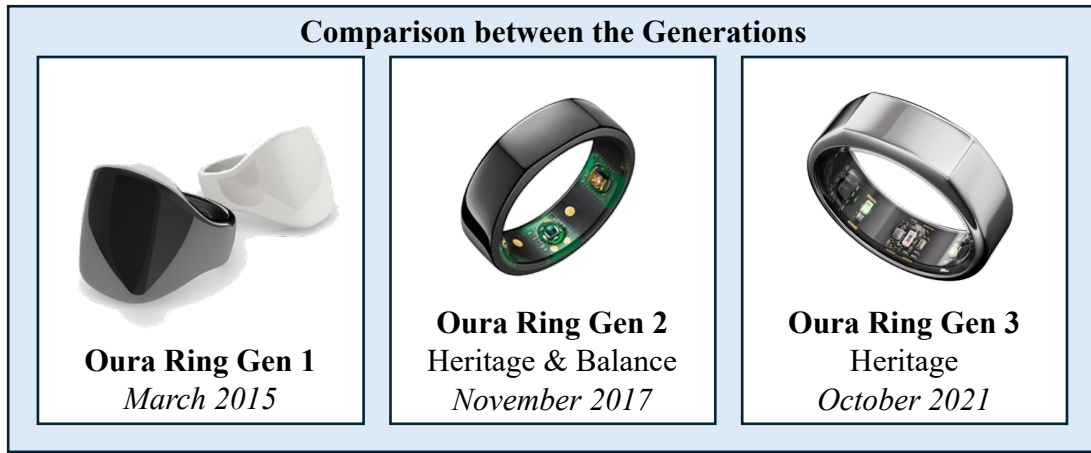


Figure 17 *Oura Ring Gen 1 (left)*⁷⁴, *Gen 2 (center)*,⁷⁵ and *Gen 3 Heritage (right)*⁷⁶

⁷⁴ Ex-1136 (OURA. “Previous Oura Ring Generations.” OURA. July 1, 2025. https://support.ouraring.com/hc/en-us/articles/360025570153-Previous-Oura-Ring-Generations#h_01H55VMQGE9BGRY7K7W22RG5B6.)

⁷⁵ Ex-1137 (Swappa. “Sell Oura Ring Gen 2.” Swappa. July 1, 2025. <https://swappa.com/sell/product/oura-ring-gen-2>.)

⁷⁶ Ex-1138 (OURA. “Product: Oura Gen 3 Heritage Black.” OURA. July 1, 2025. <https://ouraring.com/product/rings/oura-gen3/heritage/black>.)

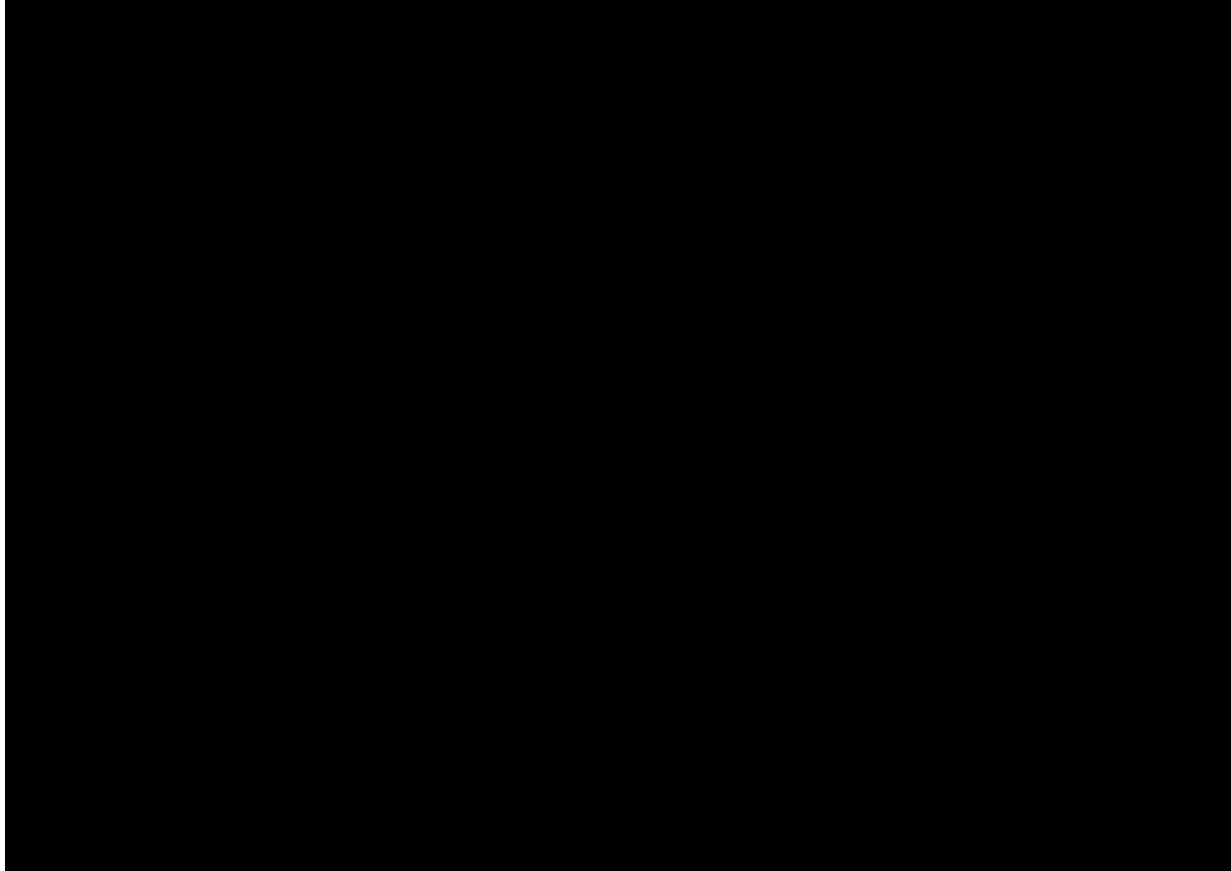


Figure 18 *Oura Ring Yearly and Cumulative Worldwide Unit Sales (December 2016-September 2022) prior to Oura Gen 3 Horizon launch*⁷⁷

118. Nevertheless, by the launch of Oura Gen 3 Horizon in September 2022, Oura had already sold [REDACTED] units despite the fact that Oura

⁷⁷ Ex-2019 (“Clarke declaration”), Appendix 6 (note: [REDACTED]
[REDACTED]

does not provide any analysis on whether Oura Ring Gen 1 and Gen 2 practice these claims or argument that they did so.⁷⁸

119. Despite not arguing that Oura Ring Gen 1 and Oura Ring Gen 2 Heritage and Balance practice limitation 1[a], Oura raised \$651,803 from 2,383 backers on Kickstart in August 2015.⁷⁹ In addition, it raised enough funds to achieve a valuation of \$800 million in April 2021 and \$2.5 billion, less than a year later, in April 2022.⁸⁰ This indicates that Oura's commercial performance cannot be attributed to intellectual property covered by the '178 Patent.
120. While the Patent Owner's Response does assert that the Oura Ring Gen 3 Horizon and Oura Ring Gen 4 do practice these claims, both products are not differentiated by the form factor; rather their commercial success derives from their functionality and software/AI algorithm as shown by the fact that Gen 1 and Gen 2 saw success without the form factor. Indeed the ring form factor is obvious for a "finger-worn" device.
121. Moreover, the form factor is not differentiated; other wearable rings have the same "outer circumferential surface."⁸¹ By the time of the

⁷⁸ Clarke declaration, Appendix 6 (note: [REDACTED])

⁷⁹ Ex-1139 (OURA. "OURA ring. Improve sleep. Perform better." Kickstarter. August 15, 2015. <https://www.kickstarter.com/projects/oura/oura-ring-improve-sleep-perform-better>.)

⁸⁰ Clarke declaration at EX-2084, EX-2085

⁸¹ See section E.4.b.c.d below for several examples.

release of Oura Ring Gen 1 in 2015, there were already two examples of commercial smart ring products that met these qualifications: McLear NFC Ring (2013) and Logbar (2014).

122. As shown below, both devices are wearable rings with an outer circumferential surface:



Figure 19 *McLear NFC Ring*⁸²



Figure 20 *Logbar ring*⁸³

⁸² Ex-1140 (McLear, John. “NFC Ring - One Smart Ring, Unlimited Possibilities.” Kickstarter. July 20, 2013. <https://www.kickstarter.com/projects/mclear/nfc-ring>.)

⁸³ Ex-1141 (Museum of Failure. “Logbar Ring.” Museum of Failure. March 16, 2024. <https://museumoffailure.com/exhibition/logbar-ring>.)

123. Following the release of Oura Ring Gen 1, The Touch launched its smart ring, HB Ring, in 2016. The HB Ring had a wedding ring form factor:



Figure 21 *HB Ring*⁸⁴

124. This ring helped establish the dominant design for a smart ring form factor prior to the release of the Oura Ring Gen 3. Thus Oura was not the first to adopt the “finger worn” device or the “external housing component defining an outer circumferential surface of the finger-worn wearable ring device” for its smart rings. Nor did the fact that Oura adopted these limitations differentiate it from its competition as the competition had also adopted these limitations.
125. Each of these products are a finger-worn wearable ring device with an external casing that houses internal components, thereby defining an “outer circumferential surface.”
126. Moreover, the HB Ring by The Touch practiced limitation 1[b], which states, “an internal housing component defining an inner circumferential surface of a finger-worn wearable ring device, the

⁸⁴ Ex-1142 (TheTouch X s.r.o. “HB Ring.” TheTouch via Wayback Machine. Accessed on May 6, 2025. <https://web.archive.org/web/20250506183725/https://my.thetouchx.com/>.)

2. Sensors were not novel and do not differentiate Oura's products as they had already been incorporated in other smart rings before the release of Oura Ring Gen 3

128. Sensors were not novel and do not differentiate Oura's products as they had already been incorporated in other smart rings before the release of Oura Ring Gen 3.
129. There is 1 claim limitation of the '178 Patent related to sensors.
130. Limitation 1[e] describes the use of sensors electrically coupled with a PCB and a battery:

One or more sensors electrically coupled with the printed circuit board and the battery and configured to acquire data from the user through the internal housing component⁸⁶

131. There is no evidence that Oura Ring Gen 1, Gen 2 Heritage and Balance, Gen 3 Heritage practice these claims as the Patent Owner's Response only describes them as relevant to Oura Ring Generation 3 Horizon and 4.⁸⁷
132. Prior to the release of the Oura Ring Heritage in October 2021 and Oura Ring Gen 3 Horizon in September 2022, the HB Ring by The Touch already embodied this limitation.
133. HB Ring practiced limitation 1[e], which states, "one or more sensors electrically coupled with the printed circuit board and the battery and

⁸⁶ U.S. Patent No. 11,868,178 at limitation 1[e]

⁸⁷ Patent Owner Response, p. 60

configured to acquire data from the user through the internal housing component.” According to the depiction of the HB Ring:

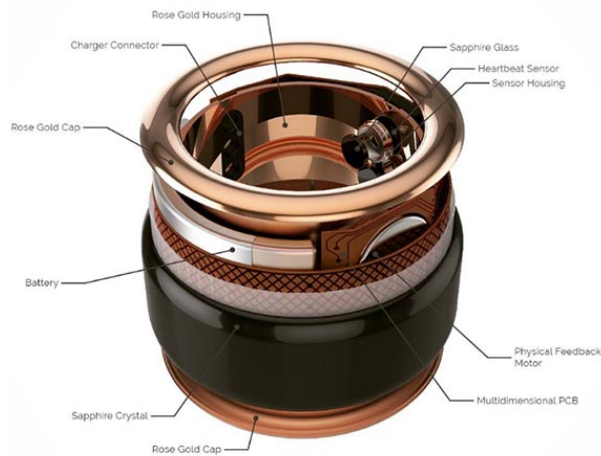


Figure 23 *HB Ring depiction*⁸⁸

134. The above depiction shows that the HB Ring contained a battery and a PCB within the internal and external housing components. One of ordinary skill in the art would have understood that in order for the sensor of the HB Ring to sense, it would have had to be coupled electrically with a printed circuit board and a battery.

⁸⁸ Ex-1143 (Urbanowicz Jewelers. “Latest in Wearable Tech: This Ring Lets You See and Feel Your Lover’s Heartbeat in Real Time.” Urbanowicz Jewelers Blog. September 6, 2016. <https://www.pittsburghdiamonds.com/urbanowicz-jewelers-blog/2016/Sep/06/latest-wearable-tech-ring-lets-you-see-and-feel-yo/>.)

3. Curved batteries were not novel and do not differentiate Oura's products as they were already available in other smart rings before the release of Oura Ring Gen 3

135. Curved batteries were not novel and do not differentiate Oura's products as they were already available in other smart rings before the release of Oura Ring Gen 3.

136. There is one relevant claim of the '178 Patent related to the curved battery.

137. Claim 12 discusses the curved battery conforming to the arc of a cavity:

Wherein the battery comprises a curved battery, wherein an arc of the curved battery approximates a corresponding arc of the external housing component⁸⁹

138. As shown in the figure below, Oura Ring Gen 1 did not have a curved battery.⁹⁰

⁸⁹ Patent Owner Response, p. 77

⁹⁰ Ex-1139 (OURA. "OURA ring. Improve sleep. Perform better." Kickstarter. August 15, 2015. <https://www.kickstarter.com/projects/oura/oura-ring-improve-sleep-perform-better>.)



Figure 24 *Oura Ring Gen 1 with straight battery*⁹¹

139. Once again, The Touch’s HB Ring preempted Oura Ring’s Gen 3 Horizon by incorporating a battery design that fits inside a wedding band form factor.⁹² The following description of HB Ring’s battery and its placement indicates it practices claim 12:

Below the sapphire crystal exterior lies a sophisticated array of sensors. A flexible light strip runs around the exterior of the ring, providing a unique uniform lighting strip, which was custom developed to give the closest visual representation of a heartbeat in a vein.

⁹¹ Ex-1139 (OURA. “OURA ring. Improve sleep. Perform better.” Kickstarter. August 15, 2015. <https://www.kickstarter.com/projects/oura/oura-ring-improve-sleep-perform-better>.)

⁹² Ex-1148 (Wiggers, Kyle. “The love of your life can hear your heartbeat in real time with smart wedding band.” digitaltrends. August 4, 2016. <https://www.digitaltrends.com/wearables/hb-ring-touch-wedding-band-smart-heartbeat/>.)

The next inner layer beneath the light strip contains a wrap-around lithium ion battery with enough juice to power the HB ring for over 160 hours of standby time, and 14 hours of active use. This layer also contains a multidimensional flex-rigid custom printed control board to operate the ring's sensors and Bluetooth communication array.⁹³

140. One of ordinary skill in the art would appreciate that HB Ring's battery is a "curved battery, wherein the arc of the curved battery approximates the corresponding arc of the external housing component" as the battery wraps around the ring and would need to approximate the arc of the external housing component.
141. Oura Rings are not differentiated by the embodiment of the relevant claims because HB Ring practiced these embodiments by 2016, years earlier than Oura Ring Gen 3.

4. PCBs and batteries encased in cavities were not novel and do not differentiate Oura's products as they had already been used in other smart rings before the release of the Oura Ring Gen 3

142. PCBs and batteries encased in cavities were not novel and do not differentiate Oura's products as they had already been used in other smart rings before the release of the Oura Ring Gen 3.
143. There are two relevant claims of the '178 Patent related to the cavity between the internal and external housing components and curved PCB and batteries.

⁹³ Ex-1144 (IPS Team. "HB Ring Review – Innovative Wedding Band To Feel Heartbeat Of Your Loved One?." Infinite Power Solutions. October 1, 2020. <https://www.infinitepowersolutions.com/hb-ring/>.)

144. Limitation 1[c] discusses the integration of the curved battery with other components:

A battery positioned within a cavity formed between the internal housing component and the external housing component, wherein the battery comprises a shape and size configured to fit within the cavity between the outer circumferential surface of the internal housing component and the inner circumferential surface of the internal housing component, and wherein the battery extends through at least a first portion of the cavity of the finger-worn wearable device;⁹⁴

145. Limitation 1[d] discusses a PCB situated in a cavity between an internal and external housing:

a printed circuit board disposed within a cavity defined by the external housing component and the internal housing component, wherein the printed circuit board is configured to conform to arc within the cavity⁹⁵

146. There is no evidence that Oura Ring Gen 1 or Gen 2 practice these claims as the Patent Owner's Response only describes them as relevant to Oura Ring Generations 3 and 4.
147. Prior to the release of the Oura Ring Gen 3 Heritage in October 2021 and Oura Ring Gen 3 Horizon in September 2022, the HB Ring by The Touch already encompassed limitation 1[c].
148. Once again, The Touch's HB Ring preempted Oura Ring's Gen 3 Horizon by incorporating a battery and PCB design that fits inside a

⁹⁴ U.S. Patent No. 11,868,178 limitation 1[c]

⁹⁵ Patent Owner Response, p. 68

wedding band form factor.⁹⁶ One of ordinary skill in the art would appreciate that HB Ring practices limitation 1[c], which states, “a battery positioned within a cavity formed between the internal housing component and the external housing component, wherein the battery comprises a shape and size configured to fit within the cavity between the outer circumferential surface of the external housing component and the inner circumferential surface of the internal housing component, and wherein the battery extends through at least a first portion of the cavity of the finger-worn wearable ring device.” The figures above comparing HB Ring to the ’178 Patent and the Oura Gen 3 Horizon depict this limitation. Additionally, the following description of HB ring indicates that HB Ring’s battery is situated between the internal and external housing:

The next inner layer beneath the light strip contains a wrap-around lithium ion battery with enough juice to power the HB ring for over 160 hours of standby time, and 14 hours of active use. This layer also contains a multidimensional flex-rigid custom printed control board to operate the ring’s sensors and Bluetooth communication array.⁹⁷

149. One of ordinary skill in the art would have understood this disclosure indicates HB Ring’s battery was situated between the internal and external housing of the finger-worn wearable device. Moreover, one

⁹⁶ Ex-1148 (Wiggers, Kyle. “The love of your life can hear your heartbeat in real time with smart wedding band.” digitaltrends. August 4, 2016. <https://www.digitaltrends.com/wearables/hb-ring-touch-wedding-band-smart-heartbeat/>.)

⁹⁷ Ex-1144 (IPS Team. “HB Ring Review – Innovative Wedding Band To Feel Heartbeat Of Your Loved One?.” Infinite Power Solutions. October 1, 2020. <https://www.infinitepowersolutions.com/hb-ring/>.)

of ordinary skill in the art would have understood HB Ring discloses Limitation 1[d] as it contains a “multi-dimensional flex-rigid custom PCB,” in the inner layer between an internal and external housing component, that conforms with the circumference of the ring, which one of ordinary skill of the art would have understood as “a printed circuit board disposed within a cavity defined by the external housing component and the internal housing component wherein the printed circuit board is configured to conform to the arc within the cavity.”

150. Oura Rings are not differentiated by the embodiment of the relevant claims because HB Ring practiced this embodiment by 2016, years earlier than Oura Ring Gen 3.

D. There is no evidence that the market was aware of the patented technologies, or evidence that it placed significant value on them

151. Overall, the marketing of Oura Ring devices has focused primarily on health tracking and health features delivered through Oura’s companion smartphone application. This marketing focus reflects that the primary value of Oura Rings is not their ring construction, but the insights shared through corresponding software.
152. At the time of Oura Ring’s Gen 1 release, its Kickstarter marketing focused heavily on the health and wellness features of its paired

application, indicating that the specific construction of the ring was less valuable to potential customers than its digital health features.⁹⁸

153. In a 2015 HuffPost interview, Petteri Lahtela, the CEO and co-founder of Oura, discussed the sleep monitoring and app features of Oura Ring, but did not mention any details about the hardware of the device itself other than to call it “ergonomic” and “high-end-technology.”⁹⁹ Another 2016 interview with Ben Greenfield, a health and wellness blogger, focused solely on questions about the sleep tracking capabilities of the Oura Ring.¹⁰⁰
154. This marketing trend of focusing exclusively on the digital health tracking features continued with the release of later Oura Ring generations. An affiliate article by Ben Greenfield in 2017 following the release of the Oura Ring Gen 2 primarily focuses on the new Oura app.¹⁰¹
155. Oura’s current marketing for the Oura Ring Gen 3 and 4 almost exclusively emphasizes membership features, application user

⁹⁸ Ex-1139 (OURA. “OURA ring. Improve sleep. Perform better.” Kickstarter. August 15, 2015. <https://www.kickstarter.com/projects/oura/oura-ring-improve-sleep-perform-better>.)

⁹⁹ Ex-1149 (Huffington, Arianna. “My Q and A With Petteri Lahtela, Whose OURA Ring Will Track Your Sleep.” HuffPost. August 19, 2015. https://www.huffpost.com/entry/my-q-and-a-with-petteri-l_b_8010488.)

¹⁰⁰ Ex-1150 (Ben Greenfield. “11 Crucial Health Questions & Mighty Self-Quantification Ring To Rule Them All: The Official Oura Ring Q&A.” BenGreenfieldLife. July 18, 2016. <https://bengreenfieldlife.com/article/self-quantification-articles/how-does-the-oura-ring-work/>.)

¹⁰¹ Ex-1151 (Ben Greenfield. “The New Oura Ring: Track Naps, Advanced HRV Tracking, Personalized Sleep Typing, Client Dashboard Feature & Much More!” BenGreenfieldLife. November 30, 2017. <https://bengreenfieldlife.com/article/self-quantification-articles/the-new-oura-ring/>.)

experience, and the accuracy of data measurement. Some rare mentions of hardware include the following:

Each Oura Ring is made from aerospace-grade titanium, one of the strongest materials on earth. Years of testing guarantee they're comfortable for everyone, crafted to perfection, and long-lasting.¹⁰²

Discreet sensors: Fully round interior with recessed sensors.¹⁰³

- 156. Far from being differentiators the sensors mentioned were available in another ring even prior to Oura Ring (in 2016 HB Ring had a fully round interior with recessed sensors).
- 157. Oura's website further emphasizes the Oura app, including accolades such as a 2023 Webby Award for "Best App, Health and Wellness."¹⁰⁴
- 158. Neither marketing materials nor consumer reviews demonstrate that Oura placed significant value on patented ring construction technology or that customers had significant awareness of it.

E. The commercial performance of Oura Ring is not a significant success

- 159. Oura has not been a significant success for several reasons: (1) Oura's growth is restricted to a product category that has limited use cases; (2) Oura is a miniscule part of the current wearables market; (3) the cumulative shipments of Oura's products are miniscule compared to those of other wearables; (4) Oura benefited from serendipitous

¹⁰² Ex-1152 (OURA. "Why Oura." OURA. July 1, 2025. <https://ouraring.com/why-oura>.)

¹⁰³ Ex-1153 (OURA. "Rings." OURA. July 1, 2025. <https://ouraring.com/product/rings>.)

¹⁰⁴ Ex-1152 (OURA. "Why Oura." OURA. July 1, 2025. <https://ouraring.com/why-oura>.)

timing, as other wearable companies developed the technology and created the market for wearables, and it benefited from limited competition as an early entrant in the smart ring market; (5) Oura's sales of Gen 3 and Gen 4 rings are not impressive; (6) Oura's subscriptions are falling off; (7) The Oura Ring's current commercial performance only reflects the normal pattern of adoption and diffusion of technology, not the novelty of its product; (8) Oura's subscriptions are falling off; and (9) Samsung's entry into the market says nothing about Oura's commercial success.

1. The value of wearable rings to track health, and in particular sleep, is restricted to a limited set of use cases and market segments

a. Oura Rings have limited capabilities

i. Sleep tracking

160. For people who need to assess their sleep patterns, the gold standard of sleep tracking occurs in a sleep lab using polysomnography (PSG). A 2019 paper evaluating the Oura Ring sleep tracker against PSG found significant discrepancies between PSG and Oura assessments.¹⁰⁵
161. A cardiologist assessing the paper's data concluded that "the Oura Ring is virtually useless in telling you if you are in REM sleep versus

¹⁰⁵ Ex-1154 (de Zambotti, Massimiliano, Leonardo Rosas, Ian M. Colrain, & Fiona C. Baker. "The Sleep of the Ring: Comparison of the ÖURA Sleep Tracker Against Polysomnography." National Library of Medicine. March 1, 2019. <https://pubmed.ncbi.nlm.nih.gov/28323455/>.)

deep or light sleep” and “Oura ring was also pretty useless at identifying when you are awake.”¹⁰⁶

162. The capabilities of the Oura Ring have since improved. A 2024 study found that the Oura Ring had the most accurate sleep tracker compared to the Apple Watch and Fitbit Sense 2. It was also similar to PSG in estimating sleep duration and had “moderate to substantial agreement with PSG-derived sleep stages.”¹⁰⁷

163. The one caveat to Oura’s improved capabilities is that since the Gen 3 models, its customers have to pay for a subscription to gain access to sleep and other data. Without the subscription, the device itself is not that useful.

ii. Some other health metrics

164. Oura Rings have limitations related to other health metrics. Athletes and health-conscious people who are very active are an important target market for fitness trackers, yet smart rings are often incapable of doing tasks they require. For example, runners, hikers, and cyclers need watches with screens that allow them to check pace, distance, heart rate zone, elapsed time, and even GPS maps without breaking

¹⁰⁶ Ex-1155 (Pearson, Anthony. “The Oura Ring For Personal Sleep Analysis: Lots of Hype and Data, Little Science, Utility or Accuracy.” The Skeptical Cardiologist. Accessed on July 6, 2025. <https://theskepticalcardiologist.com/2019/02/09/the-oura-ring-for-personal-sleep-analysis-lots-of-hype-and-data-little-science-utility-or-accuracy/>.)

¹⁰⁷ Ex-1156 (Robbins, Rebecca, Matthew D. Weaver, Jason P. Sullivan, Stuart F. Quan, Katherine Gilmore, Samantha Shaw, Abigail Benz, Salim Qadri, Laure K. Barger, Charles A. Czeisler, & Jeanne F. Duffy. “Accuracy of Three Commercial Wearable Devices for Sleep Tracking in Healthy Adults.” Sensors. August 7, 2024. <https://www.mdpi.com/1424-8220/24/20/6532>.)

stride or pulling out a phone. Weightlifters need watches because rings can obstruct the grip on a weight bar and also pinches the skin.¹⁰⁸ Swimmers who want to track laps, stroke rate, and swim distance in real-time cannot have a phone tucked into their swimsuits; they also find that smart rings tend to slip off in water.¹⁰⁹ These examples indicate that even within the market segment for fitness tracking, smart rings have limited use cases.

b. Oura Rings appeal to consumers who prefer comfortable, mobile sleep trackers

- 165. There are already many ways of tracking sleep, some of which involve wearable form factors and some of which do not.
- 166. Besides smart rings, other wearable form factors include wrist-worn devices such as smartwatches and fitness trackers, both of which preceded smart rings.

2. Wearable rings represent a tiny share of the overall wearables market

- 167. The most recent data available from International Data Corporation (“IDC”), a premier provider of market intelligence, shows that 880,000 smart rings were shipped in 2023, and that these shipments were expected to increase to 1.7 million in 2024.¹¹⁰ IDC forecasts that

¹⁰⁸ Ex-1157 (Ferguson, Abby. “As an athlete, I’m not a fan of smart rings. Here’s why.” Pocketlint. September 20, 2024. <https://www.pocket-lint.com/smart-rings-arent-for-athletes/>.)

¹⁰⁹ Ex-1157 (Ferguson, Abby. “As an athlete, I’m not a fan of smart rings. Here’s why.” Pocketlint. September 20, 2024. <https://www.pocket-lint.com/smart-rings-arent-for-athletes/>.)

¹¹⁰ Ex-1158 (Seitz, Patrick. “Health Tracking Is Moving To Smart Rings From Watches. Oura Leads Market.” Investor’s Business Daily. January 9, 2025. <https://www.investors.com/news/technology/smart-rings-proliferate-at->

the smart ring market will grow at a compound annual growth rate of 17% between 2024 and 2028, reaching 3.1 million shipments by 2028.¹¹¹

168. When considering all wearable devices (including earwear, smartwatches, wristbands, rings, glasses, and others), smart rings account for just 0.3 % of the overall expected wearables shipments in 2024.

ces-2025.) Note: IDC forecasted 2024 smart ring shipments to reach 1.7M units, however, Oura's 2024 calendar year unit sales exceeded 1.7 M. The fact that Oura Ring shipments exceeded IDC's 2024 smart ring shipment forecast is likely attributable to 3 factors none of which are ring construction: 1. Oura Ring's eligibility for HSA/FSA, 2. Oura ring's DOD contract which saw a rapid increase in Oura sales in September 2024, and 3. the lift from debuting Oura Ring 4 which offered increased accuracy. Given the fact that Oura reports its sales figures by fiscal year rather than calendar year, IDC's projections may have been based on a lower figure from Oura's own reporting.

¹¹¹ Ex-1158 (Seitz, Patrick. "Health Tracking Is Moving To Smart Rings From Watches. Oura Leads Market." Investor's Business Daily. January 9, 2025. <https://www.investors.com/news/technology/smart-rings-proliferate-at-ces-2025>.)

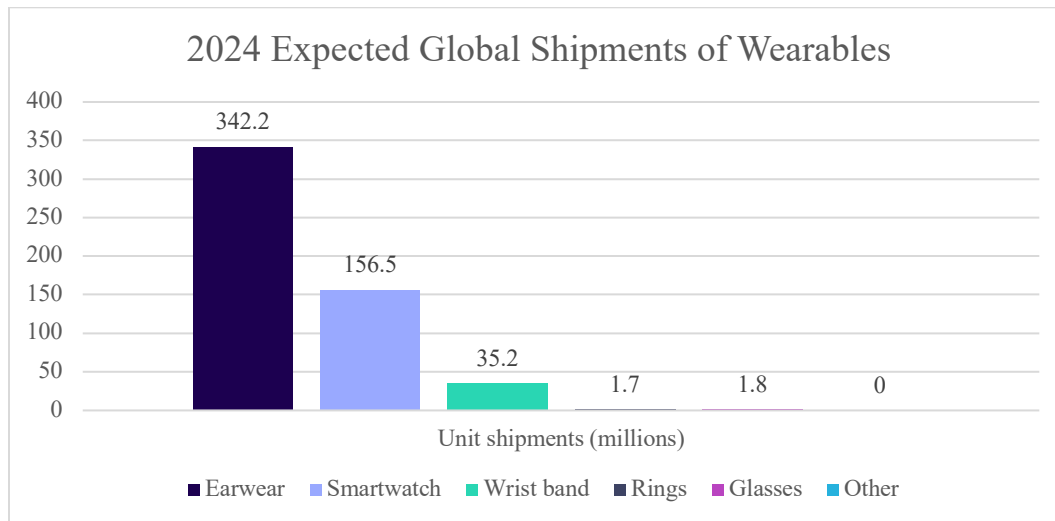


Figure 25 2024 expected global shipments of all wearables (total expected wearables shipments, 2024: 537.9 million) ¹¹²

169. While Oura contends that is a leading player within the smart ring market segment. Oura represents an exceedingly small percentage of the actual market of wearable devices. For example, in 2023, Oura accounted for 77.5% of the smart ring market according to IDC.¹¹³ ZDNET reported that Oura accounted for approximately 53% of smart

¹¹² Ex-1159 (Shirer, Michael, Jitesh Ubrani, & Lujyne Amro. “IDC Forecasts Continued Growth for Wearables But Growth Will Be Uneven Across Product Categories.” International Data Corporation. September 26, 2024. <https://my.idc.com/getdoc.jsp?containerId=prUS52615024>.)

¹¹³ [REDACTED] Ex-1158 (Seitz, Patrick. “Health Tracking Is Moving To Smart Rings From Watches. Oura Leads Market.” Investor’s Business Daily. January 9, 2025. <https://www.investors.com/news/technology/smart-rings-proliferate-at-ces-2025>.) Note: IDC forecasted 2024 smart ring shipments to reach 1.7M units, however, Oura’s 2024 calendar year unit sales exceeded 1.7 M. The fact that Oura Ring shipments exceeded IDC’s 2024 smart ring shipment forecast is likely attributable to 3 factors none of which are ring construction: 1. Oura Ring’s eligibility for HSA/FSA, 2. Oura ring’s DOD contract which saw a rapid increase in Oura sales in September 2024, and 3. the lift from debuting Oura Ring 4 which offered increased accuracy. Given the fact that Oura reports its sales figures by fiscal year rather than calendar year, IDC’s projections may have been based on a lower figure from Oura’s own reporting.

ring market segment as of February 2024.¹¹⁴ By end of 2024, CCS Insights estimated Oura's market to be approximately 49% of the smart ring market segment.¹¹⁵ When considering 49% of 0.3%, it becomes clear that Oura represents an exceedingly small percentage of the overall wearables market (0.14%). Moreover, instead of gaining share within the smart ring market, Oura appears to have lost 28.5% market share between 2023 and 2024.¹¹⁶

170. Oura's yearly and cumulative unit sales are explained below to demonstrate just how few Oura rings have been sold over time. While this figure shows [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].

¹¹⁴ Clarke declaration at EX-2081; EX-2082

¹¹⁵ Clarke declaration at EX-2040; EX-2083

¹¹⁶ Oura worldwide unit sales market share 2023 (77.5%) – Oura worldwide unit sales market share 2024 (49%) = 28.5%

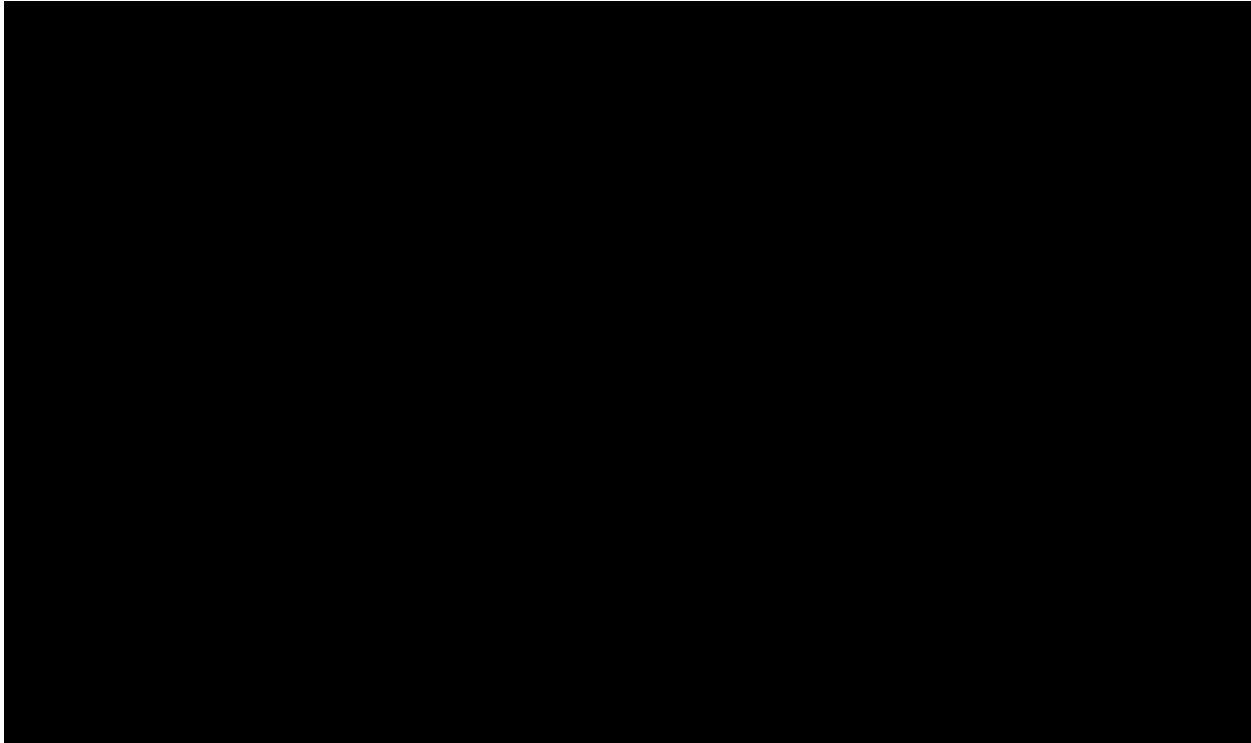


Figure 26 *Oura Ring yearly and cumulative unit sales*¹¹⁷

3. The cumulative shipments of Oura Rings are miniscule compared to the cumulative shipments of other wearables, in particular the Apple Watch, reflective of its comparatively limited features

171. As discussed above, the IDC's expected global smart rings shipments for 2024 were estimated at 1.7 million units.¹¹⁸ When compared side-by-side with smartwatches, which have similar feature offerings to

¹¹⁷ Clarke declaration, Appendix 6 (note: [REDACTED])

¹¹⁸ Note: IDC forecasted 2024 smart ring shipments to reach 1.7M units, however, Oura's 2024 calendar year unit sales exceeded 1.7 M. The fact that Oura Ring shipments exceeded IDC's 2024 smart ring shipment forecast is likely attributable to 3 factors none of which are ring construction: 1. Oura Ring's eligibility for HSA/FSA, 2. Oura ring's DOD contract which saw a rapid increase in Oura sales in September 2024, and 3. the lift from debuting Oura Ring 4 which offered increased accuracy. Given the fact that Oura reports its sales figures by fiscal year rather than calendar year, IDC's projections may have been based on a lower figure from Oura's own reporting.

smart rings, the smartwatch expected shipments in 2024 are 92 times larger than the expected smart ring shipments.

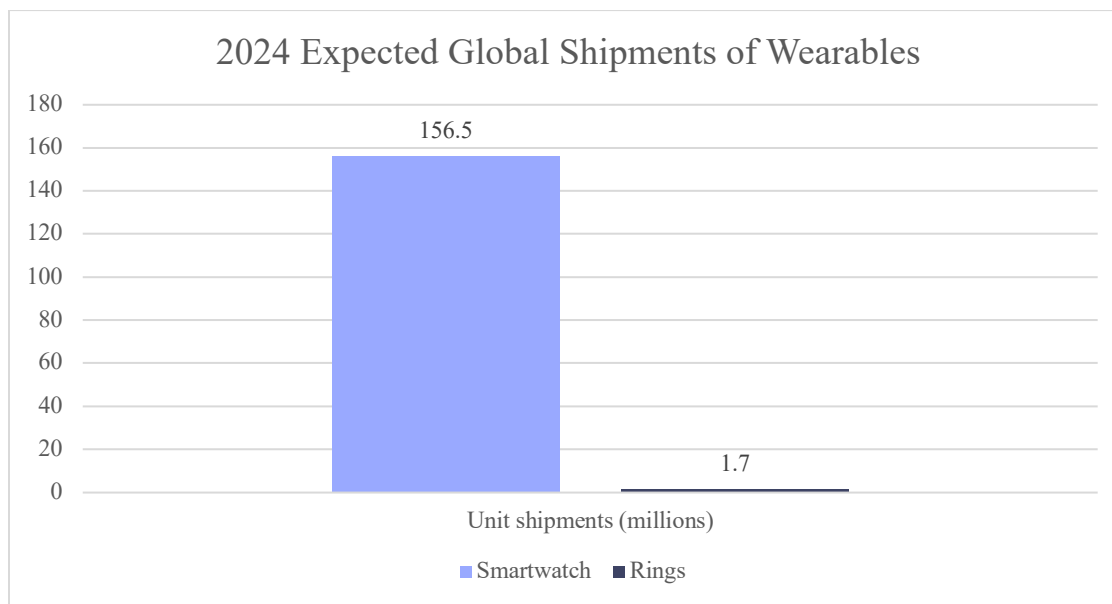


Figure 27 2024 expected global shipments of smartwatches and smart rings¹¹⁹

172. The smart ring market is comparatively small. Therefore, even if its growth was robust and sustainable over several years, it would still lag behind the smartwatch segment.
173. Directly comparing the unit sales of Oura Ring, the market leader for smart rings, and Apple Watch, the market leader for smartwatches, demonstrates Oura's relative insignificance. As shown below, Oura Ring's cumulative unit sales over the period of 2017-2023 ()

¹¹⁹ Ex-1159 (Shirer, Michael, Jitesh Ubrani, & Lujyne Amro. "IDC Forecasts Continued Growth for Wearables But Growth Will Be Uneven Across Product Categories." International Data Corporation. September 26, 2024. <https://my.idc.com/getdoc.jsp?containerId=prUS52615024>.)

are less than one hundredth of cumulative Apple Watch sales (~38,000,000) over the same period.

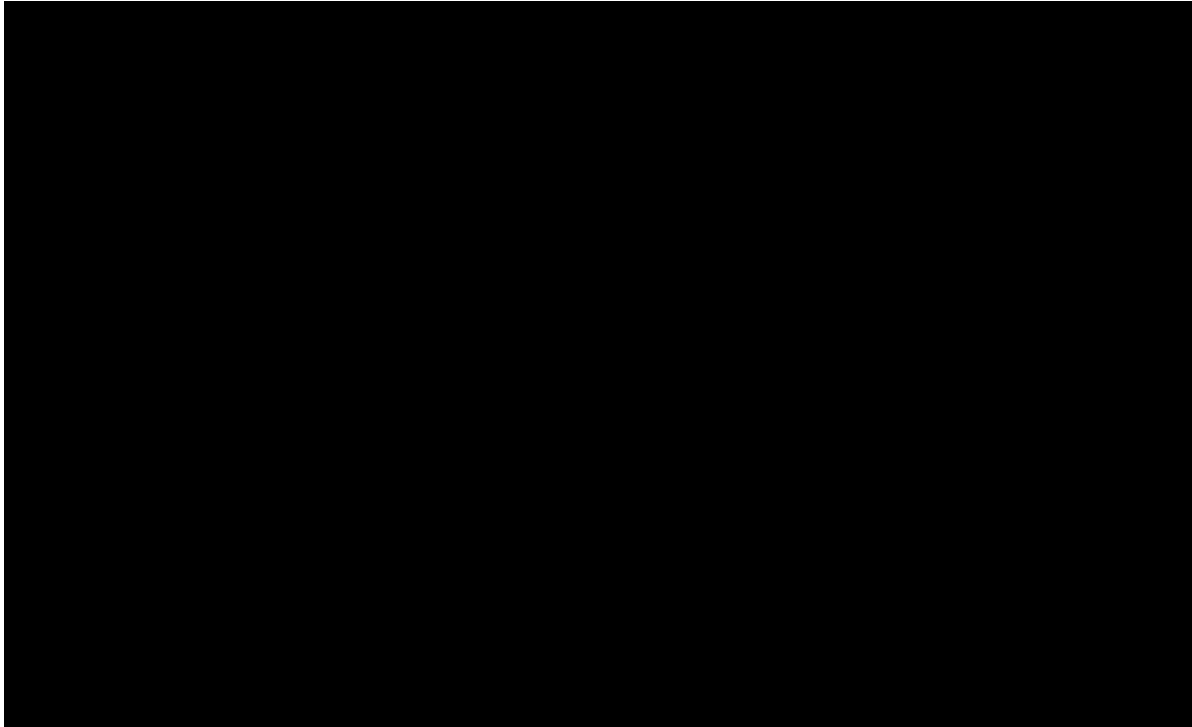


Figure 28 *Oura Ring and Apple Watch unit sales, 2017-2023*¹²⁰

174. The comparatively small size of the smart ring market (and Oura Ring within it) is likely explained by low interest from consumers and competition with many other wearable devices that offer similar health and sleep tracking features. As an example, the tables below show a side-by-side comparison of Oura’s flagship model, the Oura Ring Gen 4, and two of Apple’s latest smartwatch models, the flagship Ultra 2 and the budget model SE 2nd generation. Table 12

¹²⁰ Clarke declaration at EX-2111; Ex-1160 (Nalbach, Tyler. “Apple Watch Sales Over the Years: How Many Have Been Sold Since 2015.” Longvaden. March 28, 2025. <https://longvaden.com/blogs/blog/apple-watch-sales>.)

compares features of these three products, and Table 23 compares the sensors included in their respective hardware.

Table 1 *Oura Ring and Apple Watch comparison of functionality*¹²¹

Functionality	Oura Ring 4 \$349 + 5.99/month	Apple Watch SE (2nd generation) \$299	Apple Watch Ultra 2 \$799
Display	N/A	OLED display	OLED display
ECG			X
Heart rate variability (HRV)	X	X	X
Irregular rhythm notifications		X	X
Low cardio fitness notifications	X	X	X
Sleep tracking	X	X	X
Sleep apnea notifications			X
Stress monitoring	X	X	X
Respiratory rate	X	X	X
Wrist temperature			X
Temperature sensing	X		X
Cycle tracking	X	X	X
Emergency SOS		X	X
Fall and crash detection		X	X
Water resistant	100m	50m	100m
Battery life	Up to 192 hours	Up to 18 hours	Up to 35 hours

¹²¹ Ex-1161 (Oura Team. “Meet Oura: Discover the Brand-New Oura Ring 4.” The Pulse Blog. October 3, 2024. <https://ouraring.com/blog/oura-ring-4/>); Ex-1162 (Apple. “Why Apple Watch.” Apple. July 1, 2025. <https://www.apple.com/watch/why-apple-watch/>); Ex-1163 (Apple. “Compare Apple Watch models.” Apple. July 1, 2025. <https://www.apple.com/watch/compare/>).

Table 2 *Oura Ring and Apple Watch comparison of sensors*¹²²

Sensors	Oura Ring 4 \$349 + 5.99/month	Apple Watch SE (2 nd generation) \$299	Apple Watch Ultra 2 \$799
Electrical heart sensor			X
Optical heart sensor	X	X	X
Ambient light sensor		X	X
Temperature sensor	X		X
Depth gauge			X
Speaker		X	X
Microphone		X	X
Altimeter		X	X
Compass		X	X
Gyroscope		X	X
Accelerometer	X	X	X

175. As illustrated in both tables, the Oura Ring 4 has comparatively limited functionality and hardware. Although the Oura Ring 4 competes directly with other wearable devices and has similar features to them, it lacks some of the key functionality and hardware offered on Apple’s latest smartwatch models.

¹²² Ex-1163 (Apple. “Compare Apple Watch models.” Apple. July 1, 2025. <https://www.apple.com/watch/compare/>.); Ex-1164 (Oura Team. “Meet Oura: Technology in Oura Ring Gen3.” The Pulse Blog. February 7, 2024. <https://ouraring.com/blog/ring-technology/>.)

4. The early commercial performance of the Oura Ring reflected only its serendipitous timing

176. Oura Health Oy was founded in Finland in 2013 and introduced the first generation of the Oura Ring, Oura Ring Gen 1, in March 2015.¹²³ Around the time of its founding and well before launching Oura Ring Gen 1, a number of companies had introduced wrist-worn wearables for tracking activity, including Jawbone (in 2011), Fitbit (in 2013), and Misfit (in 2013). These wrist-worn wearables introduced the concept of fitness tracking via screenless devices that required Bluetooth connectivity with a smartphone to access data in an application. These companies enjoyed substantial success, a factor that likely encouraged Oura and other smart ring vendors to enter the wearables market. Furthermore, these companies paved the way for smart rings from a technological standpoint showing that electronics could be miniaturized and worn on the body.
177. Smartwatches—wearable computers that tell time—have been in existence since the early 1970s, but modern smartwatches that pair with smartphones for added functionality were introduced by the Pebble Technology Corporation in 2013. The Pebble smartwatch was released prior to Oura Ring Gen 1 in 2015.¹²⁴ Then a series of fast followers including Samsung with their Samsung Galaxy Gear (in

¹²³ Clarke declaration, p. 6

¹²⁴ Ex-1165 (Carroll, Rory. “Pebble rocks CES 2013 with launch of its wireless watch.” The Guardian. January 9, 2013. <https://www.theguardian.com/technology/2013/jan/09/ces-2013-pebble-wireless-watch>.)

September 2013) emerged and ultimately led to Apple joining the market in early 2015 with its Apple Watch.¹²⁵ The success of the smartwatch provided Oura with proof that wearables had significant potential, while illuminating possible technological pathways forward.

178. Additionally, approximately 4 smart ring providers—none of which had well established brands—entered the market before Oura launched Oura Ring Gen 1, so there was only limited and weak competition at the time of Oura’s entry. Moreover, these earlier entrants provided potential case studies Oura could learn from both in terms of market dynamics and technical capabilities.¹²⁶
179. Once Oura Ring Gen 1 entered the market in 2015, it was joined by at least 6 other smart ring vendors, most of whom were unknown start-ups reliant on crowdsourcing for funding. Oura had entered the smart ring market at a time when wrist-worn wearables and smartwatches had demonstrated market potential and technological feasibility for wearables in general. Smart ring pioneers then demonstrated there was a potential niche for smart rings within the wearables market.
180. After Oura Ring Gen 3 Horizon launched in 2022, there were 4 competitor smart rings on the market. After Oura’s release of its Gen

¹²⁵ Ex-1166 (Samsung. “[Galaxy History ③] Evolution of the Galaxy Watch Series: Reimagining the Watch.” Samsung Newsroom. July 8, 2024. <https://news.samsung.com/global/galaxy-history-%E2%91%A2-evolution-of-the-galaxy-watch-series-reimagining-the-watch>.)

¹²⁶ A classic study by market researchers Peter Golder and Gerard Tellis analyzed “pioneers” (those who enter a market first) and “settlers” (those who enter later) and found that pioneers were 6 times more likely to fail than settlers. Ex-1167 (Golder, Peter N. & Gerard J. Tellis. “Pioneer Advantage: Marketing Logic or Marketing Legend?” Journal of Marketing Research. May 1993. <https://www.jstor.org/stable/3172825>.)

4 ring in 2024, there were 10 competitor rings on the market, all of which adopted the dominant design form factor. This period was marked by increasing competition and slowing growth. Oura entered the smart ring market after first movers McLearn and Logbar and then had several years to gain traction against limited, relatively weak competition before other new entrants started flooding in.

a. Wrist-worn fitness trackers demonstrated wearables could be successful

181. Misfit, Fitbit, and Jawbone introduced the concept of fitness tracking via screenless devices that required Bluetooth connectivity with a smartphone to access data in an application. These companies enjoyed substantial success, a factor that likely encouraged Oura Health Oy to enter the wearables market. These wrist-worn fitness trackers were all capable of sleep tracking, activity tracking, and health tracking prior to the release of Oura Ring.

Company	Smartwatch	Release Year	Smart Ring Functionality						Sensors
			Sleep Tracker	Activity Tracker	Health Tracker	Alerts	Control	NFC payments	
Jawbone	UP	2011	X	X	X	X			3-axis accelerometer
Fitbit	Fitbit Force	2013	X	X	X	X			3-axis accelerometer, altimeter
Jawbone	UP24	2013	X	X	X	X			3-axis accelerometer
Misfit	Shine	2013	X	X	X	X			3-axis accelerometer
Nike	Nike+ Fuel Band	2013	X	X	X				3-axis accelerometer
Garmin	Vivofit	2014	X	X	X	X			3-axis accelerometer
LG	Lifeband Touch	2014		X	X	X			3-axis accelerometer
Polar	Loop	2014	X	X	X	X			3-axis accelerometer, altimeter
Samsung	Gear Fit	2014	X	X	X		X		3-axis accelerometer, optical heart rate sensor
Sony	SmartBand SMR10	2014	X	X	X	X			3-axis accelerometer
Jawbone	UP Move	2014	X	X	X	X			3-axis accelerometer
Jawbone	UP3	2014	X	X	X	X			3-axis accelerometer, bio-impedance sensor

Figure 29 Summary of wrist-worn wearables released prior to Oura Ring Gen 1¹²⁷

¹²⁷ Ex-1168 (Bennett, Brian. “Jawbone Up24 review: A great fitness tracker with style and comfort.” CNet. November 13, 2013. <https://www.cnet.com/reviews/jawbone-up24-review/>); Ex-1169 (Ricker, Thomas. “Jawbone Up fitness band review.” The Verge via Wayback Machine. November 6, 2011. <https://web.archive.org/web/20250527221407/https://www.theverge.com/2011/11/6/2541783/jawbone-up-review>); Ex-1170 (Seifert, Dan. “Fitbit Force review.” The Verge via Wayback Machine. October 18, 2013. <https://web.archive.org/web/20250524010659/https://www.theverge.com/2013/10/18/4848424/fitbit-force-review>); Ex-1171 (Lawrence, Erin. “Misfit Shine Fitness and Activity Monitor – Review.” TechGadgets Canada. May 29, 2019. <https://www.techgadgetsCanada.com/misfit-shine-fitness-activity-monitor-review/>); Ex-1173 (Stein, Scott. “Samsung Gear Fit review: Curved-screen fitness smartwatch one step short.” CNet. April 7, 2014. <https://www.cnet.com/reviews/samsung-gear-fit-review/>); Ex-1174 (Maker, Ray. “Mio Alpha Optical Heart Rate Monitor In-Depth Review (Bluetooth Smart/ANT+).” DC Rainmaker. February 12, 2013. <https://www.dcrainmaker.com/2013/02/monitor-bluetooth-smartant.html>); Ex-1175 (Maker, Ray. “Basis B1 Watch In-Depth Review.” DC Rainmaker. July 25, 2013. <https://www.dcrainmaker.com/2013/07/basis-b1-review.html>); Ex-1176 (Bonnington, Christina. “Review: Garmin Vivofit.” Wired. March 7, 2014. <https://www.wired.com/2014/03/garmin-vivofit/>); Ex-1177 (“Lifeband Touch¹ Activity Tracker - Medium.” LG. Accessed on 45849. <https://www.lg.com/us/mobile-accessories/lg-FB84-BM-activity-tracker>); Ex-1178 (“Polar Loop User Manual: Important Information.” Polar. Accessed on July 11, 2025. https://support.polar.com/e_manuals/Loop/Polar_Loop_user_manual_English/ch07.html); Ex-1179 (Healey, Nic. “Sony SmartBand SWR10 review: Sony SmartBand tries to be too smart for its own good.” CNet. June 13, 2014. <https://www.cnet.com/reviews/sony-smartband-swr10-review/>); Ex-1180 (Porter, Jediah. “Jawbone Up Move Review.” GearLab. April 11, 2018. <https://www.outdoorgearlab.com/reviews/fitness/pedometer/jawbone-up-move>); Ex-1181 (Welch, Chris. “Jawbone UP3.” The Verge via Wayback Machine. April 23, 2015.

182. Fitbit, Jawbone, and Misfit all garnered sizeable funding from well-known tech investors prior to the introduction of Oura Ring Gen 1, as shown in the figure below:

	Fitbit		Jawbone		Misfit	
	Date	Funding (\$M)	Date	Funding (\$M)	Date	Funding (\$M)
Series A	October 2008	\$2M	July 2007	\$5M	April 2012	\$7.6M
Series B	September 2010	\$9M	January 2008	\$30M	December 2013	\$15.2M
Series C	January 2012	\$12M	March 2011	\$49M	January 2015	\$40M
Series D	August 2013	\$43M	July 2011	\$70M		
Series E			September 2014	\$147M		
Series F			January 2016	\$165M		
Total	2008-2013	\$66M	2007-2016	\$466M	2012-2015	\$62.8M

Figure 30 Funding rounds for Fitbit, Jawbone, and Misfit demonstrate that wearables received significant attention from the investor community prior to Oura Ring being released.¹²⁸

¹²⁸ Ex-1182 (clay. “How Much Did Fitbit Raise? Funding & Key Investors.” clay Dossier. March 31, 2025.

i. Fitbit

183. Fitbit was established in 2007 to embed sensors into wearable devices for tracking fitness. Fitbit introduced the Fitbit One, a clip-on fitness tracker, in 2012. The product tracked steps, calories burned, and sleep patterns and used Bluetooth to port data to a smartphone.
184. The success of the clip-on fitness trackers and general excitement around the wearables space, enabled Fitbit to raise approximately \$66 million from investors including Qualcomm Ventures, Sapphire Ventures, SoftBank Capital, and True Ventures between 2008 and 2013.¹²⁹ Fitbit's success in funding would have been well known to Oura Health Oy's founders and likely spurred them to enter the fitness tracker market.
185. In 2013, Fitbit introduced the Fitbit Force, which was its first wrist-worn wearable for fitness and sleep tracking.

¹²⁹ Ex-1182 (clay. "How Much Did Fitbit Raise? Funding & Key Investors." clay Dossier. March 31, 2025. <https://www.clay.com/dossier/fitbit-funding/>); Ex-1183 (Osterloh, Rick. "Google completes Fitbit acquisition." Google Blog. January 14, 2021. <https://blog.google/products/platforms-devices/fitbit-acquisition/>.)



Figure 31 *Fitbit Force, Fitbit's first wrist-worn fitness tracker capable of tracking activity and sleep.*¹³⁰

186. Fitbit's wrist-worn fitness trackers were extremely popular, in 2014 10.9 million Fitbits were sold worldwide (accounting for revenues of \$0.74 billion) and in 2015 21.4 million Fitbits were sold worldwide (accounting for revenues of \$1.85 billion).¹³¹ The market traction Fitbit's wrist-worn fitness tracker achieved would have been well known in 2015 as Oura was releasing their Oura Ring Gen 1 and may have encouraged Oura's market entry. Oura would have also benefited from some of the technological advances that Fitbit had made.

ii. Misfit

187. Misfit was established in October 2011 and developed the Misfit Shine, a wrist-worn fitness/sleep tracker that launched in December 2013.

¹³⁰ Ex-1190 (Jill Duffy. "Fitbit Force Review." PC Mag. March 24, 2014. <https://www.pcmag.com/reviews/fitbit-force>.)

¹³¹ Ex-1191 (Curry, David. "Fitbit Revenue and Usage Statistics (2025)." Business of Apps. January 22, 2025. <https://www.businessofapps.com/data/fitbit-statistics/>.)



Figure 32 *Misfit Shine, Misfit's first wrist-worn fitness/sleep tracker capable of tracking activity and sleep and providing non-intrusive goal status*¹³²

188. Misfit had raised approximately \$63 million from investors, including Khosla Ventures and Horizon Ventures, between 2012 and 2015,¹³³ and it also launched an Indiegogo crowd funding campaign in 2012 with a goal of raising \$100,000 and gaining consumer feedback as soon as possible.¹³⁴ Misfit met its goal in 10 hours and raised \$846,000 from 8,000 people in 64 different countries before closing its two-month long campaign.¹³⁵

¹³² Ex-1171 (Lawrence, Erin. "Misfit Shine Fitness and Activity Monitor – Review." TechGadgets Canada. May 29, 2019. <https://www.techgadgetsCanada.com/misfit-shine-fitness-activity-monitor-review/>.)

¹³³ Ex-1184 (Tracxn Technologies Limited. "Misfit Wearables - Company Profile." Tracxn. June 20, 2025. https://tracxn.com/d/companies/misfit-wearables/_gG8yNvcKEPPBr9mV9PD_Gg3pOm462qPzhY9vWkA7NTU#about-the-company.); Ex-1185 (Singleton, Micah. "Fossil acquires wearable maker Misfit for \$260 million." The Verge. November 15, 2015. <https://www.theverge.com/2015/11/12/9725478/fossil-group-acquires-wearable-maker-misfit-260-million>.)

¹³⁴ Ex-1192 (Dolan, Brian. "Misfit's Shine raised \$846K on Indiegogo; new product expected this fall." MobiHealth News via Wayback Machine. January 24, 2013. <https://web.archive.org/web/20160219184005/http://mobihealthnews.com/20024/misfits-shine-raised-846k-on-indiegogo-new-product-expected-this-fall/>.)

¹³⁵ Ex-1192 (Dolan, Brian. "Misfit's Shine raised \$846K on Indiegogo; new product expected this fall." MobiHealth News via Wayback Machine. January 24, 2013. <https://web.archive.org/web/20160219184005/http://mobihealthnews.com/20024/misfits-shine-raised-846k-on-indiegogo-new-product-expected-this-fall/>.)

189. Misfit's funding success coupled with that of Fitbit would have been well known to Oura's founders and likely spurred them to enter the fitness tracker market. Moreover, Misfit's crowd funding success provided proof of deep consumer interest in fitness tracking. Finally, Misfit's technological advancements in terms of miniaturizing electronic components would likely have benefitted Oura.

iii. Jawbone

190. Jawbone, unlike Misfit and Fitbit, did not enter the wearable market expressly for fitness tracking. Instead, Jawbone's initial products focused on using sensors to decipher between speaking signal and noise, releasing a wireless headset in 2006 and a wireless smart speaker in 2008. Jawbone turned its attention toward sensors that could track movement and sleep and introduced the Up Bracelet, the world's first wrist-worn fitness tracker in 2011.¹³⁶



Figure 33 *Jawbone Up Bracelet, launched in 2011, was the first wrist-worn fitness tracker.*¹³⁷

¹³⁶ Ex-1193 (Duffy, Jill. "Jawbone UP Review." PC Mag. March 20, 2013. <https://www.pcmag.com/reviews/jawbone-up>.)

¹³⁷ Ex-1193 (Duffy, Jill. "Jawbone UP Review." PC Mag. March 20, 2013. <https://www.pcmag.com/reviews/jawbone-up>.)

191. Jawbone's Up Bracelet sold out immediately, however it had to issue a recall because the bracelet was susceptible to water damage.¹³⁸
192. Jawbone raised approximately \$466 million from investors, including Khosla Ventures, Andreessen Horowitz, Sequoia Capital, between 2007 and 2016.¹³⁹ While Jawbone's funding was not attributable to fitness trackers alone, Oura would have been aware of the many firsts Jawbone had achieved in the wearables market, especially the introduction of the wrist-worn fitness tracker, and the success it had raising funding when deciding to enter the smart ring market. Moreover, Oura would have also learned from the technological advances that Jawbone made.

b. Smartwatches were successful prior to the launch of Oura Ring Gen 1

193. The era of the modern smartwatch (a watch capable of independent computation, that also interfaced with a smartphone) began in the 2010s. The emergence of smartwatch category further validated that wearables had significant potential, while illuminating possible technological pathways forward. Many early modern smartwatches

¹³⁸ Ex-1117 (Botha, Roelof. "Jawbone: The Rise and Fall of the First Wearable Technology Company." Crucible Moments. December 2, 2023. <https://www.sequoiacap.com/podcast/crucible-moments-jawbone/>.)

¹³⁹ Ex-1186 (Dane, Sonali. "Jawbone: The Biggest Unicorn Death of 2017." Wharton PEVC. March 2, 2018. <https://www.whartonugpevc.com/articles/2018/3/23/jawbone-the-biggest-unicorn-death-of-2017/>); Ex-1187 (CBInsights. "Jawbone's Valuation History Gave Early Hints As To Its Eventual End." CBInsights: Research. July 7, 2017. <https://www.cbinsights.com/research/jawbone-valuation-history/>); Ex-1188 (Somerville, Heather. "Jawbone's demise a case of 'death by overfunding' in Silicon Valley." Reuters. July 10, 2017. <https://www.reuters.com/article/technology/jawbones-demise-a-case-of-death-by-overfunding-in-silicon-valley-idUSKBN19V0BS/>); Ex-1189 (FinSMEs. "Jawbone Raises \$49M from Andreessen Horowitz." FinSMEs. March 17, 2011. <https://www.finsmes.com/2011/03/jawbone-raises-49m-from-andreessen-horowitz.html>.)

had the functionality as Oura Ring before ever launched Oura Ring Gen offering sleep tracking, activity tracking, and health tracking.

Company	Smartwatch	Release Year	Smart Ring Functionality						Sensors
			Sleep Tracker	Activity Tracker	Health Tracker	Alerts	Control	NFC payments	
Mio	Alpha	2012			X				Optical heart rate sensor
Basis	B1	2013			X				Optical heart rate sensor
Pebble	Pebble	2013	X	X	X	X	X		3-axis accelerometer, magnetometer, light sensor
Sony	SmartWatch2	2013		X		X	X		3-axis accelerometer
Samsung	Galaxy Gear	2013				X	X		BSI sensor
Pebble	Pebble Steel	2013	X	X	X	X	X		3-axis accelerometer, magnetometer, ambient light sensor
Sony	Smart Watch 3	2014	X	X	X	X	X		GPS, ambient light sensor, accelerometer, gyroscope, magnetometer (compass)
Samsung	Galaxy Gear Fit	2014	X	X	X	X	X		Heart rate sensor, pedometer
Apple	Apple Watch (1 st Gen)	2014		X	X	X	X	X	Optical heart rate sensor, gyroscope, accelerometer
Fitbit	Surge	2014	X	X	X	X	X		Built-in GPS, optical heart rate sensor, 3-axis accelerometer, ambient light sensor
LG	LG Watch Urbano	2014	X	X	X	X	X		9-axis accelerometer, barometer, PPG heart rate sensor

Figure 34 *Summary of Smartwatches released prior to Oura Ring Gen 1*¹⁴⁰

¹⁴⁰ Ex-1194 (Apple. “Apple Watch Series 1 - Technical Specifications.” Apple: Documentation. July 1, 2025. <https://support.apple.com/en-us/111985>); Ex-1195 (Smith, Chris. “Sony SmartWatch 2 official: specs, features, release date and pricing.” Android Authority. June 25, 2013. <https://www.androidauthority.com/sony-smartwatch-2-official-specs-features-release-date-pricing-234796>); Ex-1196 (“Samsung Galaxy Gear.” GSM Arena. Accessed on 45848. https://www.gsmarena.com/samsung_galaxy_gear-7716.php); Ex-1173 (Stein, Scott. “Samsung Gear Fit review: Curved-screen fitness smartwatch one step short.” CNet. April 7, 2014. <https://www.cnet.com/reviews/samsung-gear-fit-review/>); Ex-1197 (“What are the key features of Samsung Galaxy Gear(SM-V700)?.” Samsung. October 13, 2020. <https://www.samsung.com/in/support/mobile-devices/what-are-the-key-features-of-samsung-galaxy-gear/>); Ex-1198 (“Sony SmartWatch 2 SW2.” GSM Arena. Accessed on July 10, 2025. https://www.gsmarena.com/sony_smartwatch_2_sw2-7719.php); Ex-1199 (“Sony SmartWatch 3 SWR50.” GSM Arena. Accessed on July 10, 2025. https://www.gsmarena.com/sony_smartwatch_3_swr50-7691.php); Ex-1200 (Bhartiya, Swapnil. “Review: LG Watch Urbane Has Great Design, Missing Features.” LiNux.com. May 19, 2015. <https://www.linux.com/news/review-lg-watch-urbane-has-great-design-missing-features/>); Ex-1201 (Maker, Ray. “Fitbit Surge In-Depth Review.” DC Rainmaker. January 20, 2015. <https://www.dcrainmaker.com/2015/01/fitbit-surge-review.html>.)

i. Pebble

194. The Pebble smartwatch was first introduced via the fundraising website Kickstarter in 2012, where the product saw immense popularity: it set a financial record for Kickstarter.¹⁴¹ The Pebble smartwatch was designed to connect to both Android and iOS products, and featured a compass, accelerometer, and magnetic charging capability.¹⁴² The Pebble smartwatch began shipping in 2013 to its 85,000 Kickstarter backers.¹⁴³ The Pebble smartwatch offered similar fitness and health tracking to wrist-worn wearables with the added advantage of having a screen with which to view the data.¹⁴⁴

¹⁴¹ Ex-1202 (Pebble Technology. “Pebble: E-Paper Watch for iPhone and Android.” Kickstarter. April 11, 2012. <https://www.kickstarter.com/projects/getpebble/pebble-e-paper-watch-for-iphone-and-android>.); Ex-1203 (Heater, Brian. “Smartwatch pioneer and Kickstarter darling Pebble is returning in a new form.” TechCrunch. January 27, 2025. <https://techcrunch.com/2025/01/27/smartwatch-pioneer-and-kickstarter-darling-pebble-is-returning-in-a-new-form/>.)

¹⁴² Ex-1204 (Arthur, Charles. “Review: Pebble's smart watch doesn't try too hard - but does what you need.” The Guardian. May 21, 2013. <https://www.theguardian.com/technology/blog/2013/may/21/pebble-smart-watch-kickstarter>.); Ex-1205 (Ulanoff, Lance. “Pebble was one of the best smartwatches ever and now it's a miracle if you can get one to work.” techradar. July 1, 2024. <https://www.techradar.com/health-fitness/smartwatches/pebble-was-one-of-the-best-smartwatches-ever-and-now-its-a-miracle-if-you-can-get-one-to-work>.)

¹⁴³ Ex-1206 (Mlot, Stephanie. “CES 2013: Pebble Smartwatch to Ship Jan. 23.” PC Mag. January 9, 2013. <https://www.pcmag.com/news/ces-2013-pebble-smartwatch-to-ship-jan-23>.)

¹⁴⁴ Ex-1207 (Patel, Nilay. “Pebble smartwatch review.” The Verge via Wayback Machine. January 28, 2013. <https://web.archive.org/web/20250321010452/https://www.theverge.com/2013/1/28/3924904/pebble-smartwatch-review>.)



Figure 35 *Pebble smartwatch*¹⁴⁵

195. Shortly after this launch, an analyst at Current Analysis noted:

I think we have reached a tipping point [in the smart watch market] ... the components have gotten small enough and cheap enough.¹⁴⁶

196. The Pebble helped to prove that components could be miniaturized without significant expense.

ii. Fast followers

197. Shortly after the Pebble, other electronics vendors were eager to gain a foothold in the smartwatch space that was sure to eclipse the wrist-worn wearable market thanks to their added functionality and usability. The Sony SmartWatch2 was released in September of

¹⁴⁵ Ex-1207 (Patel, Nilay. "Pebble smartwatch review." The Verge via Wayback Machine. January 28, 2013. <https://web.archive.org/web/20250321010452/https://www.theverge.com/2013/1/28/3924904/pebble-smartwatch-review>.)

¹⁴⁶ Ex-1208 (France-Presse, Agence. "Time is ripe for smart watches, say analysts." Gadgets360. April 1, 2013. <https://www.gadgets360.com/others/news/time-is-ripe-for-smart-watches-say-analysts-348697>.)

2013¹⁴⁷ and was quickly followed by the Samsung Galaxy Gear smartwatch.¹⁴⁸

198. The 2014 Consumer Electronics Show saw its own “Wrist Revolution section” featuring only smartwatches, with one reviewer noting, “There were almost too many smartwatches to count this year.”¹⁴⁹

199. The popularity of these smartwatches and their technological advances paved the way for the smart ring market.

iii. Apple Watch

200. After much speculation, Apple finally unveiled its own smartwatch in late 2014, with the product available for purchase in early 2015.¹⁵⁰ In discussing this launch, Guardian journalists wrote,

‘Wearables’ have been the subject of intense focus over the past year as Samsung, LG, and most recently Motorola have launched their own ‘smartwatches’ using Google’s Android system.¹⁵¹

¹⁴⁷ Ex-1195 (Smith, Chris. “Sony SmartWatch 2 official: specs, features, release date and pricing.” Android Authority. June 25, 2013. <https://www.androidauthority.com/sony-smartwatch-2-official-specs-features-release-date-pricing-234796>.)

¹⁴⁸ Ex-1209 (Buckley, Sean. “Samsung’s Galaxy Gear ads play on your nostalgia, invoke Dick Tracy.” Engadget. October 6, 2013. <https://www.engadget.com/2013-10-06-samsungs-galaxy-gear-ads-play-on-your-nostalgia.html>.)

¹⁴⁹ Ex-1210 (Zeis, Adam. “The best smartwatches from CES 2014.” smartwatchfans via Wayback Machine. January 13, 2014. <https://web.archive.org/web/20140330184434/http://www.smartwatchfans.com/best-smartwatches-ces-2014>.)

¹⁵⁰ Ex-1211 (Arthur, Charles & Samuel Gibbs. “Apple makes move into wearables with smartwatch and new iPhones.” The Guardian. September 9, 2014. <https://www.theguardian.com/technology/2014/sep/09/apple-watch-cupertino-investors>.)

¹⁵¹ Ex-1211 (Arthur, Charles & Samuel Gibbs. “Apple makes move into wearables with smartwatch and new iPhones.” The Guardian. September 9, 2014. <https://www.theguardian.com/technology/2014/sep/09/apple-watch-cupertino-investors>.)



Figure 36 *Apple Watch Series 1, the first generation of the Apple Watch released in 2014*¹⁵²

201. Apple’s entry into the smartwatch market legitimized the category and helped it grow. Apple quickly dominated the smartwatch market as many Apple users were eager to use a smartwatch that extended the Apple ecosystem.¹⁵³ Oura would have seen Apple’s entry and its execution as indicator that the wearables market was lucrative and would persist.

c. Smart rings prior to the launch of Oura Ring Gen 1

202. By 2015 when the Oura Ring Gen 1 appeared, approximately 4 other manufacturers had entered the smart ring market, albeit with different functionality from activity and sleep tracking, as shown in the table below. According to Verified Market Research, the smart ring market is segmented into health & wellness, payment, data transfer, notifications, security, and others, with the health & wellness segment holding the majority share.¹⁵⁴

¹⁵² Ex-1194 (Apple. “Apple Watch Series 1 - Technical Specifications.” Apple: Documentation. July 1, 2025. <https://support.apple.com/en-us/111985>.)

¹⁵³ Ex-1212 (Musil, Steven. “Apple still dominates growing global smartwatch sector.” CNET. May 6, 2020. <https://www.cnet.com/tech/mobile/apple-still-dominates-growing-global-smartwatch-sector/>.)

¹⁵⁴ Clarke declaration at EX-2073

Company	Smart Ring	First Smart Ring Release Year	Smart Ring Functionality						Sensors	Wedding Ring Form Factor
			Sleep Tracker	Activity Tracker	Health Tracker	Alerts	Control	NFC payments		
McLear Ltd.	NFC Ring	2013					X		NFC sensor	X
Logbar	Logbar	2014				X	X		6-axis accelerometer	X
Nuanic	Moodmetric	2014			X				EDA sensor	
Ringly	Ringly	2015				X				
2015: Oura Ring Gen 1										

Figure 37 *Summary of Smart Ring releases prior to Oura Ring Gen 1 and their functionality and form factor*¹⁵⁵

203. These early smart ring entrants paved the way for Oura in terms of market awareness and technology readiness. While they did not perform the same functionality (activity or sleep tracking), they were all “finger-worn wearable devices” recited in claim 1, limitation 1 (pre) and two of them, Mc Lear’s NFC ring and Logbar had a

¹⁵⁵ Ex-1140 (McLear, John. “NFC Ring - One Smart Ring, Unlimited Possibilities.” Kickstarter. July 20, 2013. <https://www.kickstarter.com/projects/mclear/nfc-ring/>); Ex-1213 (McLear Limited. “New wearable device makes payments simple.” McLEAR. December 4, 2018. <https://mclear.co/news/new-wearable-device-makes-payments-simple/>); Ex-1214 (Hakikat, Atal. “The World’s First Smart Ring You’ll Actually Wear.” The Zine. November 26, 2016. <https://www.thezine.com.au/the-worlds-first-smart-ring-youll-actually-wear/>); Ex-1215 (Ringly. “2018 Update: A New Chapter.” The Buzz: By Ringly. January 22, 2018. <https://ringly.com/blogs/news/why-is-everything-sold-out-on-ringly-com/>); Ex-1216 (Ayres, Carly. “In the Details: Making a Smart Ring That Women Would Actually Want to Wear.” Core77. July 3, 2014. <https://www.core77.com/posts/27250/in-the-details-making-a-smart-ring-that-women-would-actually-want-to-wear-27250/>); Ex-1141 (Museum of Failure. “Logbar Ring.” Museum of Failure. March 16, 2024. <https://museumoffailure.com/exhibition/logbar-ring/>); Ex-1217 (Mamiit, Aaron. “CES 2015: The 'Ring' to Control Them All? How Logbar Gesture Control Ring Works.” TechTimes. January 07, 2015. <https://www.techtimes.com/articles/25084/20150107/ces-2015-the-ring-to-control-them-all-how-logbar-gesture-control-ring-works.htm/>); Ex-1218 (Venho, Niina. “Moodmetric Ring: Smart Jewelry To Manage Stress.” Indiegogo. September, 2015. <https://www.indiegogo.com/projects/moodmetric-ring-smart-jewelry-to-manage-stress#/>); Ex-1219 (Mufson, Beckett. “Finally, a Mood Ring for the 21st Century.” VICE. November 24, 2016. <https://www.vice.com/en/article/finally-a-wearable-tech-mood-ring-for-the-21st-century/>); Ex-1220 (Gorton, Thomas. “The humble mood ring gets a wearable tech update.” DAZED. November 26, 2014. <https://www.dazeddigital.com/artsandculture/article/22694/1/the-humble-mood-ring-gets-a-wearable-tech-update/>); Ex-1221 (Nuanic. “What We Do.” Nuanic. December 7, 2024. <https://nuanic.com/about-us/>); Ex-1222 (Nuanic. “Product: The 2nd Generation Ring is Here.” Nuanic. July 1, 2025. <https://nuanic.com/product/>); Ex-1223 (K Wearables. “K Home.” K Ring. July 1, 2025. <https://mykring.com/>); Ex-1224 (Johns, Steven. “The gesture Ring by Logbar has been reviewed as “the worst product ever made”.” Neowin. November 20, 2014. <https://www.neowin.net/news/the-gesture-ring-by-logbar-has-been-reviewed-as-the-worst-product-ever-made/>).

wedding band form factor similar to the one described in the '178 Patent, proving that circuit boards could be miniaturized and curved in order to be embedded in a smart ring.

Company	Smart Ring	First Smart Ring Release Year	Crowdfunding Platform	Funding Received (USD)	Number of backers/ major funders
McLear Ltd.	NFC Ring	2013	Kickstarter	\$333,024	7665
Logbar	Logbar	2014	Kickstarter	\$880,998	5,161
Nuanic	Moodmetric	2014	Indiegogo	\$2,799	13
Ringly	Ringly	2015		\$6,000,000	Andreessen Horowitz (Series A)
2015: Oura Ring Gen 1					

Figure 38 *Summary of Smart Rings released prior to Oura Ring Gen 1 and their funding*¹⁵⁶

204. While the majority of these early smart ring vendors relied on crowdsourced funding from Kickstarter and Indiegogo, Ringly, which produced a jewelry-like smart ring meant to provide hands-free, screen-free smartphone notifications, had raised \$6 million in funding from venture capital firm Andreessen Horowitz. Consumers were interested enough in smart rings to invest in crowdsourcing their

¹⁵⁶ Ex-1140 (McLear, John. "NFC Ring - One Smart Ring, Unlimited Possibilities." Kickstarter. July 20, 2013. <https://www.kickstarter.com/projects/mclear/nfc-ring/>); Ex-1224 (Johns, Steven. "The gesture Ring by Logbar has been reviewed as "the worst product ever made"." Neowin. November 20, 2014. <https://www.neowin.net/news/the-gesture-ring-by-logbar-has-been-reviewed-as-the-worst-product-ever-made/>); Ex-1225 (Logbar Inc. "Ring by logbar - Shortcut Everything." Kickstarter. February 27, 2014. <https://www.kickstarter.com/projects/1761670738/ring-shortcut-everything/>); Ex-1218 (Venho, Niina. "Moodmetric Ring: Smart Jewelry To Manage Stress." Indiegogo. September 2015. <https://www.indiegogo.com/projects/moodmetric-ring-smart-jewelry-to-manage-stress#/>); Ex-1219 (Mufson, Beckett. "Finally, a Mood Ring for the 21st Century." VICE. November 24, 2016. <https://www.vice.com/en/article/finally-a-wearable-tech-mood-ring-for-the-21st-century/>); Ex-1214 (Hakikat, Atal. "The World's First Smart Ring You'll Actually Wear." The Zine. November 26, 2016. <https://www.thezine.com.au/the-worlds-first-smart-ring-youll-actually-wear/>); Ex-1226 (Perez, Sarah. "Ringly Raises \$5.1 Million Led By Andreessen Horowitz To Expand Its Smart Jewelry Collection Beyond Rings." TechCrunch. January 21, 2015. <https://techcrunch.com/2015/01/21/ringly-raises-5-1-million-from-andreessen-horowitz-to-expand-its-smart-jewelry-collection-beyond-rings/>).

development, proving there was a ready market, which in turn attracted venture capitalists.

i. McLear Near-field Communication (“NFC”) Ring

205. McLear was founded in 2012 and used the crowd-sourced funding platform Kickstarter to gain traction and funding for its first smart ring, the NFC Ring. The NFC ring featured a very simple design where a titanium band was inlaid with two NFC chips (one on the outside circumference and one on the inside circumference). The NFC inlays were sandwiched between an RFID reflective intermediate layer that prevented the ring’s metal from absorbing the NFC chip’s RFID signals and a clear RFID passive coating that enabled the NFC chip’s RFID signals to be transmitted.



Figure 39 *McLear’s NFC ring cross section showing the build-up for an NFC inlay. Notice the NFC inlay is sandwiched between an RFID reflective material and a clear RFID passive coating.*¹⁵⁷

¹⁵⁷ Ex-1140 (McLear, John. “NFC Ring - One Smart Ring, Unlimited Possibilities.” Kickstarter. July 20, 2013. <https://www.kickstarter.com/projects/mclear/nfc-ring>.)



Figure 40 *McLear's initial NFC Ring, launched in 2013. Notice the NFC portion, which is signified by the colored (black, grey, or white) portion of the ring*¹⁵⁸



Figure 41 *McLear's NFC Ring 2016 update with the NFC inlay portion*¹⁵⁹

206. This design enabled the NFC Ring to transmit unique identities (“UIDs”) via RFID signals when in range of an NFC reader. The rings were used to open NFC enabled locks on doors or smartphones and could be programmed to work as a key fob.
207. McLear’s creator John McLear was keen on democratizing innovation, using Kickstarter to raise funds and even put the Computer-aided design (“CAD”) files for the ring on the Kickstarter

¹⁵⁸ Ex-1140 (McLear, John. “NFC Ring - One Smart Ring, Unlimited Possibilities.” Kickstarter. July 20, 2013. <https://www.kickstarter.com/projects/mclear/nfc-ring>.)

¹⁵⁹ Ex-1227 (McLear, John. “One Smart Ring. Unlimited Possibilities.” Kickstarter. October 1, 2015. <https://www.kickstarter.com/projects/mclear/nfc-ring-2016-range-one-smart-ring-unlimited-possi>.)

campaign page so people could hack the design and 3D print the ring for themselves.

208. The idea for a smart ring using a flexible integrated circuit capable of conforming with a curve and a clear passive coating between a sensor and the object it sensed were all devised prior to Oura Ring Gen 1's existence and could have influenced Oura Ring Gen 1's development.

d. Smart rings after the launch of Oura Ring Gen 1, but before the launch of Oura Ring Gen 2

209. Once Oura Ring Gen 1 launched and prior to Oura Gen 2's release in 2018, at least 6 new smart rings with various functionality entered the market during various times, as summarized in the table below. Additionally, two rings that launched prior to the Oura Ring Gen 1, persisted: Ringly was in the market until January 2018 and the MoodMetric ring continues to be available today.

Company	Smart Ring	First Smart Ring Release Year	Smart Ring Functionality						Sensors	Wedding Ring Form Factor
			Sleep Tracker	Activity Tracker	Health Tracker	Alerts	Control	NFC payments		
2015: Oura Ring Gen 1										
The Touch	HB Ring	2016			X	X			Heartbeat sensor	X
Kerv Wearables	K Ring	2017					X	X	NFC sensor	X
Origami Labs	ORII	2017				X			bone conduction transducer accelerometer	
Token	Token Ring	2017					X		fingerprint sensor	X
McLear Ltd.	Smart Ring	2018					X	X	NFC sensor	X
SleepOn	Go2Sleep Ring	2018	X						3-axis accelerometer Pulse oximeter	
2017: Oura Ring Gen 2 Heritage and Balance										
2021: Oura Ring Gen 3 Heritage										
2022: Oura Ring Gen 3 Horizon										
2024: Oura Ring Gen 4										

Figure 42 *Smart rings launched between Oura Ring Gen 1 and Oura Ring Gen 2 (i.e. between 2015 and 2018)*¹⁶⁰

210. While each of the 6 new competitors introduced products with different functionality, the majority of them (4 out of 6) had the same wedding ring form factor. This indicates that the smart ring market was coalescing around the wedding ring form factor as a dominant

¹⁶⁰ Ex-1143 (Urbanowicz Jewelers. “Latest in Wearable Tech: This Ring Lets You See and Feel Your Lover's Heartbeat in Real Time.” Urbanowicz Jewelers Blog. September 6, 2016. <https://www.pittsburghdiamonds.com/urbanowicz-jewelers-blog/2016/Sep/06/latest-wearable-tech-ring-lets-you-see-and-feel-yo/>); Ex-1228 (Campbell, Philip. “Kerv Wearables launches contactless payment ring at Wearable Technology Show 2017.” The Payments Association. March 8, 2017. <https://thepaymentsassociation.org/article/kerv-wearables-launches-contactless-payment-ring-at-wearable-technology-show-2017/>); Ex-1229 (Chang, Lulu. “Armed with NFC, the Kerv smart ring works like a contactless credit card.” digitaltrends. March 8, 2017. <https://www.digitaltrends.com/mobile/kerv-smart-ring-works-like-contactless-credit-card-2/>); Ex-1230 (Fintech News Hong Kong. “ORII – The World’s First Voice-Powered Smart Ring Launched.” Fintech News. August 23, 2017. <https://fintechnews.hk/1862/iot/orii-the-worlds-first-voice-powered-smart-ring-launched-2/>); Ex-1231 (Stein, Scott. “Token Ring aims to wrap security around your finger.” CNET. June 27, 2017. <https://www.cnet.com/reviews/token-ring-preview/>); Ex-1213 (McLear Limited. “New wearable device makes payments simple.” McLEAR. December 4, 2018. <https://mclear.co/news/new-wearable-device-makes-payments-simple/>); Ex-1232 (Draper, Sam. “GO2SLEEP Wearable Smart Ring Detects Sleep Apnea and More.” Wearable Technologies. August 22, 2018. <https://wt-obk.wearable-technologies.com/2018/08/go2sleep-wearable-smart-ring-sleep-detects-sleep-apnea-and-more/>).

design. All 6 of the new competitors offered “finger-worn wearable ring devices” as described in the preamble of claim 1 (i.e. Limitation 1 [pre]). Moreover, a new competitor, the HB Ring from The Touch appeared to practice some of the limitations of the ’178 Patent around smart ring construction, demonstrating they could be implemented. The precise limitations these rings practiced are discussed in greater detail below.

211. None of Oura Ring Gen 1’s competitors rings had identical functionality to it, though the functionalities of the Go2Sleep Ring had some similarities. The Go2Sleep Ring by SleepOn, like Oura Ring Gen 1, was used to track sleep; however, unlike Oura Ring Gen 1, it lacked any other functionality and was designed specifically to be worn to bed. Nonetheless, Oura could gain insights on the market’s response to these relatively benign competitors and apply those learnings to improve its next generation.
212. While each of the 6 new competitors had different functionality, the majority of them (4 out of 6) had the same form factor, the same

wedding ring form factor indicating that the smart ring market was coalescing around the wedding ring form factor as a dominant design:

Company	Smart Ring	First Smart Ring Release Year	Crowdfunding Platform	Funding Received (USD)	Number of backers/ major funders
2015: Oura Ring Gen 1					
The Touch	HB Ring	2016	Undisclosed		
Kerv Wearables	K Ring	2017	Kickstarter	removed for IP dispute	
Origami Labs	ORII	2017	Kickstarter	\$333,619	2,082
			Indiegogo	\$446,019	2,713
				\$2,500,000	Alibaba Entrepreneur's Fund
Token	Token Ring	2017		\$43,000,000	
McLear Ltd.	Smart Ring	2018	Kickstarter	\$90,346	1,746
SleepOn	Go2Sleep Ring	2018	Indiegogo	\$100,697	814
2017: Oura Ring Gen 2 Heritage and Balance					
2021: Oura Ring Gen 3 Heritage					
2022: Oura Ring Gen 3 Horizon					
2024: Oura Ring Gen 4					

Figure 43 *Smart rings launched between Oura Ring Gen 1 and Oura Ring Gen 2 (i.e. between 2015 and 2018)*¹⁶¹

¹⁶¹ Ex-1143 (Urbanowicz Jewelers. “Latest in Wearable Tech: This Ring Lets You See and Feel Your Lover's Heartbeat in Real Time.” Urbanowicz Jewelers Blog. September 6, 2016. <https://www.pittsburghdiamonds.com/urbanowicz-jewelers-blog/2016/Sep/06/latest-wearable-tech-ring-lets-you-see-and-feel-yo/>); Ex-1233 (Wolfe, Daniel. “7 setbacks for wearable payments.” American Banker. March 16, 2018. <https://www.americanbanker.com/payments/slideshow/7-setbacks-for-wearable-payments/>); Ex-1234 (Origami Labs. “ORII Kickstarter | The Voice Powered Ring.” Kickstarter. July 18, 2017. <https://www.kickstarter.com/projects/187732114/orii-your-voice-powered-smart-ring/>); Ex-1235 (Colt, Anna. “ORII - Fastest Way to Send Texts Without a Screen.” Indiegogo. September 13, 2017. <https://www.indiegogo.com/projects/orii-fastest-way-to-send-texts-without-a-screen/#/>); Ex-1236 (Jennings, Ralph. “This Hong Kong 'Smart Ring' Startup Raised \$2.5M To Crack The Wearables Market.” Forbes. June 7, 2018. <https://www.forbes.com/sites/ralphjennings/2018/06/07/why-10000-people-are-buying-finger-rings-to-answer-their-smartphones/>); Ex-1237 (Token. “Token Begins Production of its Next-Generation Multifactor Authentication Smart Ring.” BusinessWire. August 3, 2023. <https://www.businesswire.com/news/home/20230803058819/en/Token-Begins-Production-of-its-Next-Generation-Multifactor-Authentication-Smart-Ring/>); Ex-1227 (McLear, John. “One Smart Ring. Unlimited Possibilities.” Kickstarter. October 1, 2015. <https://www.kickstarter.com/projects/mclear/nfc-ring-2016-range-one-smart-ring-unlimited-poss/>); Ex-1238 (Exchange Rates. “British Pound (GBP) To US Dollar (USD) Exchange Rate History for September 11, 2016.” Exchange Rates. July 6, 2025. <https://www.exchange-rates.org/exchange-rate-history/gbp-usd-2016-09-11/>); Ex-1239 (sleepon INC. “GO2SLEEP: AI-powered device for restful sleep.” Indiegogo. November 22, 2017. <https://www.indiegogo.com/projects/go2sleep-ai-powered-device-for-restful-sleep/#/>).

213. While Oura had already raised \$651,803 from 2,383 backers on Kickstarter by August 2015, most of the 6 new competitors that the Oura Ring Gen 1 competed against were small start-ups reliant on meager crowdsourced funding from Kickstarter and Indiegogo, with the exception of ORII. ORII funding would have signaled that there is potential to raise venture backed funds for smart rings prior to Oura gaining any traction with VCs.

i. HB Ring by The Touch

214. HB Ring by The Touch was released in 2016 after 2.5 years of product development.¹⁶² The HB Ring is sold as a pair of two rings, where each ring transmits the user's heartbeat via Bluetooth to a smartphone, which then transmits it to the other ring enabling the wearer to see and feel their partner's heartbeat. When the wearer presses their ring, the ring physically vibrates and displays a moving redline indicative of their partner's heartbeat.

215. The ring comprises two concentric rings with a cavity in the middle that houses a curved battery, a multi-dimensional integrated circuit board, and a heartbeat sensor. This concentric design is very similar to that of Oura Ring Gen 3 and Gen 4. Indeed the HB Ring practiced limitation 1 [a] of the '178 Patent ("an external housing component defining an outer circumferential surface of the finger-worn wearable

¹⁶² Ex-1240 (Cassidy, Anne. "The wedding tech now at the heart of couples' nuptials." BBC. April 23, 2023. <https://www.bbc.com/news/business-65322101>.)

ring device”) as well as limitations 1[b] (“an internal housing component defining an inner circumferential surface of a finger-worn wearable ring device, the internal housing component coupled with the external housing component, wherein at least a portion of the inner circumferential surface of the internal housing component is configured to contact a tissue of a user when the finger-worn wearable device is being worn by the user”), 1[c] (“a battery positioned within a cavity formed between the internal housing component and the external housing component, wherein the battery comprises a shape and size configured to fit within the cavity between the outer circumferential surface of the external housing component and the inner circumferential surface of the internal housing component, and wherein the battery extends through at least a first portion of the cavity of the finger-worn wearable ring device”), and 1[d] (“a printed circuit board disposed between the internal housing component and the external housing component, wherein the battery comprises a shape and size configured to fit within the cavity between the outer circumferential surface of the external housing component and the inner circumferential surface of the internal housing component, and wherein the battery extends through at least a first portion of the cavity of the finger-worn wearable ring device”). The HB ring also appears to have practiced dependent claim 12, which specifies that the curved battery comprises an arc that approximates an arc of the external housing component.

216. The depiction of the HB ring below demonstrates how The Touch appears to have implemented these limitations.

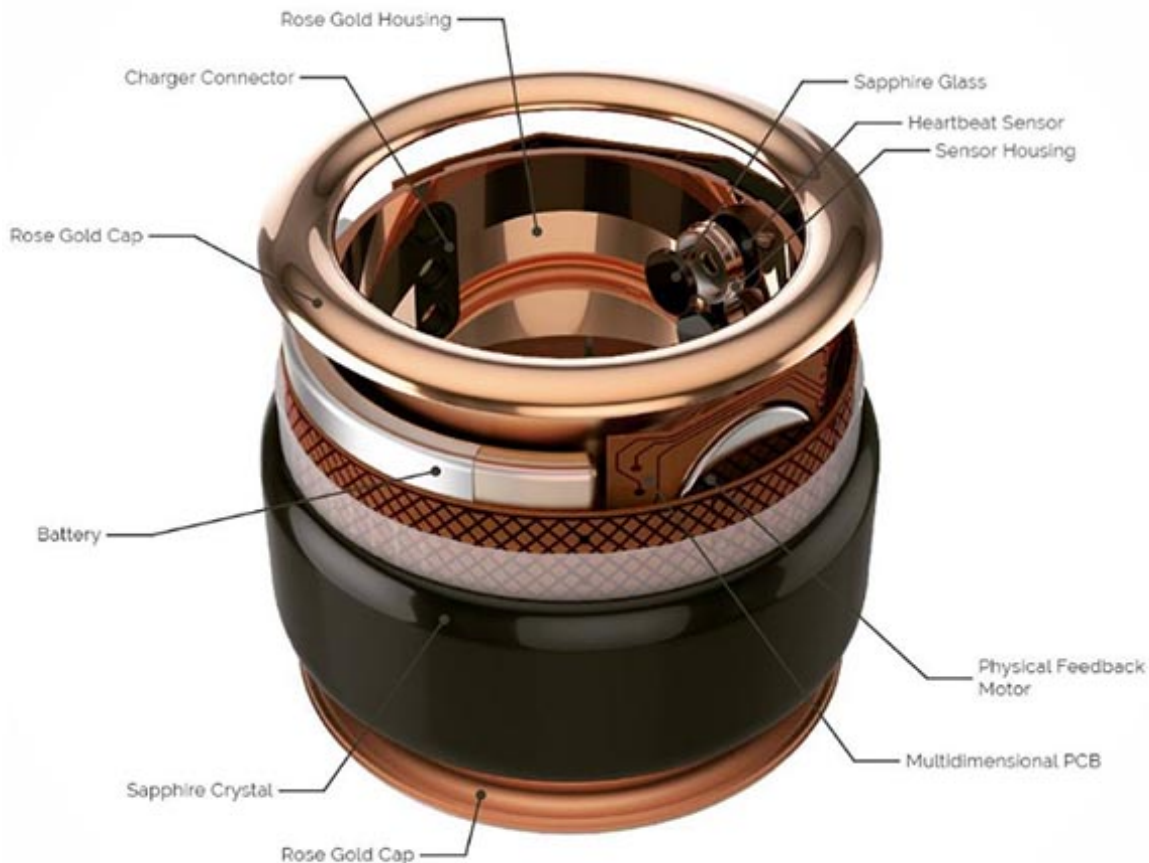


Figure 44 *HB Ring by The Touch is a smart ring designed to enable the wearer to see and feel their partner's heartbeat when they are apart. Much like Oura Ring Gen 3 Horizon and Gen 4, the HB Ring employs a concentric rings to house a curved battery and Integrated Circuits and a heartbeat sensor*¹⁶³

¹⁶³ Ex-1143 (Urbanowicz Jewelers. "Latest in Wearable Tech: This Ring Lets You See and Feel Your Lover's Heartbeat in Real Time." Urbanowicz Jewelers Blog. September 6, 2016. <https://www.pittsburghdiamonds.com/urbanowicz-jewelers-blog/2016/Sep/06/latest-wearable-tech-ring-lets-you-see-and-feel-yo/>.)

ii. Go2Sleep Ring by SleepOn

217. SleepOn released the Go2Sleep ring to help screen for sleep apnea in 2018 after raising \$100,697 from 814 backers on the crowdsourcing platform Indiegogo.¹⁶⁴ It was the first smart ring to track sleep.
218. The Go2Sleep ring is a waterproof silicon ring that includes a 3-axis accelerometer and a pulse oximeter and is capable of measuring movement, heart rate, blood oxygenation levels, and perfusion index. The ring notifies the user through a vibration if their blood oxygen level falls too low while sleeping and can be programmed to wake a user during a light sleep stage. The ring was designed to be worn exclusively at night, and its design was bulky and not particularly attractive.
219. While the Go2Sleep ring featured the same sleep functionality as the Oura Ring Gen 1, it lacked the all-day wearability and multi-functional aspects of Oura Ring, which are not embodiments of the patented technologies, to be more than a limited competitive threat. Moreover, SleepOn was reliant on crowd funding and therefore lacked sufficient capital to be a real competitive threat. It also demonstrated that sleep tracking alone was not an impetus for people to purchase a smart ring:

¹⁶⁴ Ex-1241 (SLEEPON. “SLEEPON Go2sleep Review.” SLEEPON Blog. April 12, 2024. [https://www.sleepon.us/sleepon-go2sleep-review/.](https://www.sleepon.us/sleepon-go2sleep-review/))



Figure 45 *SleepOn's Go2Sleep Ring for diagnosing sleep apnea was bulky and unattractive and made only to be worn during sleep*

e. Smart rings after the launch of Oura Ring Gen. 2, Gen. 3, and Gen. 4

220. While Oura does not argue that the Oura rings prior to the release of Oura Ring Gen 3 in October 2021 practice the claims of the '178 Patent, there were other companies to conform a smart ring into a

wedding band form factor.¹⁶⁵

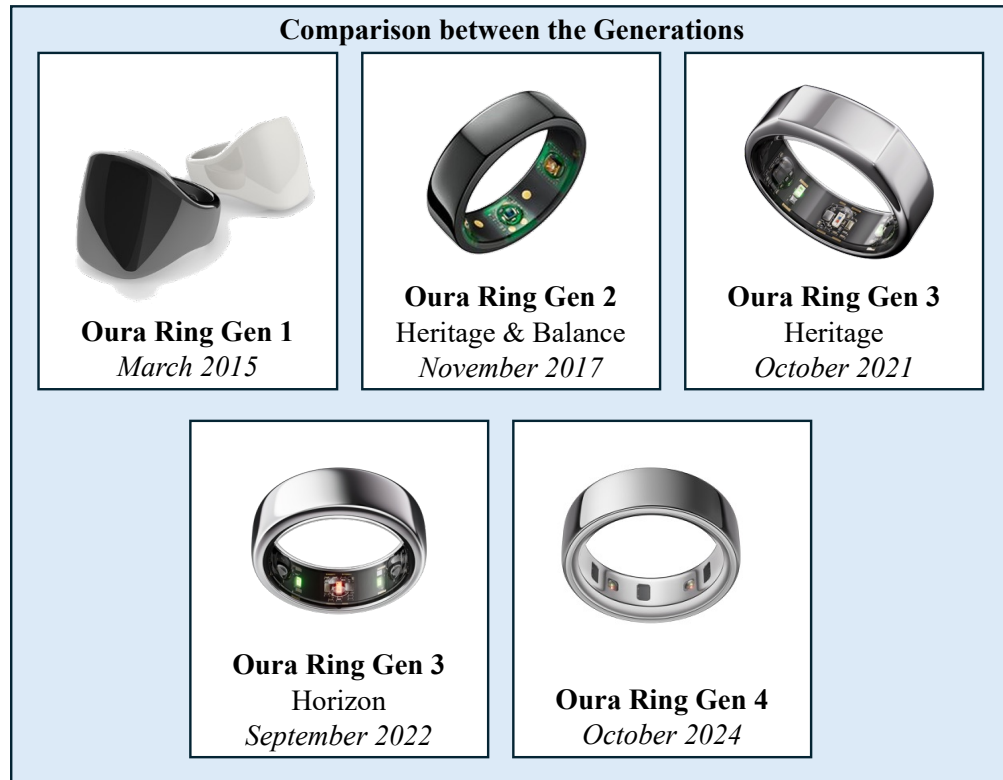


Figure 46 *Oura Gen 3 Horizon and Oura Ring Gen 4 are the first Oura rings to conform to the wedding ring form factor*¹⁶⁶

221. Prior to the Oura Ring Gen 3 launch, a smart ring vendor (i.e. HB Ring) had already conformed to the smart ring form factor and

¹⁶⁵ Ex-1242 (Hughes, Locke. "Meet Oura: The Origins and Evolution of Oura Ring." The Pulse Blog. February 10, 2025. <https://ouraring.com/blog/history-of-oura/>.)

¹⁶⁶ Ex-1136 (OURA. "Previous Oura Ring Generations." OURA. July 1, 2025. https://support.ouraring.com/hc/en-us/articles/360025570153-Previous-Oura-Ring-Generations#h_01H55VMQGE9BGRY7K7W22RG5B6.); Ex-1243 (OURA. "Product: Oura Gen 3 Heritage Stealth." OURA. July 1, 2025. <https://ouraring.com/product/rings/oura-gen3/heritage/stealth>.); Ex-1244 (iFixIt. "Oura Ring 2 Teardown." iFixIt. July 9, 2020. <https://www.ifixit.com/Teardown/Oura+Ring+2+Teardown/135207>.); Ex-1245 (OURA. "Product: Oura Gen3 Horizon." OURA. July 1, 2025. <https://ouraring.com/product/rings/oura-gen3/horizon>.); Ex-1246 (OURA. "Product: Oura Ring 4." OURA. July 1, 2025. <https://ouraring.com/product/rings/oura-ring-4/silver>.); Ex-1247 (OURA. "Product: Oura Gen 3 Heritage Silver." OURA. July 1, 2025. <https://ouraring.com/product/rings/oura-gen3/heritage/silver>.)

practiced some limitations of the patent.¹⁶⁷ As discussed in greater detail above, The Touch had launched its smart ring HB Ring in 2016 with a wedding ring form factor constructed of two concentric circles which sandwiched the curved integrated circuitry and batteries between them and implemented a blood pressure sensor on the inside of the ring.¹⁶⁸ This ring helped establish the dominant design for smart ring form factor.

222. After the Oura Ring Gen 3 Horizon launched in 2022, a number of other players entered the smart ring market adopting the wedding ring dominant design popularized by HB Ring. Each of these entrants featured the same functionality as Oura and appear to practice the limitations of the '178 Patent. In fact, Oura moved to file a complaint with the ITC against 3 of these vendors alleging that they had infringed Oura's '178 Patent which pertained to the form factor of Oura's smart ring.

¹⁶⁷ Ex-1242 (Hughes, Locke. "Meet Oura: The Origins and Evolution of Oura Ring." The Pulse Blog. February 10, 2025. <https://ouraring.com/blog/history-of-oura/>.)

¹⁶⁸ Ex-1240 (Cassidy, Anne. "The wedding tech now at the heart of couples' nuptials." BBC. April 23, 2023. <https://www.bbc.com/news/business-65322101>.); Ex-1143 (Urbanowicz Jewelers. "Latest in Wearable Tech: This Ring Lets You See and Feel Your Lover's Heartbeat in Real Time." Urbanowicz Jewelers Blog. September 6, 2016. <https://www.pittsburghdiamonds.com/urbanowicz-jewelers-blog/2016/Sep/06/latest-wearable-tech-ring-lets-you-see-and-feel-yo/>.)

CONTAINS CONFIDENTIAL BUSINESS INFORMATION
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Company	Smart Ring	First Smart Ring Release Year	Smart ring functionality						Sensors	Wedding Ring Form Factor	Wireless Charging	Battery life	Subscription	Material	Differentiation
			Sleep Tracker	Activity Tracker	Health Tracker	Alerts	Control	NFC payments							
2017: Oura Ring Gen 2 Balance and Heritage															
Amazon	Echo Loop Ring	2019					X		None	X		1 day	No		Amazon Alexa extension in a ring
2021: Oura Ring Gen 3 Heritage															
2022: Oura Ring Gen 3 Horizon															
Circular	Circular Ring Slim	2022	X	X	X	X			temperature sensor, 3-axis accelerometer, PPG sensor	X		5 days	No	titanium	
Ultrahuman	Ultrahuman Ring Air	2023	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		5 days	No	titanium body covered with tungsten carbide, smooth inner shell	
Noise	Luna Ring	2023	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		7 days	No	fighter-jet grade titanium, hypoallergenic lining treated with silicone	
Movano Health	Evie Smart Ring	2023/2024	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		4 days	No	zirconium based Liquidmetal	Medical grade health tracker, seeking FDA regulatory approval
2024: Oura Ring Gen 4															
Samsung	Samsung Galaxy Ring	2024	X	X	X		X		temperature sensor, 3-axis accelerometer, PPG sensor	X	X	6 days	No	titanium	Integration with Samsung Galaxy Smart Watch, battery life preservation
RingConn, LLC	RingConn Gen 1	2024	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		7 days	No	titanium	Monitors sleep apnea, affordable
Zepp Health Corp	Amazfit Helio Ring	2024	X	X	X				BioTracker PPG sensor, temperature, EDA sensor, 6-axis accelerometer	X	X	4 days	No	titanium alloy, inner ring resin	
Sky Labs	I-CART BP monitoring ring	2024			X				PPG sensor	X		2 days	No		Continuous BP, atrial fibrillation detection insurance reimbursable, US/EU regulatory clearance
Circular	Circular Ring 2	2025	X	X	X	X			medical grade ECG, PPG, temperature, accelerometer, bioelectrical signal sensor	X	X	6 days	No	titanium	Blood glucose monitoring
RingConn, LLC	RingConn Gen 2	2025	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		12 days	No	titanium	
RingConn, LLC	RingConn Gen 2 Air	2025	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		10 days	No	stainless steel	
Noise	Luna 2.0 Ring	2025	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		30 days	No	fighter-jet grade titanium, diamond like coating	accuracy validated by Philips Biosensing (98.2%), AI powered bio monitoring
Ultrahuman	Ultrahuman Ring Rare	2026E	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		6 days	No	18 kt rose or yellow gold, platinum	atrial fibrillation detection

Figure 47 Smart rings released after each of the later Oura Ring generations (Oura Ring Gen 2 Heritage, Oura Ring Gen 2 Balance, Oura Ring Gen 3 Heritage, Oura Ring Gen 3 Horizon, and Oura Ring Gen 4)¹⁶⁹

¹⁶⁹ Ex-1248 (Gebhart, Andrew. “Echo Loop puts Amazon's Alexa on your finger.” CNET. September 25, 2019. <https://www.cnet.com/home/smart-home/echo-loop-puts-amazons-alexa-on-your-finger/>); Ex-1249 (Smith, Dale. “Amazon Echo Loop -- everything we know about Amazon's wacky new smart ring.” CNET. October 8, 2019. <https://www.cnet.com/tech/mobile/amazon-echo-loop-everything-we-know-about-amazons-wacky-new-smart->

ring/); Ex-1250 (Koetsier, John. “Amazon’s Echo Loop Smart Ring Gives A Whole New Meaning To ‘Talk To The Hand’.” Forbes. September 26, 2019. <https://www.forbes.com/sites/johnkoetsier/2019/09/26/amazons-echo-loop-gives-whole-new-meaning-to-talk-to-the-hand/>); Ex-1251 (Newbega RFID Technology. “The Best Smart NFC Ring: Oura Ring 3, McLearn Ringpay, and More Compared.” Newbega. April 24, 2024. <https://www.newbega.com/news/nfc-ring.html>); Ex-1252 (Team XYZ. “Health-tracking smart ring from Circular.xyz aims to improve your sleep, energy, and activity.” XYZ Blog. August 10, 2022. <https://gen.xyz/blog/circularxyz>); Ex-1253 (Fedow, Lenore. “Ultrahuman Unveils Luxury Smart Ring.” Technology. January 13, 2025. <https://nationaljeweler.com/articles/13558-ultrahuman-unveils-luxury-smart-ring>); Ex-1254 (Hill, Simon. “Review: Ultrahuman Ring Air.” Wired. October 22, 2023. <https://www.wired.com/review/ultrahuman-ring-air/>); Ex-1255 (Luna. “Unlocking Human Potential.” Luna Zone. July 1, 2025. <https://www.lunazone.com/>); Ex-1256 (Noise. “Global Smart Wearable Leader, Noise, Launches Its First Smart Ring, Luna Ring; Consolidates Its Leadership With a New Form Factor.” Business Wire. July 25, 2023. <https://www.businesswire.com/news/home/20230725952026/en/Global-Smart-Wearable-Leader-Noise-Launches-Its-First-Smart-Ring-Luna-Ring-Consolidates-Its-Leadership-With-a-New-Form-Factor>); Ex-1257 (Movano. “Movano Health to Launch the Evie Ring on November 20.” Movano Health. October 30, 2023. <https://ir.movano.com/news-detail/movano-health-to-launch-the-evie-ring-on-november-20/61b61e38-ed7b-4abe-833d-40a2f43ab99b>); Ex-1258 (Leabman, Michael. “Enhanced Heart Rate in Motion Accuracy with the Evie Ring Using Advanced Deep Learning Algorithms.” Evie Blog. June 1, 2024. <https://eviering.com/blogs/news/enhanced-heart-rate-in-motion-accuracy-with-the-evie-ring-using-advanced-deep-learning-algorithms>); Ex-1259 (Lida. “CES 2024: The Evie Ring is The First Wearable Smart Ring Designed for Women.” The Synnotix. January 8, 2024. <https://www.synnotix.com/reviews/ces-2024-evie-ring>); Ex-1260 (Savvides, Lexy. “Samsung Galaxy Ring Review: My Favorite Smart Ring, Hands Down.” CNET. July 17, 2024. <https://www.cnet.com/tech/mobile/samsung-galaxy-ring-review-my-favorite-smart-ring-hands-down/>); Ex-1261 (Cimino, Kaitlyn. “Samsung Galaxy Ring is here: Price, size, release date, and everything else!” Android Authority. July 10, 2024. <https://www.androidauthority.com/samsung-galaxy-ring-3340682/>); Ex-1262 (RingConn. “RingConn Gen 1.” RingConn. July 1, 2025. https://ringconn.com/products/ringconn-gen-1?srsId=AfmBOorH6utnNebg1JBj_xU2IqZRu2nK2l8P4AuRGO5-BQQvzwUcSd9t&variant=47273813672244); Ex-1263 (RingConn. “About Us: Why RingConn?” RingConn. July 1, 2025. <https://ringconn.com/pages/about-us>); Ex-1264 (Tang, Angela. “Zepp Health Announces US Launch Date for Amazfit Helio Ring.” Zepp. April 30, 2024. <https://www.zepp.com/press-release/zepp-health-announces-us-launch-date-for-amazfit-helio-ring>); Ex-1265 (Leclair, Dave. “The Amazfit Helio Ring launches May 15 for only \$299 to take on Samsung Galaxy Ring.” Tom’s Guide. May 1, 2024. <https://www.tomsguide.com/phones/the-amazfit-helio-ring-launches-may-15-for-only-dollar299-to-take-on-samsung-galaxy-ring>); Ex-1266 (amazfit. “Amazfit Helio Ring.” amazfit. July 1, 2025. <https://www.amazfit.com/products/amazfit-helio-ring>); Ex-1267 (Chu, Marian (YoonJee). “Sky Labs seeks global expansion of world’s first BP monitor ring.” BioWorld. April 22, 2025. <https://www.bioworld.com/articles/719393-sky-labs-seeks-global-expansion-of-worlds-first-bp-monitor-ring?v=preview>); Ex-1268 (Barton, Katerina. “This South Korean startup developed a wearable ring to treat hypertension.” Fast Company. March 3, 2024. <https://www.fastcompany.com/91033750/sky-labs-most-innovative-companies-2024>); Ex-1269 (CircularRing. “Circular Ring 2: World’s Most Advanced Health Tracking Ring.” Kickstarter. March 5, 2025. <https://www.kickstarter.com/projects/circular-ring/circular-ring-2-worlds-most-advanced-health-tracking-ring>); Ex-1270 (Circular. “Shop.” Circular. July 1, 2025. <https://www.circular.xyz/shop>); Ex-1271 (Torres, JC. “World’s First ECG Smart Ring Raises Nearly \$2.5 Million in Funding Just Within A Month.” Yanko Design. April 12, 2025. <https://www.yankodesign.com/2025/04/12/worlds-first-ecg-smart-ring-raises-nearly-2-5-million-in-funding-just-within-a-month/>); Ex-1272 (RingConn. “RingConn Gen 2.” RingConn. July 1, 2025. <https://ringconn.com/products/ringconn-gen-2?variant=48162846769460>); Ex-1273 (Gebhart, Andrew. “RingConn Gen 2 Air Review.” PC Mag. April 4, 2025. <https://www.pcmag.com/reviews/ringconn-gen-2-air>); Ex-1274 (Allison, Conor. “CES 2025: Wearable’s Best in Show awards revealed.” Wearable. January 13, 2025. <https://www.wearable.com/ces/the-best-wearables-at-ces-2025>); Ex-1275 (Sean. “Noise Luna Ring Gen 2.0 &

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Company	Smart Ring	First Smart Ring Release Year	Crowdfunding Platform	Funding Received (USD)	Number of backers/ major funders
2017: Oura Ring Gen 2 Balance and Heritage					
Amazon	Echo Loop Ring	2019		N/A	
2021: Oura Ring Gen 3 Heritage					
2022: Oura Ring Gen 3 Horizon					
Circular	Circular Ring Slim	2022	Kickstarter	2020: \$361,362	1,554
			Indiegogo	2020: \$443,395	1,853
Ultrahuman	Ultrahuman Ring Air	2023	Indiegogo	2022: \$679,732	2,221
			Kickstarter	2023: \$387,554	1,022
Noise	Luna Ring	2023		N/A	
Movano Health	Evie Smart Ring	2023/2024		2024: \$24,000,000	tier 1 medical device company
2024: Oura Ring Gen 4					
Samsung	Samsung Galaxy Ring	2024		N/A	
RingConn, LLC	RingConn Gen 1	2024	Indiegogo	2023: \$1,318,732	7,530
Zepp Health Corp	Amazfit Helio Ring	2024		N/A	
Sky Labs	I-CART BP monitoring ring	2024		2023: \$15,300,000	Korea Development Bank, K2 Investment Partners
Circular	Circular Ring 2	2025	Kickstarter	2024: \$3,696,013	12,426
RingConn, LLC	RingConn Gen 2	2025	Indiegogo	2024: \$4,415,966	18,428
RingConn, LLC	RingConn Gen 2 Air	2025		N/A	
Noise	Luna 2.0 Ring	2025	Indiegogo	2024: \$195,895	860
Ultrahuman	Ultrahuman Ring Rare	2026E		N/A	

Figure 48 *Funding related to smart rings released after each of the later Oura Ring generations (Oura Ring Gen 2 Heritage, Oura Ring Gen 2 Balance, Oura Ring Gen 3 Heritage, Oura Ring Gen 3 Horizon, and Oura Ring Gen 4¹⁷⁰*

ColorFit Pro 6 Debuted at CES 2025.” GIZMOCHINA. January 9, 2025. <https://www.gizmochina.com/2025/01/09/noise-luna-ring-2-colorfit-pro-6-debut-ces-2025/>.); Ex-1276 (Ultrahuman. “World’s First Luxury Smart Ring.” Ultrahuman. July 1, 2025. <https://www.ultrahuman.com/rare/>.); Ex-1277 (Song, Victoria. “Ultrahuman thinks its 18-karat gold smart ring is worth \$1,900.” The Verge. January 7, 2025. <https://www.theverge.com/2025/1/7/24337049/ultrahuman-rare-ces-2025-smart-ring-wearables>.); Ex-1278 (Kollat, Matt. “Circular’s next-gen smart ring lands with wireless charging and digital sizing – pre-orders now open.” yahoo!tech. March 5, 2025. <https://tech.yahoo.com/wearables/articles/circular-next-gen-smart-ring-080000928.html?guccounter>.); Ex-1279 (Samsung. “How to charge the Galaxy Ring.” Samsung. July 1, 2025. <https://www.samsung.com/us/support/answer/ANS10003281/>.); Ex-1280 (amazfit. “Helio Ring.” amazfit US. July 1, 2025. <https://us.amazfit.com/products/amazfit-helio-ring>.)

¹⁷⁰ Ex-1269 (CircularRing. “Circular Ring 2: World’s Most Advanced Health Tracking Ring.” Kickstarter. March 5, 2025. <https://www.kickstarter.com/projects/circular-ring/circular-ring-2-worlds-most-advanced-health-tracking-ring>.); Ex-1281 (CircularRing. “Circular Smart Ring: Sleep, Energy, Performance.” Indiegogo. August 1, 2025. https://www.indiegogo.com/projects/circular-smart-ring-sleep-energy-performance#.); Ex-1282 (Ultrahuman. “Ultrahuman Ring - Decode Your Metabolism.” Indiegogo. July 1, 2022. https://www.indiegogo.com/projects/ultrahuman-ring-decode-your-metabolism--3#.); Ex-1283 (Ultrahuman. “Ultrahuman Ring AIR.” Kickstarter. May 15, 2024. <https://www.kickstarter.com/projects/ultrahuman/ultrahuman->

i. Circular

223. Circular released two smart rings, Circular Ring Slim and Circular Ring 2, with similar functionality to Oura's smart rings, prompting Oura to accuse Circular of infringing its '178 Patent. In response to Oura's patent infringement complaint, Circular has licensed Oura's entire patent portfolio and now pays Oura a royalty on every smart ring they sell.

ring-air.); Ex-1284 (Exchange Rates UK. "British Pound to US Dollar History: 2023." Exchange Rates. July 1, 2025. <https://www.exchangerates.org.uk/GBP-USD-spot-exchange-rates-history-2023.html>); Ex-1285 (Movano. "Movano Health Reports 2023 Financial Results and Provides Business Update." Movano Health. April 4, 2024. <https://ir.movano.com/news-detail/movano-health-reports-2023-financial-results-and-provides-business-update/f99b07bf-7165-4ec3-8042-2b4cd67de674>); Ex-1286 (RingConn. "RingConn Smart Ring: Smartest Wearable for You." Indiegogo. November 1, 2025. https://www.indiegogo.com/projects/ringconn-smart-ring-smartest-wearable-for-you--2#); Ex-1268 (Barton, Katerina. "This South Korean startup developed a wearable ring to treat hypertension." Fast Company. March 3, 2024. <https://www.fastcompany.com/91033750/sky-labs-most-innovative-companies-2024>); Ex-1287 (RingConn. "RingConn Gen 2: Ultimate Lightness, 12 Days Battery." Kickstarter. December 23, 2024. <https://www.kickstarter.com/projects/2059923007/ringconn-gen-2-ultimate-lightness-12-days-battery>); Ex-1288 (Noise. "LUNA Ring: 70 health metrics. 1 Smart Ring." Indiegogo. March 1, 2024. https://www.indiegogo.com/projects/luna-ring-70-health-metrics-1-smart-ring#).

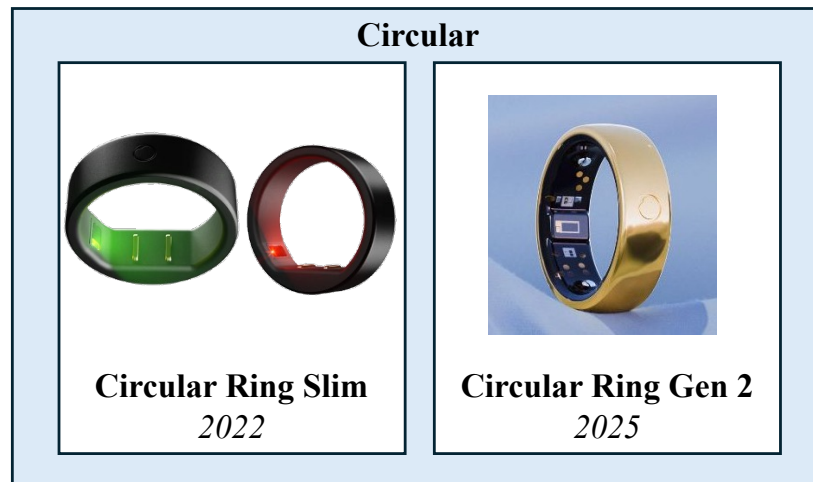


Figure 49 *Circular has produced two smart rings: Circular Ring Slim (2022) and Circular Ring Gen 2 (2025)*¹⁷¹

ii. Ultrahuman

224. Ultrahuman has produced two smart rings the Ultrahuman Ring Air (2023) and the Ultrahuman Ring Rare (2025) with similar functionality to Oura’s Oura Ring Gen 3 Heritage and Oura Ring Gen 4. Oura has accused Ultrahuman of infringement of the ’178 Patent and the case is currently being litigated before the International Trade Commission (ITC).

¹⁷¹ Ex-1289 (CircularRing. “Shop: Circular Ring Slim.” Circular. July 1, 2025. <https://shop.circular.xyz/pages/circular-ring-slim>.); Ex-1290 (Chesnokova, Sofia. “Meet Circular Ring 2: French wearable taking on Oura with cutting-edge features.” TFN. January 7, 2025. <https://techfundingnews.com/meet-circular-ring-2-french-wearable-taking-on-oura-with-cutting-edge-features/>.)

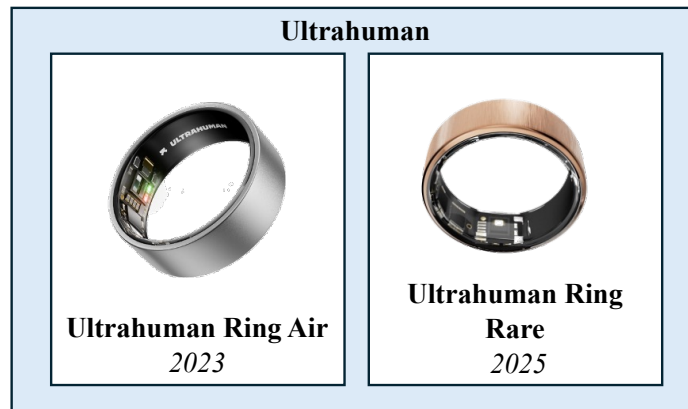


Figure 50 *Ultrahuman has produced two smart rings: Ultrahuman Ring Air (2023) and Ultrahuman Ring Rare (2025)*¹⁷²

iii. RingConn

225. RingConn has produced three smart rings the RingConn Gen 1 (2024), RingConn Gen 2 (2025), and RingConn Gen 2 Air (2025) with similar functionality to Oura Ring Gen 3 Heritage and Oura Ring Gen 4. In addition to Ultrahuman, Oura has accused RingConn of infringement of the '178 Patent and the case is currently being litigated before the ITC.

¹⁷² Ex-1291 (Ultrahuman. "Shop: Ring AIR." Ultrahuman. July 1, 2025. <https://www.ultrahuman.com/ring/buy/us/>.); Ex-1292 (Lomas, Natasha. "Ultrahuman stakes a claim to luxury smart rings with trio of 18K gold and pt950 platinum bands." Tech Crunch. January 7, 2025. <https://techcrunch.com/2025/01/07/ultrahuman-stakes-a-claim-to-luxury-smart-rings-with-trio-of-18k-gold-and-pt950-platinum-bands/>.)



Figure 51 *RingConn has produced 3 smart rings: RingConn Gen 1 (2024), RingConn Gen 2 (2025), and RingConn Gen 2 Air (2025¹⁷³)*

226. The early commercial performance of the Oura Ring is not attributable to the uniqueness of its product. Smart rings as a product category evolved as an incremental innovation from fitness trackers and smartwatches, both of which established the market for health tracking in all its various iterations (activity levels, sleep, heart rate, etc.). Also, as Oura was not the first smart ring vendor to enter to market, it learned from the successes and failures of companies that preceded it, both in terms of technology, form factor, and functionality. These factors, along with the limited competition that Oura faced early on, indicate that timing contributed more to its early commercial performance than any of the elements covered in the '178 Patent.

¹⁷³ Ex-1293 (RingConn. "RingConn Gen 1: Midnight Black." RingConn. July 1, 2025. <https://ringconn.com/products/ringconn-gen-1>.); Ex-1294 (RingConn. "RingConn Gen 2 Air Review." RingConn. July 1, 2025. <https://ringconn.com/products/ringconn-gen-2-air>.); Ex-1295 (RingConn. "RingConn Gen 2: The World's First Ultra-Thin Smart Ring With Sleep Apnea Monitoring." RingConn. July 1, 2025. https://ringconn.com/pages/ringconn-gen-2?gad_source.)

5. Oura has not achieved significant commercial success with the Oura Ring Gen 3 Heritage and Gen 3 Horizon

227. The Patent Owner's Response asserts that Oura Ring was a success because of substantial sales and sales growth since the introductions of the Oura Ring Gen 3 in October 2021. The reality is that Oura experienced relatively stagnant, low-level sales during the early years of Oura Ring Gen 3 Heritage and Oura Ring Gen 3 Horizon. Those relatively stagnant, low level sales may be even less compelling as the data available from Oura omits cancellations and Oura experienced at least one sizeable order cancellation.¹⁷⁴
228. The launch of each Oura Ring and its subsequent gross monthly worldwide unit sales are analyzed in detail below. They demonstrate that Oura Ring sustained only anemic sales with occasional peaks attributable to seasonality, discounts, HSA/FSA reimbursement, or in the case of Oura Ring Gen 4 substantial increase in accuracy wholly unrelated to the patents at issue.

¹⁷⁴ It appears that there was a [REDACTED] in Oura Ring monthly worldwide unit sales in September 2024. This [REDACTED] appears to coincide with a \$96M DOD investment in Oura Ring. However, the DOD canceled this order in March 2025. Ex-1297 (ID Tech Editorial Team. "Pentagon Cancels \$96M Biometric Ring Contract Amid Privacy Concerns." IDTechWire. March 7, 2025. <https://idtechwire.com/pentagon-cancels-96m-biometric-ring-contract-amid-privacy-concerns/>); Ex-1298 (Welch, Carley. "Pentagon's \$96M wearable contract sparks protest, accusations of vendor preference." Breaking Defense. February 19, 2025. <https://breakingdefense.com/2025/02/pentagons-96m-wearable-contract-sparks-protest-accusations-of-vendor-preference/>); Clarke declaration, Appendix 10

a. Oura Gen 3 Heritage Launch

229. The figure below shows Oura's Gross Monthly Worldwide Unit Sales since the launch of Oura Gen 3 Heritage.

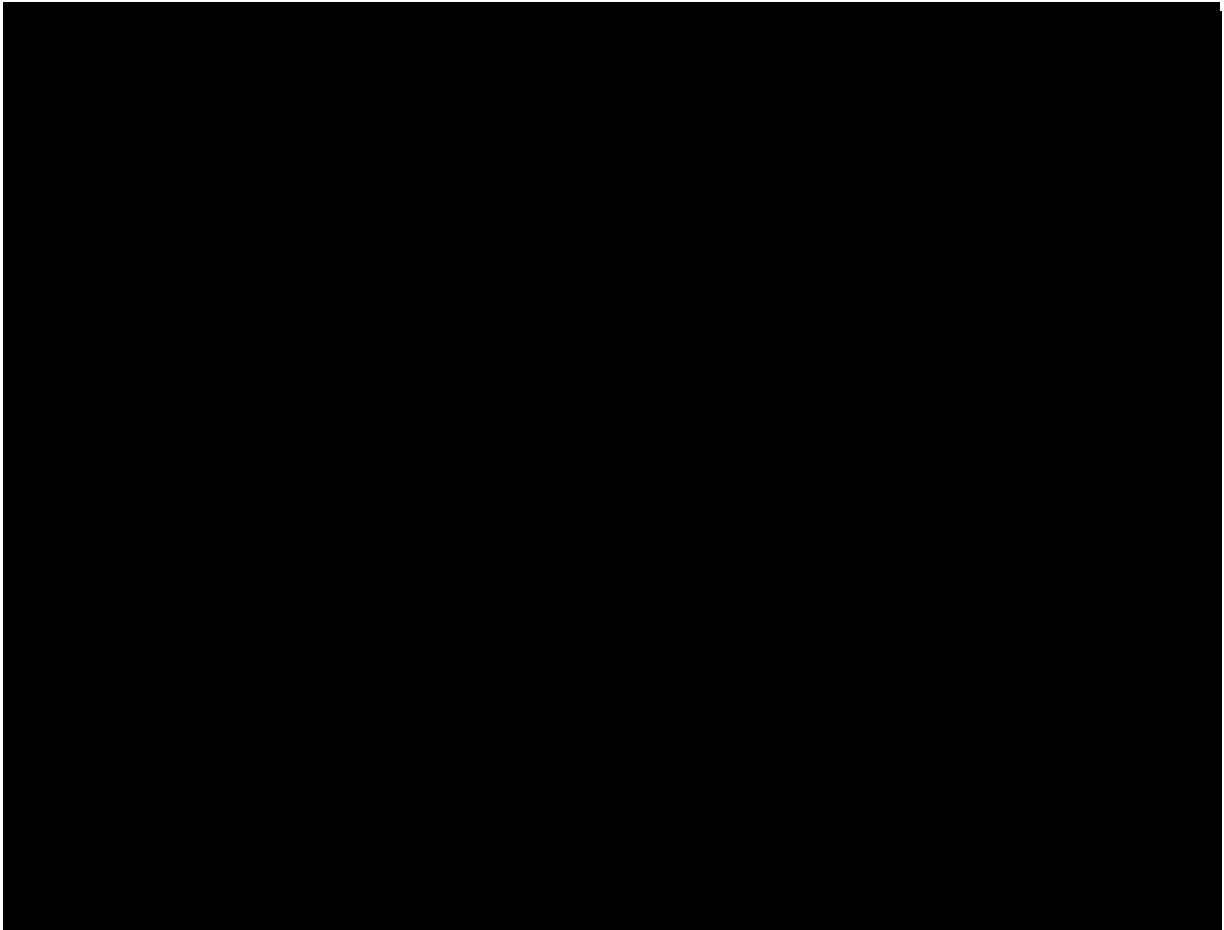


Figure 52 *Oura Gross Monthly Worldwide Unit Sales since the launch of Oura Gen 3 Heritage (October 2021-August 2022)*¹⁷⁵

230. It is difficult to properly attribute the initial October/November spike in sales as the data reported in Appendix 10 of Mr. Clarke's

¹⁷⁵ Note: October 2021 and November 2021 sales likely reflect collective sales of Oura Ring Gen 2 Balance/Heritage and Oura Ring Gen 3 Heritage, as [REDACTED] and there was a likely an overlap before Oura Ring Gen 2 Balance/Heritage was sunset and Oura Ring Gen 3 Heritage was introduced on the market. Source: Clarke declaration, Appendix 10

declaration does not distinguish between generations. While Oura Gen 3 Heritage launched in October 2021, there is no data in Appendix 10 indicating that only Oura Gen 3 Heritage was available on the market at that time. Nor did Mr. Clarke's declaration provide a definitive date for when the Oura Gen 2 Balance/Heritage was sunset.

231. It appears that there was a cross over period during which Oura's Gen 2 Balance/Heritage coexisted on the market with Oura Gen 3 Heritage and the spike in sales represent sales of both Oura Gen 2 Balance/Heritage and Oura Gen 3 Heritage as well as purchase seasonality associated with the holiday season.
232. In fact, Oura sent existing Oura Ring customers, whom had chosen its product because of its early availability and lack of competition, emails and in-app pop-up messages coinciding with the release of the Oura Ring Gen 3 Heritage in October 2021, providing them with incentives to upgrade to Oura Ring Gen 3 Heritage from the Oura Ring Gen 2 Heritage/Balance within the first 14 days.¹⁷⁶ These incentives included "early access," a discount, and free lifetime membership to the Oura subscription.¹⁷⁷

¹⁷⁶ Ex-1299 (Latto, Joel. "Oura Ring Gen3 Upgrade Offer FAQ (and Launch PR Fail)." Joel Latto. October 27, 2021. <https://joellatto.com/2021/10/27/oura-gen3-ring-upgrade-offer-faq-and-launch-pr-fail/>.)

¹⁷⁷ Ex-1299 (Latto, Joel. "Oura Ring Gen3 Upgrade Offer FAQ (and Launch PR Fail)." Joel Latto. October 27, 2021. <https://joellatto.com/2021/10/27/oura-gen3-ring-upgrade-offer-faq-and-launch-pr-fail/>.)



Figure 53 *Oura Ring Gen 2 and Oura Ring Gen 3 Heritage overlapped in the market*

233. The harsh reality is that Oura's Gross Monthly Worldwide Unit Sales

[REDACTED]

units/month, once the initial spike attributable to the cross-over period, incentives, and seasonality subsided.

234. Such low monthly gross worldwide shipments do not constitute an indication of commercial success.

b. Oura Gen 3 Horizon Launch

235. Oura's Gross Monthly Worldwide Unit Sales continued at this low level after Oura Gen 3 Horizon was released, with Oura's Gross Monthly Worldwide Sales average over the [REDACTED]

[REDACTED] just [REDACTED] units/month. [REDACTED]

[REDACTED]

notwithstanding that they now included both Oura Gen 3 Heritage and Gen 3 Horizon.

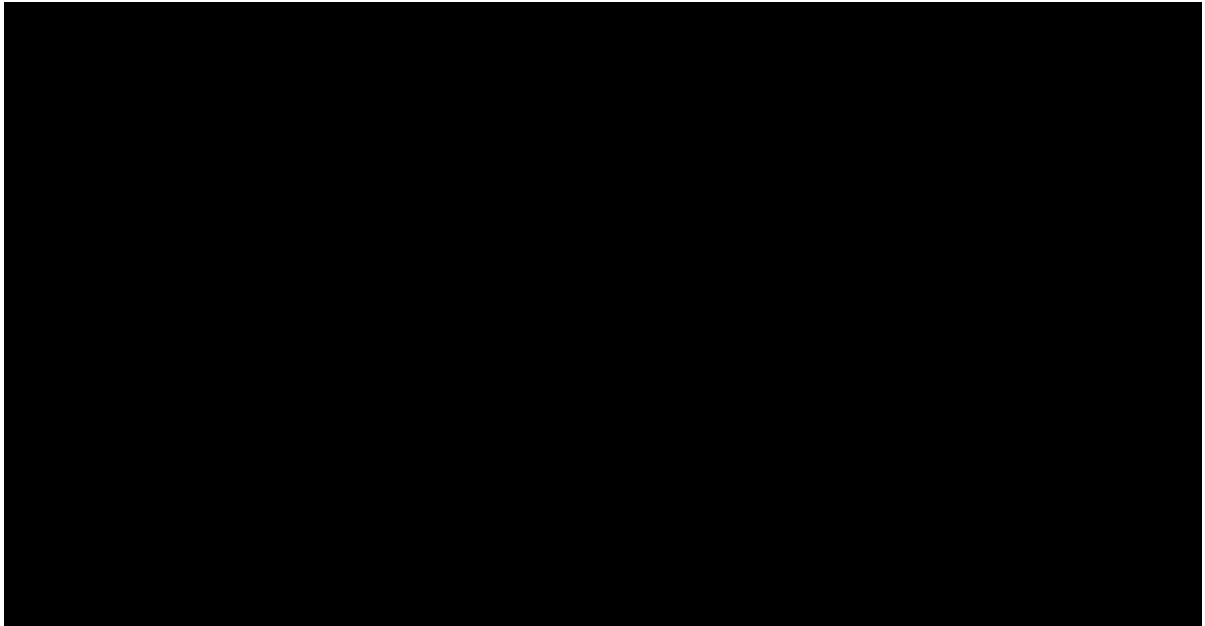


Figure 54 *Oura Gross Monthly Worldwide Unit Sales since the launch of Oura Gen 3 Horizon (September 2022-September 2024)*¹⁷⁸



Figure 55 *Oura Ring Gen 3 Heritage and Oura Ring Gen 3 Horizon overlapped in the market*

236. What is particularly interesting about this data is that the combined offer of Oura Gen 3 Heritage and Gen 3 Horizon [REDACTED]

[REDACTED]

¹⁷⁸ Note: Oura Gen 3 Horizon was released September 2022 and Oura Gen 3 Heritage remained on the market. Clarke declaration, Appendix 10

[REDACTED]

[REDACTED]. The relatively [REDACTED] monthly worldwide unit sales experienced by Oura Ring Gen 3 Heritage and Gen 3 Horizon together during the 23 months between December 2021 and October 2023 call into question the traction of the Oura Ring Gen 3 Heritage and in particular the purported uplift in sales attributable to the Gen 3 Horizon during that period.

237. Interestingly, Oura Ring Gen 3 Heritage and Gen 3 Horizon experienced a sustained increase in monthly worldwide unit sales during the 11 months from November 2023 through September 2024, with average monthly worldwide unit sales averaging [REDACTED] units/month, which cannot be attributed to the product characteristics.
238. This represented a nearly [REDACTED] unit/month increase in average monthly unit sales over the average seen for the period of September 2022 - October 2023. Rather than being attributable to any changes in the Oura Ring Gen 3 Horizon/Heritage or its ring construction (as the Oura Ring Gen 3 Horizon had already been on the market for 14 months at that juncture), this appears to be attributable to two unrelated factors: (1) a [REDACTED] from seasonality followed by (2) a sustained increase in the gross monthly unit sales thanks to the fact that Oura Rings became eligible for Health Savings Account (“HSA”) and Flexible Spending Account (“FSA”).
239. The seasonality spike for Oura Ring Gen 3 Horizon/Heritage was likely fueled by Black Friday discounts, as Esquire reported that the

Oura Ring Gen 3 Heritage and Horizon were both on sale with up to \$150 off their usual prices on both Amazon and Oura websites, with Amazon further slashing the Oura Ring price an additional \$15 to \$25 more on Cyber Monday.¹⁷⁹

240. HSA/FSA eligibility made it possible for consumers to purchase Oura rings with pre-tax dollars starting in December 2023.¹⁸⁰ Moreover, consumers looking to spend their FSA balances by the December 31st deadline each year to avoid losing those funds, could now consider purchasing an Oura Ring in the few weeks before that deadline.
241. The spike in Oura Ring Gen 3 Horizon and Gen 3 Heritage sales seen just before the Oura Ring Gen 4 launch in September 2024 appears to be attributable at least in part to a contract with the Department of Defense (DoD) to supply \$96 million worth of Oura Rings and Subscriptions.¹⁸¹ While it appears Oura may have recorded these sales for September 2024, the deal never materialized, thus their sales numbers for September 2024 appear to have been artificially inflated.¹⁸²

¹⁷⁹ Ex-1300 (Gelbart, Bryn. “The Oura Ring Is Even More on Sale Now.” Esquire. December 2, 2024. <https://www.esquire.com/lifestyle/tech/a63033170/black-friday-oura-ring-deals-2024/>.)

¹⁸⁰ Ex-1301 (buyFSA Experts. “Is an Oura Ring FSA/HSA Eligible?.” buyFSA. December 5, 2024. <https://buyfsa.com/blogs/fsa-hsa-eligibility-list/is-an-oura-ring-fsa-hsa-eligible>.)

¹⁸¹ Ex-1298 (Welch, Carley. “Pentagon’s \$96M wearable contract sparks protest, accusations of vendor preference.” Breaking Defense. February 19, 2025. <https://breakingdefense.com/2025/02/pentagons-96m-wearable-contract-sparks-protest-accusations-of-vendor-preference/>.)

¹⁸² Ex-1302 (Welch, Carley. “‘This acquisition is no longer required:’ Defense Health Agency cancels \$96M wearable solicitation.” Breaking Defense. March 5, 2025. <https://breakingdefense.com/2025/03/this-acquisition-is-no-longer-required-defense-health-agency-cancels-96m-wearable-solicitation/>.)

242. Oura's ability to raise a \$200M round of funding (and the resultant \$5.2 billion valuation) was likely a result of the increased monthly unit sales witnessed after Oura became HSA/FSA eligible and the spike in September 2024 which appears to be attributable at least in part to its contract with the Department of Defense, rather than due to ring construction.¹⁸³

c. Oura Ring Gen 4 Launch

243. Oura Ring Gen 4 introduced a ring with all titanium construction that no longer featured nobbles or protrusions into the user's finger where the sensors were located.¹⁸⁴
244. The most notable difference between the Oura Ring Gen 3 Horizon and Oura Ring Gen 4, however, was the increased accuracy and sensor performance where the Oura Ring Gen 4 increased the number of signal pathways (i.e. LEDs emitting and receiving light) from 8 to 18, resulting in a 120% improvement in signal quality for blood oxygen sensing, 15% increase in accuracy of breathing disturbance index (BDI), and 7% and 31% drop in gaps in daytime and nighttime heart rate readings, respectively.¹⁸⁵

¹⁸³ Ex-1302 (Welch, Carley. "'This acquisition is no longer required:' Defense Health Agency cancels \$96M wearable solicitation." Breaking Defense. March 5, 2025. <https://breakingdefense.com/2025/03/this-acquisition-is-no-longer-required-defense-health-agency-cancels-96m-wearable-solicitation/>.)

¹⁸⁴ Ex-1303 (Allison, Conor. "Oura Ring 4 vs. Ring 3: What we recommend after six months." Wareable. April 13, 2025. <https://www.wareable.com/wearable-tech/oura-ring-4-vs-ring-3-key-differences-compared>.)

¹⁸⁵ Ex-1303 (Allison, Conor. "Oura Ring 4 vs. Ring 3: What we recommend after six months." Wareable. April 13, 2025. <https://www.wareable.com/wearable-tech/oura-ring-4-vs-ring-3-key-differences-compared>.)

245. The Oura Ring Gen 4 also featured slightly longer battery life of 8 days as compared to 7 days for Oura Ring Gen 3 Horizon.¹⁸⁶



Figure 56 *Oura Ring Gen 4 had an all titanium construction and lacked the protrusions in the inner housing where the sensors are located. Oura Ring Gen 4 overlapped in the market with Oura Ring Gen 3 Heritage/Horizon*¹⁸⁷

246. Oura Ring Gen 4 sales commenced in October 2024, however, Oura continued selling Oura Ring Gen 3 Heritage and Gen 3 Horizon at a discount after the launch of Oura Ring Gen 4 until stock ran out.¹⁸⁸

247. Oura's average Gross Monthly Worldwide Unit Sales since the launch of Oura Gen 4 (October 2024-February 2025) are [REDACTED] unit/month representing a [REDACTED] unit/month (113%) increase over Oura Gen 3 Horizon and Gen 3 Heritage sales from November 2023 to September 2024. Again [REDACTED] is not attributable to Oura Ring Gen 4 sales

¹⁸⁶ Ex-1303 (Allison, Conor. "Oura Ring 4 vs. Ring 3: What we recommend after six months." Wareable. April 13, 2025. <https://www.wareable.com/wearable-tech/oura-ring-4-vs-ring-3-key-differences-compared>.)

¹⁸⁷ Ex-1303 (Allison, Conor. "Oura Ring 4 vs. Ring 3: What we recommend after six months." Wareable. April 13, 2025. <https://www.wareable.com/wearable-tech/oura-ring-4-vs-ring-3-key-differences-compared>.)

¹⁸⁸ Ex-1304 (Lee, Derrek. "Oura Ring 4 vs. Oura Ring Gen 3: Should you upgrade?." AndroidCentral. February 18, 2025. <https://www.androidcentral.com/wearables/oura-ring-4-vs-oura-ring-gen-3>.)

alone but rather the combination of Oura Ring Gen 4 and Oura Ring Gen 3 Heritage and Gen 3 Horizon.

248. Moreover, any increase in Oura Ring Gen 4 sales is likely due to its increased accuracy, rather than to ring construction.



Figure 57 *Oura Gross Monthly Worldwide Unit Sales since the launch of Oura Gen 4 (October 2024 – February 2025)*¹⁸⁹

6. Oura Ring’s commercial performance reflects only the normal pattern of adoption and diffusion of technology

249. The overall market for wearable devices grew steadily through 2019 before tapering off and reaching a plateau as shown in the plot of cumulative wearable worldwide unit shipments between 2016-2024.

¹⁸⁹ Note: Sales likely reflect collective sales of Oura Ring Gen 3 Heritage/Horizon and Oura Ring Gen 4, as Oura’s data do not separate out monthly unit sales by generation and there was a likely an overlap before Oura Ring Gen 3 Heritage/Horizon was sunset and Oura Ring Gen 4 was introduced on the market. Source: Clarke declaration, Appendix 10

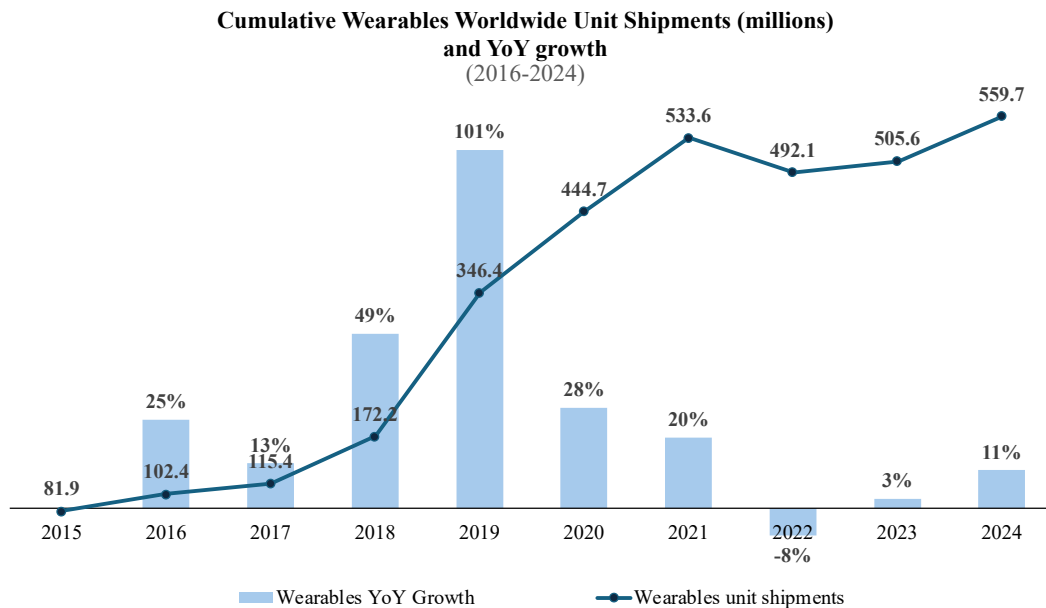


Figure 58 *Cumulative wearables worldwide unit shipments (millions) and YoY growth over time (2016-2024) showing cumulative wearables worldwide unit shipments grew through 2019 before tapering off*¹⁹⁰

250. A well-known economic theory explains this growth pattern.

251. Everett Rogers’ “Diffusion of Innovation” model describes the growth trajectory of new technology as it is adopted and diffused.¹⁹¹

This theory categorizes consumers of a new technology into 5 adoption cohorts distributed along a bell curve. Potential consumers are placed into these 5 adoption cohorts (innovators, early adopters,

¹⁹⁰ Ex-1305 (Pangarkar, Tajammul. “Fitness Tracker Statistics 2025 By Health, Activities.” [Market.U.S](https://www.news.market.us/fitness-tracker-statistics/) News. January 13, 2025. <https://www.news.market.us/fitness-tracker-statistics/>.)

¹⁹¹ EM Rogers’ “Diffusion of innovations” has been cited 172,263 times on Google Scholar: Ex-1306 (Google Scholar. “Search: “diffusion of innovations”.” Google Scholar. July 7, 2025. https://scholar.google.com.au/scholar?rlz=1C1GGLS_enAU291AU303&q=diffusion%20of%20innovations&um=1&ie=UTF-8&hl=en&sa=N&tab=ps.)

early majority, late majority, and laggards) according to their willingness to adopt the new technology.

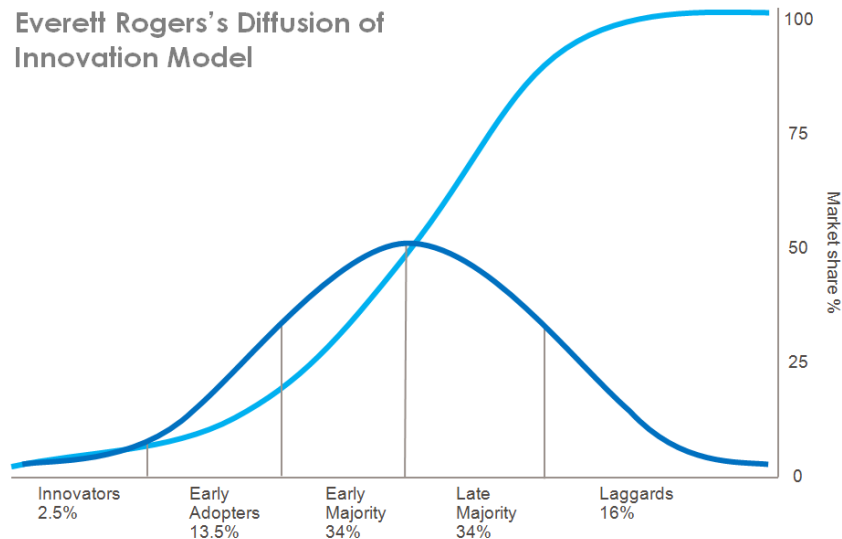


Figure 59 *Everett Roger's Diffusion of Innovation Model*¹⁹²

252. Innovators are those willing to accept risk and are eager to be the first to try new ideas; they represent 2.5% of consumers of a new technology.¹⁹³ Early adopters are those interested in trying new technologies and helping figure out their utility; they represent 13.5% of consumers of a new technology.¹⁹⁴ Early majority are part of the general population and help popularize the innovation amongst the

¹⁹² Ex-1307 (Matthews, Tim. "Chap 1 Fig 2 Everett Rogers Diffusion Innovation Model." Matthews on Marketing. November 15, 2012. <https://matthewsonmarketing.com/chap-1-fig-2-everett-rogers-diffusion-innovation-model-2/>.)

¹⁹³ Ex-1308 (Halton, Clay. "Diffusion of Innovations Theory: Definition and Examples." Investopedia. May 23, 2025. <https://www.investopedia.com/terms/d/diffusion-of-innovations-theory.asp>.)

¹⁹⁴ Ex-1308 (Halton, Clay. "Diffusion of Innovations Theory: Definition and Examples." Investopedia. May 23, 2025. <https://www.investopedia.com/terms/d/diffusion-of-innovations-theory.asp>.)

mainstream; they represent 34% of consumers of a new technology.¹⁹⁵ Late majority are part of the general population that follow the early majority into adopting the innovation; they represent 34% of consumers of a new technology.¹⁹⁶ Finally, laggards are those who lag the general public in the adopting the innovation; they represent 16% of consumers of a new technology.¹⁹⁷

253. As a result of these cohorts, a technology takes time to diffuse before ultimately penetrating a market. According to Roger's model, adoption follows an S-curve, where adoption is slow at first when innovators and early adopters are probing a new technology, then once the early majority start purchasing it, there is an acceleration in uptake until it slows and plateaus as laggards are slow to adopt the innovation.
254. The adoption of smart rings, like the adoption of wearables and many technologies before them, also follows Everett's "Diffusion of Innovation" model. Between 2023 and 2024, global smart ring sales grew from 880,000 units to 1.7 million units (a 93% YoY growth); however, IDC suggests that this growth will slow to 17% CAGR

¹⁹⁵ Ex-1308 (Halton, Clay. "Diffusion of Innovations Theory: Definition and Examples." Investopedia. May 23, 2025. <https://www.investopedia.com/terms/d/diffusion-of-innovations-theory.asp>.)

¹⁹⁶ Ex-1308 (Halton, Clay. "Diffusion of Innovations Theory: Definition and Examples." Investopedia. May 23, 2025. <https://www.investopedia.com/terms/d/diffusion-of-innovations-theory.asp>.)

¹⁹⁷ Ex-1308 (Halton, Clay. "Diffusion of Innovations Theory: Definition and Examples." Investopedia. May 23, 2025. <https://www.investopedia.com/terms/d/diffusion-of-innovations-theory.asp>.)

between 2024 and 2028, reaching just 3.2 million units sold by 2028.¹⁹⁸

255. While the smart ring market appears to still be in a high growth phase today, this growth will taper off in the near future reflecting the normal pattern of adoption and diffusion of innovations (where the early/late majority are still in the midst of adoption and the growth rate continues to be high) rather than the novelty of its patents.¹⁹⁹

7. The [REDACTED] in subscriptions to Oura Ring data suggests [REDACTED] commercial performance

256. Starting with Gen 3 models, Oura ring introduced subscriptions to certain app features to support scientific research, product development, member support, and cloud operations.²⁰⁰ The [REDACTED] in subscriptions from 2022 to 2025 undermines claims of substantial commercial success.

257. Alongside the device hardware, Oura Ring currently sells subscriptions for access to app features such as heart tracking, temperature monitoring, and blood oxygen sensing, among others.

¹⁹⁸ Ex-1158 (Seitz, Patrick. “Health Tracking Is Moving To Smart Rings From Watches. Oura Leads Market.” Investor’s Business Daily. January 9, 2025. <https://www.investors.com/news/technology/smart-rings-proliferate-at-ces-2025/>.) Note: IDC forecasted 2024 smart ring shipments to reach 1.7M units, however, Oura’s 2024 calendar year unit sales exceeded 1.7 M. The fact that Oura Ring shipments exceeded IDC’s 2024 smart ring shipment forecast is likely attributable to 3 factors none of which are ring construction: 1. Oura Ring’s eligibility for HSA/FSA, 2. Oura ring’s DOD contract which saw a rapid increase in Oura sales in September 2024, and 3. the lift from debuting Oura Ring 4 which offered increased accuracy. Given the fact that Oura reports its sales figures by fiscal year rather than calendar year, IDC’s projections may have been based on a lower figure from Oura’s own reporting.

¹⁹⁹ See discussion of adoption and diffusion of innovations section F4

²⁰⁰ Ex-1309 (Hale, Tom. “The Value of Oura Membership.” The Pulse Blog. May 20, 2022. <https://ouraring.com/blog/the-value-of-oura-membership/>.)

These subscriptions are currently sold for \$5.99 per month or \$69.99 per year.²⁰¹

258. Oura Ring’s monthly membership was originally introduced with the Oura Ring Gen 3 Heritage in October 2021. Prior generations did not require a subscription to access the full suite of health and wellness features.²⁰²
259. Although customers can still use their ring without a subscription, some reviewers consider it a con instead of a pro. For example, under “Oura Ring’s cons,” *AppleInsider*’s review lists “Recurring subscription” and “Can’t be used in a meaningful way without a subscription.”²⁰³ *Cosmopolitan*’s review also listed “Requires a subscription with a \$5.99 monthly fee to unlock all data capabilities” as a con.²⁰⁴ YouTube reviewer Shervin Shares identified the subscription as a pain point, particularly as there are now other rings available that do not require subscriptions.²⁰⁵

²⁰¹ Ex-1310 (OURA. “Oura Membership.” OURA. July 1, 2025. <https://support.ouraring.com/hc/en-us/articles/4409086524819-Oura-Membership>.)

²⁰² Ex-1310 (OURA. “Oura Membership.” OURA. July 1, 2025. <https://support.ouraring.com/hc/en-us/articles/4409086524819-Oura-Membership>.)

²⁰³ Ex-1311 (Neely, Amber. “Oura Ring review: love the feature changes, hate the new subscription.” *Apple Insider*. March 19, 2023. <https://appleinsider.com/articles/23/03/19/oura-ring-review-love-the-features-changes-hate-the-new-subscription>.)

²⁰⁴ Ex-1312 (Oh, Hannah. “I Tested the Oura Ring Gen3 for 10 Months—Here’s My Honest, Unfiltered Review.” *Cosmopolitan*. July 17, 2024. <https://www.cosmopolitan.com/health-fitness/a45931388/oura-ring-3-review/>.)

²⁰⁵ Ex-1313 (Shares, Shervin. “6 Months with the Oura Ring 4. The Truth No One Tells You.” YouTube. March 15, 2025. <https://www.youtube.com/watch?v=v6YkMjIltuo>.) at 4:40.

260. Data also confirms that Oura Ring customers are not satisfied with their memberships. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

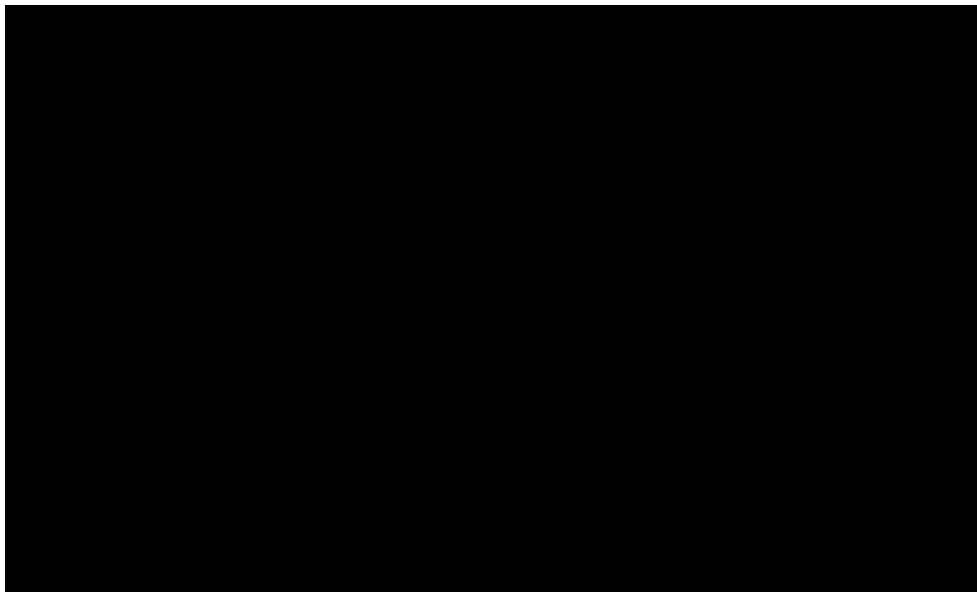


Figure 60 *Oura Ring net monthly churn rate November 2021 – March 2024*²⁰⁶

261. Reviewers report that Oura ring ceases to provide significant value as a health tracker without the insights delivered through the subscription. This highlights the fact that the true differentiator for Oura is its subscription and the AI algorithms underpinning it, rather than the ring construction covered by the '178 Patent. The measurable

²⁰⁶ Clarke declaration at EX-2063

subscription churn calls into question the satisfaction Oura Ring's customers have.

8. Samsung's entry into the smart ring market is not an indicator of Oura Ring's commercial performance

262. When Samsung entered the wearable ring market, it did so with the knowledge that the smart ring market was much smaller than the smartwatch or smart wrist-worn wearables markets. Samsung also knew the growth of the smart ring market was slowing and would never deliver sales comparable to the smartwatch market.²⁰⁷

Nevertheless, it entered that market as a concerted strategic initiative to bolster its health ecosystem, offering users an end-to-end, comprehensive offering meant to keep users locked into the Samsung experience rather than getting their smart ring from another vendor.

263. According to the news platform PYMTs.com,

The Galaxy Ring is not just a standalone device. It's part of Samsung's larger ecosystem of products, including smartphones and smartwatches. This integration strategy is designed to provide users with a comprehensive health monitoring solution, ensuring that no aspect of their health goes unnoticed. This approach could potentially drive sales across multiple product lines, making the Galaxy Ring a key player in the health monitoring market.²⁰⁸

²⁰⁷ Ex-1158 (Seitz, Patrick. "Health Tracking Is Moving To Smart Rings From Watches. Oura Leads Market." Investor's Business Daily. January 9, 2025. <https://www.investors.com/news/technology/smart-rings-proliferate-at-ces-2025/>.)

²⁰⁸ Ex-1314 (PYMNTS Team. "Samsung Enters Smart Ring Market, Expanding Wearable Tech Portfolio." PYMNTS. July 10, 2024. <https://www.pymnts.com/news/wearables/2024/samsung-enters-smart-ring-market-expanding-wearable-tech-portfolio/>.)

264. Samsung's focus on creating an ecosystem of products that are complimentary to its smartphone was highlighted by the COO of Samsung's mobile experience division:

In a conversation with CNN, the COO of Samsung's mobile experience division, Woo-joon Choi, said that Samsung could introduce devices like smart earrings and necklaces, as it looks toward the future of AI-powered tech. This shows a smarter shift of the South Korean giant to create gadgets that are smarter and helpful, and eliminates the need to pull out smartphones.²⁰⁹

"We believe it should be wearable, something that you shouldn't carry, (that) you don't need to carry. So it could be something that you wear, glasses, earrings, watches, rings, and sometimes (a) necklace."²¹⁰

265. Samsung has not entered the smart ring market because it expects profits from this new product category. Rather, it's giving its customers one more reason to prefer its ecosystem over Apple's as Apple does not have a smart ring in its product lineup.
266. While Samsung's entry into the smart ring market may legitimize the smart ring product category and raise customer awareness about the product category, it says nothing about the Oura Ring Gens 3 and 4's commercial performance.

²⁰⁹ Ex-1326 (Bhavsar, Sagar Naresh. "Samsung's next wave of wearables could include smart earrings and AI necklaces." Neowin. July 11, 2025. <https://www.neowin.net/news/samsungs-next-wave-of-wearables-could-include-smart-earrings-and-ai-necklaces/>.)

²¹⁰ Ex-1326 (Bhavsar, Sagar Naresh. "Samsung's next wave of wearables could include smart earrings and AI necklaces." Neowin. July 11, 2025. <https://www.neowin.net/news/samsungs-next-wave-of-wearables-could-include-smart-earrings-and-ai-necklaces/>.)

F. There was no long felt, but unresolved need met by Oura Ring Gen 3

267. There are two indicators that show Oura's rings did not fulfill an unresolved need: (1) investors highlighted that the company capitalized "trends" rather than novelty, and (2) wrist-worn wearables already delivered the same functionality as smart rings.

1. Investors' statements do not highlight novelty

268. In November 2016, Jaan Tallinn, a founding engineer of Skype and early investor in Oura, noted about Oura:

the company is riding several growth trends that make its success almost inevitable, specifically miniaturization, battery improvements, and Moore's law.²¹¹

2. Wrist-worn wearables, smartwatches, and other sleep tracking technologies deliver all of the functionality available from an Oura Ring, and in many cases much more

269. Smart rings were considered a part of the wearables market which also included wrist-worn wearables and smartwatches.

a. Wrist-worn wearables

270. Health-focused wrist-worn wearables were some of the first wearables and track sleep, activity, and health, much like smart rings Oura offers. Early providers of these devices included Misfit, Fitbit, and Jawbone.

²¹¹ Ex-1315 (Comstock, Jonah. "Ouraring gets \$5.3M for sleep-tracking ring." MobiHealth News via Wayback Machine. November 30, 2016.
<https://web.archive.org/web/20241226062503/http://www.mobihealthnews.com/content/ouraring-gets-53m-sleep-tracking-ring>.)

b. Smartwatches

271. Smartwatches track health, fitness, and sleep, often in a more comprehensive manner than smart rings offered by Oura and others, as illustrated in greater detail through the comparison between Apple Watch and Oura ring in section E3. The first modern smartwatch was the Pebble and other early providers included Samsung and Sony.

G. Other companies did not fail at delivering a wearable ring

272. As previously demonstrated above, multiple companies produced wearable smart rings.

273. At least 4 companies launched smart rings *prior* to the Oura Ring.

Company	Smart Ring	First Smart Ring Release Year	Smart Ring Functionality						Sensors	Wedding Ring Form Factor
			Sleep Tracker	Activity Tracker	Health Tracker	Alerts	Control	NFC payments		
McLear Ltd.	NFC Ring	2013					X		NFC sensor	X
Logbar	Logbar	2014				X	X		6-axis accelerometer	X
Nuanic	Moodmetric	2014			X				EDA sensor	
Ringly	Ringly	2015				X				
2015: Oura Ring Gen 1										

Figure 61 *Summary of Smart Ring releases prior to Oura Ring Gen 1 and their functionality and form factor*²¹²

274. At least 6 companies released smart rings after Oura Ring Gen 1 and before Oura Ring Gen 2.

²¹² See citations at Figure 37 above

Company	Smart Ring	First Smart Ring Release Year	Smart Ring Functionality						Sensors	Wedding Ring Form Factor
			Sleep Tracker	Activity Tracker	Health Tracker	Alerts	Control	NFC payments		
2015: Oura Ring Gen 1										
The Touch	HB Ring	2016			X	X			Heartbeat sensor	X
Kerv Wearables	K Ring	2017					X	X	NFC sensor	X
Origami Labs	ORII	2017				X			bone conduction transducer accelerometer	
Token	Token Ring	2017					X		fingerprint sensor	X
McLear Ltd.	Smart Ring	2018					X	X	NFC sensor	X
SleepOn	Go2Sleep Ring	2018	X						3-axis accelerometer Pulse oximeter	
2017: Oura Ring Gen 2 Heritage and Balance										
2021: Oura Ring Gen 3 Heritage										
2022: Oura Ring Gen 3 Horizon										
2024: Oura Ring Gen 4										

Figure 62 *Smart rings launched between Oura Ring Gen 1 and Oura Ring Gen 2 (i.e. between 2015 and 2018*²¹³

275. Many more companies have produced wearable smart rings after the later generations of the Oura Ring.

²¹³ See citations at Figure 42 above

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Company	Smart Ring	First Smart Ring Release Year	Smart ring functionality						Sensors	Wedding Ring Form Factor	Wireless Charging	Battery life	Subscription	Material	Differentiation
			Sleep Tracker	Activity Tracker	Health Tracker	Alerts	Control	NFC payments							
2017: Oura Ring Gen 2 Balance and Heritage															
Amazon	Echo Loop Ring	2019					X		None	X		1 day	No		Amazon Alexa extension in a ring
2021: Oura Ring Gen 3 Heritage															
2022: Oura Ring Gen 3 Horizon															
Circular	Circular Ring Slim	2022	X	X	X	X			temperature sensor, 3-axis accelerometer, PPG sensor	X		5 days	No	titanium	
Ultrahuman	Ultrahuman Ring Air	2023	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		5 days	No	titanium body covered with tungsten carbide, smooth inner shell	
Noise	Luna Ring	2023	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		7 days	No	fighter-jet grade titanium, hypoallergenic lining treated with silicone	
Movano Health	Evie Smart Ring	2023/2024	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		4 days	No	zirconium based Liquidmetal	Medical grade health tracker, seeking FDA regulatory approval
2024: Oura Ring Gen 4															
Samsung	Samsung Galaxy Ring	2024	X	X	X		X		temperature sensor, 3-axis accelerometer, PPG sensor	X	X	6 days	No	titanium	Integration with Samsung Galaxy Smart Watch, battery life preservation
RingConn, LLC	RingConn Gen 1	2024	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		7 days	No	titanium	Monitors sleep apnea, affordable
Zepp Health Corp	Amazfit Helio Ring	2024	X	X	X				BioTracker PPG sensor, temperature, EDA sensor, 6-axis accelerometer	X	X	4 days	No	titanium alloy, inner ring resin	
Sky Labs	I-CART BP monitoring ring	2024			X				PPG sensor	X		2 days	No		Continuous BP, atrial fibrillation detection insurance reimbursable, US/EU regulatory clearance
Circular	Circular Ring 2	2025	X	X	X	X			medical grade ECG, PPG, temperature, accelerometer, bioelectrical signal sensor	X	X	6 days	No	titanium	Blood glucose monitoring
RingConn, LLC	RingConn Gen 2	2025	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		12 days	No	titanium	
RingConn, LLC	RingConn Gen 2 Air	2025	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		10 days	No	stainless steel	
Noise	Luna 2.0 Ring	2025	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		30 days	No	fighter-jet grade titanium, diamond like coating	accuracy validated by Philips Biosensing (98.2%), AI powered bio monitoring
Ultrahuman	Ultrahuman Ring Rare	2026E	X	X	X				temperature sensor, 3-axis accelerometer, PPG sensor	X		6 days	No	18 kt rose or yellow gold, platinum	atrial fibrillation detection

Figure 63 Smart rings released after each of the later Oura Ring generations (Oura Ring Gen 2 Heritage, Oura Ring Gen 2 Balance, Oura Ring Gen 3 Heritage, Oura Ring Gen 3 Horizon, and Oura Ring Gen 4²¹⁴)

²¹⁴ See citations at Figure 47 above

276. Collectively, these charts illustrate that no company failed at delivering a smart ring.

H. The Oura Ring Generations 3 and 4 were not praised as an innovation by others

277. By the time the Oura Ring Gen 3 Heritage was introduced to the market in 2021 and Oura Ring Gen 3 Horizon was introduced to the market in 2022, it was not novel enough to garner any praise.

278. The wedding ring design had already been introduced to the market in 2016 by The Touch with its HB Ring. Between 2016 and 2018, 4 out of 6 smart rings had the wedding ring form factor, establishing it as the dominant design well before Oura Ring Gen 3 Horizon appeared.

279. During 2016, Oura still had a ring with a plateau to house its electronics and did not adopt the completely round wedding ring form factor until September 2022 (a full six years after it had been introduced). This fact illustrates that Oura ring's construction was not a novelty and therefore could not be praised as innovative.

280. The Oura Ring Gens 3 and 4 also received mixed reviews about their functionality. For example, an NBC reviewer noted that Oura Ring Gen 3 Horizon is "not a do-it-all wearable — it won't replace your smart watch." After testing Oura Ring Gen 4 for 4 months, the same reviewer called it the "best smart ring on the market," but most of the praise was for the app's redesign, longer battery, and better sizing

options, rather than the ring construction embodied in the '178

Patent.²¹⁵ The reviewer also had a number of critiques:

Still, you should know that Oura Ring Gen 4 cannot replace a fitness tracker or a smartwatch for tracking exercise. And competitors like the Samsung Galaxy Ring and Ultra Ring Air (\$349) can track similar metrics, minus the subscription fee.

...

Oura Ring may be one of the best smart rings on the market, but it is also one of the few that requires a subscription. I am actively trying to reduce the number of subscriptions in my life, and other. Smart rings that don't have a monthly subscription (Ultrahuman, Samsung, RingConn) may be worth a look, depending on your priorities.²¹⁶

281. As the NBC review indicates, the one novelty Oura Rings Gen 3 and 4 did introduce—a subscription providing access to enriched data insights powered by an AI algorithm—may have harmed more than helped its commercial performance.²¹⁷
282. The factors that do differentiate Oura Ring from its competitors, such as its Readiness Score that compiles sleep and activity data into a personalized health snapshot,²¹⁸ Smart Sensing platform that

²¹⁵ Ex-1316 (Rabinowitz, Harry. "I tested the latest Oura Ring 4 for months — is it worth the upgrade?." NBC News. April 2, 2025. <https://www.nbcnews.com/select/shopping/oura-ring-4-review-rcna196889>.)

²¹⁶ Ex-1316 (Rabinowitz, Harry. "I tested the latest Oura Ring 4 for months — is it worth the upgrade?." NBC News. April 2, 2025. <https://www.nbcnews.com/select/shopping/oura-ring-4-review-rcna196889>.)

²¹⁷ See section III.E.5 for the discussion of the decline in Oura subscriptions.

²¹⁸ Ex-1317 (Oura Team. "Meet Oura: Your Oura Readiness Score." The Pulse Blog. February 7, 2024. <https://ouraring.com/blog/readiness-score/>.)

dynamically selects the optimal signal path,²¹⁹ and the Oura Advisor that provides personalized advice,²²⁰ are all factors reliant on AI powered algorithms not features covered by the '178 Patent.²²¹ In fact, in November 2024 interview, Oura's CEO Tom Hale observed,

We look more like a software company than we do look like a hardware company. And I think that's a function of the [subscription] business model, and the fact that it's working.²²²

I. No one copied the Oura's Ring Gen 3; Oura patented the design after it had been established

283. The evolution of the smart ring makes it clear that Oura did not “invent” anything but merely patented the dominant design that had already been established.
284. Oura did not invent the smart ring or the wedding ring form factor.
285. McLEAR invented the first smart ring in 2013 when it launched the NFC Ring, which could “unlock doors, offices, start your car, and share information.”²²³ This was the first finger-worn device to demonstrate that electronics could be curved.

²¹⁹ Ex-1318 (OURA. “Oura Ring 4.” OURA. July 1, 2025. <https://support.ouraring.com/hc/en-us/articles/33045011508115-Oura-Ring-4>.)

²²⁰ Ex-1319 (OURA. “Oura Advisor.” OURA. July 1, 2025. <https://support.ouraring.com/hc/en-us/articles/39512345699219-Oura-Advisor>.)

²²¹ Ex-1320 (“Oura Ring 4, powered by smart sensing, is here.” Yole Group. October 3, 2024. <https://www.yolegroup.com/industry-news/oura-ring-4-powered-by-smart-sensing-is-here/>.)

²²² Ex-1321 (Kharpal, Arjun. “Smart ring leader Oura plans international push as CEO touts new features and thinking on hardware.” CNBC. November 14, 2024. <https://www.cnbc.com/2024/11/14/oura-plans-international-expansion-tests-nutrition-and-ai-features.html>.)

²²³ Ex-1322 (McLEAR. “About Us.” McLEAR. July 1, 2025. <https://mclear.co/about/>.)

286. As previously shown above, McLear's smart ring had the wedding ring form factor.



Figure 64 *McLear NFC Rings from 2013*²²⁴

287. So did Logbar's smart ring, which came out in 2014.



Figure 65 *The Logbar smart ring from 2014*²²⁵

288. Before Oura even entered the market with its own smart ring in 2015, two companies had already launched products with the form factor that would become the dominant design.²²⁶

²²⁴ Ex-1323 (NFC RING. "Gallery." NFC RING. July 1, 2025. <https://nfcring.com/gallery/>.)

²²⁵ Ex-1141 (Museum of Failure. "Logbar Ring." Museum of Failure. March 16, 2024. [https://museumoffailure.com/exhibition/logbar-ring.](https://museumoffailure.com/exhibition/logbar-ring/))

²²⁶ A dominant design is one that has the key technological features that become a de facto standard within a product category.

289. After the launch of Oura Ring Gen 1, 6 new smart rings with various types of functionality entered the market between 2016 and 2018. Four of those smart rings had the wedding ring design.²²⁷ The market had already coalesced around the wedding ring form factor years before Oura filed its patent in May of 2023.²²⁸
290. Among the 4 companies to introduce a smart ring with the wedding ring form factor after the launch of Oura Ring Gen 1, The Touch is particularly noteworthy.
291. In 2016, The Touch introduced the HB Ring, which had a health tracker with a heartbeat sensor. This smart ring demonstrated that a sensor could be implemented in such a small form factor. Also, as previously discussed, it appears to practice many of the features that Oura *later* patented. For example, the ring has two concentric rings with a cavity in the middle that houses a curved battery as well as a multi-dimensional integrated circuit board.
292. Ultrahuman, RingConn, Circular, and Samsung, all of whom Oura has accused of infringement of the '178 Patent, merely adopted the well-established dominant design prior to the publishing of Oura's '178 Patent.

²²⁷ See Figure 42 above.

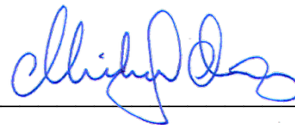
²²⁸ U.S. Patent No. 11,868,178

IV. CONCLUSION

293. In signing this declaration, I understand that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I acknowledge that I may be subject to cross-examination in this case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.
294. I declare that all statements made herein of my knowledge are true, that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.
295. I declare under penalty of perjury that the foregoing is true and correct.

Date: 22 July 2025

Respectfully Submitted,



Mr. Michael Davies

