

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

IMMERSION CORPORATION,)	
)	
Plaintiff,)	
)	Case No. 1:23-cv-1386
v.)	
)	JURY TRIAL DEMANDED
META PLATFORMS, INC., F/K/A)	
FACEBOOK, INC.)	
)	
Defendant.)	
)	

COMPLAINT

Plaintiff Immersion Corporation (“Immersion”) files this Complaint against Defendant Meta Platforms, Inc. f/k/a Facebook, Inc. (“Meta”).

NATURE OF THE CASE

1. This is an action for the infringement of five United States Patents: U.S. Patent Nos. 8,469,806 (“the ’806 patent”); 9,727,217 (“the ’217 patent”); 10,248,298 (“the ’298 patent”); 10,269,222 (“the ’222 patent”); and 10,664,143 (“the ’143 patent”) (collectively, “the Patents-in-Suit”).

2. Defendant Meta has been making, using, selling, offering for sale, and/or importing augmented reality and virtual reality (“AR/VR”) systems such as Meta Quest 3 (“Quest 3”)¹ that integrate multiple game engines² including, for example and without limitation, Unity, Unreal Engine, and Native Development, and related software including, for example and without limitation, *Horizon Worlds*, *First Steps*, *Beat Saber*, and *Resident Evil 4*, and the

¹ See, e.g., <https://www.meta.com/quest/quest-3/> (last visited November 8, 2023).

² See, e.g., <https://developer.oculus.com/get-started-platform/> (last visited November 8, 2023).

corresponding dedicated servers for this software (collectively, “the Accused Instrumentalities”), that infringe the Patents-in-Suit in violation of 35 U.S.C. § 271, including without limitation subsections 271(a), (b), (c), and/or (f).³

3. Immersion seeks appropriate damages, injunctive relief, and prejudgment and post-judgment interest for Meta’s infringement of the Patents-in-Suit.

THE PARTIES

4. Founded in 1993, Immersion is widely known as the pioneering and leading innovator of haptic technology. “Haptics” refers to the science of touch. Haptics in consumer electronic devices provide tactile sensations to the users of electronic devices. Immersion creates software for implementing advanced haptic effects in video game systems and controllers and other handheld computers. Immersion also owns and licenses a broad portfolio of pioneering patents related to the use of haptics technology. Immersion’s software is found in products that are sold and used worldwide. Immersion’s patented technology is used even more widely, subject to patent licenses between Immersion and many of the world’s most recognizable companies. Immersion’s hard work and ingenuity in the field of haptics has resulted in extensive intellectual property protection for Immersion’s innovations. This protection includes more than 875 world-wide granted and pending patents, including the Patents-in-Suit. During its nearly 30-year history, Immersion redefined how haptics are implemented in consumer technology. The recent proliferation of haptics-enabled consumer electronics demonstrates the importance of Immersion’s innovations. Immersion continues to invest in research and development today.

³ See, e.g., *Immersion Corp. v. Meta Platforms, Inc.* (“*Meta I*”), case no. W-22-CV-00541-ADA, Public Order Denying Defendant’s Motion to Transfer (Doc. 88) (“Order”) at 2, (W.D. Tex., May 29, 2023) (“The claimed system includes much more than physical devices, and includes embedded software, integrated user interface devices, applications embedded via control software application programming interfaces (APIs), and third-party software which brings the entire virtual reality experience together.”)

5. Immersion is a Delaware corporation with its principal place of business located at 2999 N. E. 191st Street, Suite 610, Aventura, Florida 33180. Immersion owns the Patents-in-Suit.

6. Meta is a corporation organized and existing under the laws of Delaware. Meta has a place of business at 300 W 6th Street, Austin, Texas 78701.⁴ Meta also has a registered agent at Corporation Service Company, 211 E. 7th Street Suite 620, Austin, Texas 78701.

JURISDICTION AND VENUE

7. This is an action for patent infringement arising under the Patent Laws of the United States, Title 35 of the United States Code.

8. This Court has original subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

9. This Court has personal jurisdiction over Meta because, *inter alia*, Meta has a continuous presence in, and systematic contact with, this District and has registered to conduct business in the state of Texas. Indeed, “Meta admits that it currently maintains a place of business in Austin, Texas within the Western District of Texas.”⁵ In addition, Meta, directly or through subsidiaries or intermediaries (including distributors, retailers, and others), conducts its business extensively throughout Texas by shipping, distributing, offering for sale, selling, and advertising (including through the provision of an interactive web page) its products and/or services in the State of Texas and the Western District of Texas. Meta, directly and through

⁴ Meta was formerly known as Facebook, Inc. On October 28, 2021, CEO Mark Zuckerberg announced the formation of Meta to “bring[] together our apps and technologies under one new company brand.” See <https://about.fb.com/news/2021/10/facebook-company-is-now-meta/> (last visited November 8, 2023). The press released announced that “Meta’s focus will be to bring the metaverse to life and help people connect, find communities and grow businesses” by allowing users to “share immersive experiences with other people even when you can’t be together.” *Id.*

⁵ Order at 2.

subsidiaries or intermediaries (including distributors, retailers, and others), has purposefully and voluntarily placed one or more of the Accused Instrumentalities into the stream of commerce with the intention and expectation that they will be purchased and used by consumers in the Western District of Texas. The Accused Instrumentalities have been and continue to be purchased and used by consumers in the Western District of Texas.

10. Meta has committed and continues to commit acts of infringement of the Patents-in-Suit in violation of the United States Patent Laws, and has used the Accused Instrumentalities within this District. Meta's infringement has caused substantial injury to Immersion, including within this District.

11. Venue is proper in this District. Indeed, in a related action,⁶ Meta did not argue "that the Western District of Texas ('WDTX') is an improper venue..." and instead argued that "the Austin Division is more convenient than the Waco Division."⁷ Meta resides in this District within the meaning of 28 U.S.C. § 1400(b). Meta has committed acts of infringement within this District and has regular and established places of business here.

12. On May 29, 2023, Judge Albright denied Meta's motion to transfer the above-referenced related action from the Waco Division of the Western District of Texas to the Northern District of California, but granted Meta's alternative request to transfer the action to the Austin Division of this District; Judge Albright retained the matter on his docket.⁸ In denying transfer to California and retaining the matter in the Austin Division of this District, Judge Albright credited the presence of Meta employees in this District who work on "design and user

⁶ See, generally, *Meta I*, case no. 1:23-cv-00623 (W.D. Tex.), originally filed on May 26, 2022 in the Waco Division as case no. 6:22-cv-541, and subject to an intradistrict transfer to the Austin Division and case number reassignment following the Court's May 29, 2023 Order Denying Defendant's Motion to Transfer.

⁷ Order at 1-2.

⁸ Order at 1, 35.

experience of VR products” as “specifically important” to the accused products at issue in that case—which are substantially similar to the Accused Instrumentalities at issue here—and found Meta’s Texas-based employees specifically work on “haptics and the related systems for VR technologies.”⁹ Judge Albright found that the presence of numerous Meta employees in this District with relevant information about the technical development and business of AR/VR products weighed against Meta’s attempt to transfer *Meta I* out of this District.¹⁰ “In short, the Court finds that there are 22 individuals with relevant information in Texas... The Court also concludes that the WDTX is a more convenient forum than the NDCA for Meta and Immersion’s Austin and Dallas-based employees.”¹¹

13. Further, Judge Albright found that the presence in this District of third-party witnesses possessing technical and business information relevant to the issues in *Meta I*, or the willingness of such witnesses to travel to this District for trial, is also an important factor favoring venue in the Austin Division of this District.¹² “The Court concludes that WDTX is slightly more convenient for willing witnesses.”¹³

14. Judge Albright also found that by registering to conduct business in Texas and by maintaining facilities in at least the cities of Austin and Temple, Meta has multiple regular and established places of business within the Western District of Texas.¹⁴

⁹ Order at 10.

¹⁰ *See, e.g.*, Order at 10-16.

¹¹ Order at 17.

¹² *See, e.g.*, Order at 18-19.

¹³ Order at 20.

¹⁴ Order at 33.

15. On October 30, 2023, the United States Court of Appeals for the Federal Circuit denied Meta's mandamus petition arising from Judge Albright's Order, allowing *Meta I* to remain in the Austin Division.¹⁵

16. Finally, venue is proper and convenient in the Austin Division of this District because the same parties are currently litigating a parallel suit in this District, *Meta I*, which involves the same Patents-in-Suit¹⁶ and pertains to the same or similar underlying technology as the instant case and implicates products similar to the instant Accused Instrumentalities. Indeed, *Meta I* involved earlier versions of the Meta Quest 3 product (the Quest 2 and Quest Pro) which, as discussed herein, function and operate—and infringe Immersion's patents—similarly.¹⁷ Since Immersion's filing of *Meta I*, that parallel case has progressed to an advanced stage as of the date of this Complaint, with the parties having already engaged in and completed venue discovery, claim construction, fact discovery, and initial expert disclosures.

17. Apart from the specific findings regarding venue made by Judge Albright in *Meta I*, Meta's operations in the Western District of Texas are substantial and varied, and include employees and open positions that relate to AR/VR involving haptics. For example, Meta employees in Austin, Texas list varied job titles on LinkedIn such as Localization Program Manager, Reality Labs (VR),¹⁸ Software Engineer at Oculus VR¹⁹, Director, Head of Design for Virtual Reality,²⁰ Senior Privacy Program Manager – Meta (Facebook) Reality Labs,²¹

¹⁵ In re: Meta Platforms, Inc., fka Facebook, Inc., No. 2023-143, Dkt. 25 (October 30, 2023).

¹⁶ The five Patents-in-Suit in the instant matter are a subset of the patents asserted in *Meta I*, which implicated six Immersion patents.

¹⁷ See, generally, *Meta I*, case no. 1:23-cv-00623 (W.D. Tex.).

¹⁸ See, e.g., <https://www.linkedin.com/in/paolaalvaradoovalle/> (last visited November 8, 2023).

¹⁹ See <https://www.linkedin.com/in/david-sassen-6292722> (last visited November 8, 2023).

²⁰ See <https://www.linkedin.com/in/jonathanatkins27> (last visited November 8, 2023).

²¹ See <https://www.linkedin.com/in/liran-braun-42a93ba5/> (last visited November 8, 2023).

Partnerships Manager, AR Glasses @ Meta, Reality Labs,²² and Software Engineer at Meta Reality Labs.²³ Additionally, Meta advertises that it is currently hiring for positions related to AR/VR in Austin, Texas, including Product Manager, Reality Labs; Manager, Firmware Engineering – Reality Labs; Embedded Software Engineer, BSP/Kernel – Reality Labs; and Embedded Software Engineer, Firmware – Reality Labs.²⁴

HAPTIC TECHNOLOGY

18. Haptic feedback provides touch or tactile sensations to users of electronic devices and may include tactile sensations produced by an actuator, such as a motor, a linear resonant actuator, or a piezoelectric actuator. Because of the importance of the sense of touch to the way people perceive their surroundings and the things with which they interact, haptics can greatly enhance the usability and functionality of consumer electronic devices. For example, when haptic technology is implemented in video game systems and controllers, users can experience vibrating forces that mimic real-life forces as they push a virtual button, select a graphical object, carry a virtual item, or slice a note in a musical rhythm game. The Accused Instrumentalities include haptic feedback technology. The presence of haptics in the Accused Instrumentalities provides enhanced user interaction through haptic cues, which give users a richer and more immersive user experience.

19. In electronic devices, haptic effects are typically managed and controlled by embedded software, and integrated into device user interfaces and applications via embedded control software application programming interfaces (“APIs”). Applications running on an

²² See <https://www.linkedin.com/in/salvael/> (last visited November 8, 2023).

²³ See, e.g., <https://www.linkedin.com/in/chris-frantz-450255115/> (last visited November 8, 2023).

²⁴ See, e.g., https://www.linkedin.com/jobs/search/?currentJobId=3725763963&f_PP=104472865&f_WT=1&geoId=103644278&keywords=reality%20labs&location=United%20States&origin=JOB_SEA_RCH_PAGE_SEARCH_BUTTON&refresh=true&sortBy=R (last visited November 8, 2023).

electronic device call these APIs to implement haptic effects. These APIs in turn cause specific haptic effect commands to be sent to an actuator in the electronic device, resulting in the associated haptic effect. More sophisticated applications may provide a variety of tactile sensations. For example, user actions may trigger different haptic effects and thus communicate different types of information. This information may be conveyed, for example, by varying the type, duration, intensity, or frequency of the tactile sensations. This enables the creation of different haptic effects so that users can easily distinguish different actions in a virtual environment.

20. Meta is capitalizing on Immersion's innovation and success by selling and otherwise monetizing video game systems, controllers, games, and applications that infringe Immersion's patents, including the Patents-in-Suit. Meta is using Immersion's patented inventions without license or authority from Immersion. Immersion has brought this action to remedy Meta's infringement.

META'S CONTROL OVER THE ACCUSED INSTRUMENTALITIES

21. To facilitate the development and deployment of games and applications for the Accused Instrumentalities, Meta exercises control over how games and applications are designed for and sold through the Accused Instrumentalities, and exercises ongoing control over the operation of the Accused Instrumentalities after each is sold.

22. Meta exercises control over how games and applications are designed for and sold through the Accused Instrumentalities, for example and without limitation, in at least the following ways: (a) setting design requirements;²⁵ (b) actively curating the Quest Store by

²⁵ See <https://developer.oculus.com/resources/publish-quest-req/> (last visited November 8, 2023) ("App Lab and Meta Quest Store apps must meet or exceed Virtual Reality Check (VRC)

reviewing games and applications to ensure that there are no technical issues and that the content is designed and developed to meet user expectations;²⁶ (c) providing developer resources such as design guides,²⁷ marketing resources,²⁸ and design best practices for user input,²⁹ locomotion,³⁰ and other features;³¹ (d) implementing and funding a royalty payment program under which Meta has arranged for the Unreal Engine license to be royalty-free for the first five-million US dollars (USD \$5,000,000) of revenue generated from sales on the Oculus Store;³² (e) teaching developers how to add haptics to games and applications that run on the Accused Instrumentalities;³³ and (f) offering Meta Haptics Studio to developers, i.e., “a desktop application and companion VR application. It allows you to design and audition haptic clips, which can be exported and played in your app via the Meta Haptics SDK for Unity.”³⁴

23. Meta exercises ongoing control over the operation of the Accused Instrumentalities after each is sold, for example and without limitation, in at least the following ways: (a) forcing users of the Accused Instrumentalities to log into a Meta account controlled by

guidelines to be considered for distribution. These VRC guidelines are provided to help you build high quality apps for Meta Quest headsets.”).

²⁶ See <https://developer.oculus.com/resources/app-submission-success> (last visited November 8, 2023).

²⁷ See <https://developer.oculus.com/resources/bp-generalux/> (last visited November 8, 2023).

²⁸ See <https://developer.oculus.com/resources/vr-marketing-channels/> (last visited November 8, 2023).

²⁹ See <https://developer.oculus.com/resources/bp-userinput/> (last visited November 8, 2023).

³⁰ See <https://developer.oculus.com/resources/bp-locomotion/> (last visited November 8, 2023).

³¹ See <https://developer.oculus.com/resources/mr-design-guideline/> (last visited November 8, 2023).

³² See <https://developer.oculus.com/documentation/unreal/unreal-oculus-license/> (last visited November 8, 2023).

³³ See <https://developer.oculus.com/documentation/unreal/unreal-haptics/> (last visited November 8, 2023); <https://developer.oculus.com/documentation/unity/unity-haptics/> (last visited November 8, 2023).

³⁴ See <https://developer.oculus.com/experimental/exp-haptics-studio/> (last visited November 8, 2023).

Meta on the Quest 3 and only allowing use behind an authentication wall;³⁵ (b) dictating the haptic APIs used with the Quest 3 and automatically updating those APIs;³⁶ and (c) retaining discretion to actively monitor gameplay in real time, for example and without limitation, in the *Horizon Worlds* and *Horizon Workrooms* games and applications, and storing data related to use of the Accused Instrumentalities on its servers.³⁷

24. In addition, Meta encourages developers to create multiplayer games and applications,³⁸ and multiplayer games and applications comprise a substantial portion of the market for the Accused Instrumentalities and require interfacing using Meta equipment and services³⁹:

³⁵ See <https://www.meta.com/help/quest/articles/accounts/account-settings-and-management/meta-accounts-on-quest/> (last visited November 8, 2023) (“A Meta account lets you log into your VR devices and view and manage your purchased content in one place. You can set up a Meta account with your email address or Facebook account... If you’re new to VR, you’ll create a Meta account as part of the setup process.”)

³⁶ See <https://www.meta.com/help/quest/articles/getting-started/getting-started-with-quest-3/setup-quest-3/> (last visited November 8, 2023); <https://www.youtube.com/watch?v=HjHZHoz53pk&t=109s> (last visited November 8, 2023) (“After connecting your headset to WiFi, your headset will update with the latest software[.]”)

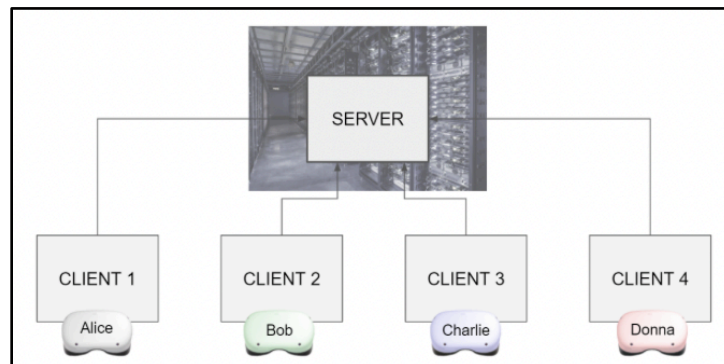
³⁷ See <https://www.meta.com/legal/quest/monitoring-recording-safety-horizon/> (last visited November 8, 2023) (“Notice of Monitoring and Recording to Improve Safety in Horizon Worlds ... When you use Horizon Worlds, the last few minutes of your and other users’ most recent audio, video and other interactions in Horizon Worlds will be recorded in case you want to report anything you’ve encountered. These recordings may be stored on our servers...How We Monitor and Review for Harmful Conduct As it Happens. If you mute, block, or report someone in Horizon Worlds, a trained safety specialist may remotely observe and record the situation in real time, including the person you reported and others nearby... How We Handle This Data. All recordings that users or trained safety specialists submit in Horizon Worlds are only retained for as long as necessary to investigate and fully resolve the report, and to help train models to better combat harmful behavior, after which time (up to 2 years) the recordings are deleted. In some cases, we may need to retain the recordings for longer, where necessary to comply with applicable law.”)

³⁸ See <https://developer.oculus.com/resources/social-apis/> (last visited November 8, 2023).

³⁹ See <https://www.facebook.com/RealityLabs/videos/422431035983250/> (last visited November 8, 2023).



25. For example, the Oculus VR Developer Tools team provides an open-source project, called SharedSpaces, to demonstrate how developers can quickly get people together in VR.⁴⁰ The SharedSpaces documentation further explains that multiplayer games and applications can be implemented under a client-server model, with Quest headsets running as clients connecting to a dedicated server that typically runs in a data center:



26. On information and belief, Meta hosts such dedicated servers and implements interactions with the Quest 3, including for example in multiplayer games and applications, such as, *Horizon Worlds* and *Horizon Workrooms*. As part of that role, on information and belief Meta's dedicated servers monitor inputs from the Quest 3 to enforce the rules of these games and

⁴⁰ See <https://github.com/oculus-samples/Unreal-SharedSpaces/blob/main-4.27/Documentation/SharedSpaces.md> (last visited November 8, 2023).

to replicate relevant game objects across each connected client.⁴¹ Further, Meta provides support and APIs for instructing the Quest 3 regarding haptic feedback.⁴²

THE PATENTS-IN-SUIT

27. The '806 patent is titled "System and method for providing complex haptic stimulation during input of control gestures, and relating to control of virtual equipment" and was issued by the United States Patent Office to inventors Danny A. Grant, Robert W. Heubel, David M. Birnbaum, and Erin B. Ramsay on June 25, 2013. The earliest application related to the '806 patent was filed on July 22, 2009. A true and correct copy of the '806 patent is attached as Exhibit A.

28. Immersion is the owner of all right, title, and interest in and to the '806 patent with the full and exclusive right to bring suit to enforce the '806 patent.

29. The '806 patent is valid and enforceable under the United States Patent Laws.

30. The '217 patent is titled "Haptically enhanced interactivity with interactive content" and was issued by the United States Patent Office to inventors David M. Birnbaum, Danny A. Grant, and Robert W. Heubel on August 8, 2017. The earliest application related to the '217 patent was filed on September 30, 2010. A true and correct copy of the '217 patent is attached as Exhibit B.

31. Immersion is the owner of all right, title, and interest in and to the '217 patent with the full and exclusive right to bring suit to enforce the '217 patent.

32. The '217 patent is valid and enforceable under the United States Patent Laws.

33. The '298 patent is titled "Haptically enhanced interactivity with interactive

⁴¹ See id.

⁴² See, e.g., <https://developer.oculus.com/blog/haptics-sdk-studio-meta-quest-vr/> (last visited November 8, 2023)

content” and was issued by the United States Patent Office to inventors David M. Birnbaum, Danny A. Grant, and Robert W. Heubel on April 2, 2019. The earliest application related to the ’298 patent was filed on September 30, 2010. A true and correct copy of the ’298 patent is attached as Exhibit C.

34. Immersion is the owner of all right, title, and interest in and to the ’298 patent with the full and exclusive right to bring suit to enforce the ’298 patent.

35. The ’298 patent is valid and enforceable under the United States Patent Laws.

36. The ’222 patent is titled “System with wearable device and haptic output device” and was issued by the United States Patent Office to inventors Allan Visitacion, Trevor Jones, Daniel Gregory Parker, Kohei Imoto, Keith Reed, Jessica E. Ferro, Aaron Kapelus, Neil Olien, Danny A. Grant, and Robert Lacroix on April 23, 2019. The earliest application related to the ’222 patent was filed on March 15, 2013. A true and correct copy of the ’222 patent is attached as Exhibit D.

37. Immersion is the owner of all right, title, and interest in and to the ’222 patent with the full and exclusive right to bring suit to enforce the ’222 patent.

38. The ’222 patent is valid and enforceable under the United States Patent Laws.

39. The ’143 patent is titled “Haptically enhanced interactivity with interactive content” and was issued by the United States Patent Office to inventors David M. Birnbaum, Danny A. Grant, and Robert W. Heubel on May 26, 2020. The earliest application related to the ’143 patent was filed on September 30, 2010. A true and correct copy of the ’143 patent is attached as Exhibit E.

40. Immersion is the owner of all right, title, and interest in and to the ’143 patent with the full and exclusive right to bring suit to enforce the ’143 patent.

41. The '143 patent is valid and enforceable under the United States Patent Laws.

42. The Patents-in-Suit generally teach novel systems and methods for establishing haptically enhanced interactivity with virtual objects within a virtual environment. The claimed systems and methods combine specific hardware and software components in unconventional ways. In contrast, conventional systems provided rudimentary mechanisms for applying static effects that merely informed users that basic events occurred. Through novel innovations, the Patents-in-Suit expand haptic stimulation to provide users feedback through real-world equipment corresponding to real-world controls to simulate a wide array of experiences, such as: that a control gesture has been received, that virtual or real objects have collided, exploded, or imploded, that an ambient force is present (e.g., simulated or real wind, rain, magnetism, and/or other virtual forces), and/or that other phenomena have occurred. The combinations of features are uniquely technological, and each claim improves on known systems and methods for providing haptic feedback.

43. For example, the '806 patent teaches applying haptic stimulation in conjunction with the performance of “control gestures” through which the user inputs commands into, for example, a game or virtual world via a real-world controller. Such control gestures comprise of separate portions with different haptic feedback over the duration of the gesture—resulting in a more intuitive and immersive user experience.

44. The '217 and '298 patents disclose the use of multiple peripherals, such as a controller for each hand, that freely move through the real-world. This enables users to manipulate a physical object in the real world to interact with a virtual object through, for example, at least three degrees of freedom—providing a physical sense of interaction with virtual objects.

45. The '222 patent teaches the use of a wearable device, including a wearable device configured as headwear that can include a plurality of hardware, software, and/or firmware components operating together, that can generate haptic feedback based on events that occur in an environment related to the wearable device. This enables users to better recognize objects in virtual and/or augmented reality environments.

46. Lastly, the '143 patent teaches the use of a peripheral worn on the head, which is tracked in real space, to interact with a virtual environment. This allows for viewing different displayed interactive content and experiencing different haptic feedback based in part on the user's head position.

META'S PRE-SUIT KNOWLEDGE OF THE PATENTS-IN-SUIT

47. Immersion re-alleges and incorporates by reference all of the foregoing paragraphs.

48. Meta's infringement of the Patents-in-Suit is particularly brazen, and therefore willful, because as explained below, prior to the instant suit, Meta became aware of each of the Patents-in-Suit owing to an earlier and ongoing patent infringement dispute between the same parties in this District, *Meta I. Meta I*, which was first filed on May 26, 2022, and involved the same Patents-in-Suit as the instant case, implicated previous versions of the Quest AR/VR system: the Quest 2 and Quest Pro devices. On information and belief, and as confirmed by recent testing, Meta's Quest 3 AR/VR system at issue in the instant matter operates in a manner substantially like that of the Meta products implicated in *Meta I*, and software sold by Meta on the Quest Store operates in substantially the same manner on the Quest 3, Quest 2, and Quest Pro and provides substantially similar examples of Meta's infringement of the Patents-in-Suit across all three devices. On further information and belief, and as confirmed by recent testing, the

Quest 3 infringes the Patents-in-Suit in a manner substantially similar, if not identical, to the way the Quest 2 and Quest Pro systems infringed the Patents-in-Suit in *Meta I*. Accordingly, Meta knew or should have known that the Quest 3 infringes the Patents-in-Suit.

49. During *Meta I*, Meta gained specific knowledge of each of the Patents-in-Suit, along with specific knowledge of the manner of its infringement of each of those patents by earlier versions of the Quest system. Indeed, Meta has been aware of the existence of each of the Patents-in-Suit since at least the May 26, 2022 filing date of the complaint in *Meta I*.

50. Because the Quest 3 infringes the Patents-in-Suit in substantially the same way as the Quest 2 and Quest Pro, Meta’s specific knowledge of its infringement of the Patents-in-Suit gained throughout *Meta I* is directly relevant to its willful infringement of the Patents-in-Suit arising from and relating to the Quest 3.

51. For example, Meta has had full and specific knowledge of the manner of its infringement of the Patents-in-Suit since at least August 2022, when Immersion first served Meta with infringement contentions and put Meta on notice of Immersion’s theories and evidence in support thereof.

52. On further information and belief, Meta—owing to Immersion’s previous allegations of infringement in *Meta I* and the similarities between the *Meta I* products and the Quest 3—knows that the Quest 3 is particularly suited to be used in an infringing manner and that Meta is aware that its products are not staple articles suitable for substantial non-infringing use. Indeed, Meta has designed the Quest 3 to specifically feature haptic effects to enhance a user’s AR/VR experience.⁴³ Moreover, on further information and belief, many of the

⁴³ See, e.g., <https://www.meta.com/quest/quest-3/> (last visited November 8, 2023) (detailing “Touch Plus controllers for experiences you can feel. Feel like you’re actually swinging a saber or casting a fishing line with TruTouch haptics that let you react to every experience as if you’re

applications (e.g., VR games such as those discussed herein) available for download on Meta's Quest Store and intended to be used on the Quest 3 incorporate the use of haptic effects.

53. Notwithstanding having previously obtained specific knowledge of the Patents-in-Suit and the manner of its infringement by similar Meta products over the course of nearly 18 months of litigation, Meta continued with the development, advertisement, and worldwide rollout of the Quest 3.⁴⁴ On information and belief, Meta began selling and shipping the Quest 3 on or about October 10, 2023, following a September 27, 2023 public announcement that it would do so.⁴⁵ Accordingly, and to the extent Meta continues to make, use, sell, offer to sell, and/or import the Quest 3 in violation of 35 U.S.C. §§ 271 et seq., including without limitation subsections 271(a), (b), (c), and/or (f), following its knowledge of the Patents-in-Suit from *Meta I*, Meta's continued infringement of those patents is intentional and willful.

FIRST CAUSE OF ACTION
(PATENT INFRINGEMENT UNDER 35 U.S.C. § 271 OF THE '806 PATENT)

54. Immersion re-alleges and incorporates by reference all of the foregoing paragraphs.

55. Meta has infringed and continues to infringe, either literally or under the doctrine of equivalents, one or more claims, including at least claim 11, of the '806 patent in violation of 35 U.S.C. § 271, et seq., including without limitation subsections 271(a), (b), (c), and/or (f), by (1) making, using, selling, offering for sale, and/or importing in this District and into the United

physically there.”; “New Touch Plus controllers enhance haptics for more sensations—so you can move and react intuitively.”).

⁴⁴ See <https://about.fb.com/news/2023/06/meta-quest-3-coming-this-fall/> (last visited November 8, 2023) (in a post dated June 1, 2023, Meta advertised that “Meta Quest 3, [its] next-generation virtual and mixed reality headset, will ship this fall... It features higher resolution, stronger performance, breakthrough Meta Reality technology, and a slimmer, more comfortable form factor. Quest 3 will ship in all countries where Meta Quest is currently supported this fall.”).

⁴⁵ See, e.g., <https://www.ign.com/articles/meta-quest-3-release-date> (last visited November 8, 2023).

States, without authority or license, certain products including, but not limited to those relating to the Accused Instrumentalities; (2) inducing and/or contributing to others' infringement; (3) supplying or causing to be supplied in or from the United States all or a substantial portion of the components of the Accused Instrumentalities as described in the claims of the '806 patent in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the '806 patent if such combination occurred within the United States; and/or (4) a component of the Accused Instrumentalities configured as described in the claims of the '806 patent that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial non-infringing use, where such component is uncombined in whole or in part, and Meta knows that such component is so made or adapted and intends that such component will be combined outside of the United States in a manner that would infringe the '806 patent if such combination occurred within the United States.

56. Claim 11 of the '806 patent provides:

[Preamble] A computer-implemented method of providing haptic stimulation to a user of a system, the method being implemented in the system which includes a haptic device and one or more physical processors configured to execute computer program modules, the method comprising:

[11A] monitoring, on the one or more processors, performance of a control gesture by a user, wherein the control gesture is a gesture associated with a command input to the system, and includes an initial portion, a first intermediate portion, and an ending portion;

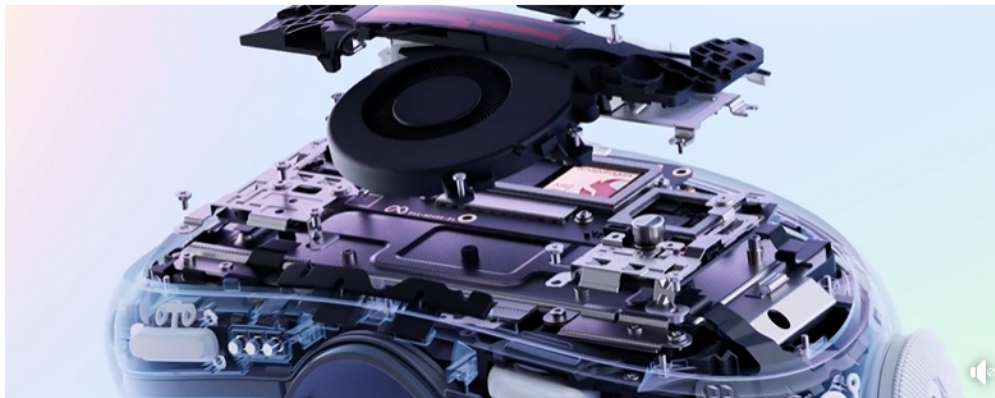
[11B] determining, on the one or more processors, haptic stimulation associated with performance of the control gesture to be generated for the user, wherein the haptic stimulation includes a first stimulation determined responsive to performance of the initial portion of the control gesture, and a second stimulation that is different from the first stimulation and is determined responsive to performance of the first intermediate portion of the control gesture; and

[11C] generating, with the haptic device, the determined stimulation during performance of the control gesture.

57. Based on publicly available information, Meta’s Accused Instrumentalities meet all elements of at least claim 11 of the ’806 patent.

58. Regarding the preamble of claim 11, to the extent the preamble is determined to be limiting, the Accused Instrumentalities provide the features described in the preamble, which recites a “computer-implemented method of providing haptic stimulation to a user of a system, the method being implemented in the system which includes a haptic device and one or more physical processors configured to execute computer program modules.” For example, the Quest 3 headset includes a Qualcomm Snapdragon XR2 Gen 2⁴⁶:

Processing Power



Next-level hardware

Lightning fast performance brings incredibly crisp details to life, thanks to double the graphic processing power of Quest 2.*

*Based on the graphic performance of the Qualcomm Snapdragon XR2 Gen 2 vs XR2 Gen 1 on Meta Quest 2.



⁴⁶ See <https://www.meta.com/quest/quest-3/> (last visited November 8, 2023).

59. Additionally, on information and belief, Meta hosts dedicated game servers and implements interactions with the Quest 3, including for example in multiplayer games, such as *Horizon Worlds*. On information and belief Meta’s dedicated servers enforce the rules of these games and replicate relevant game objects across each connected client Quest 3.⁴⁷

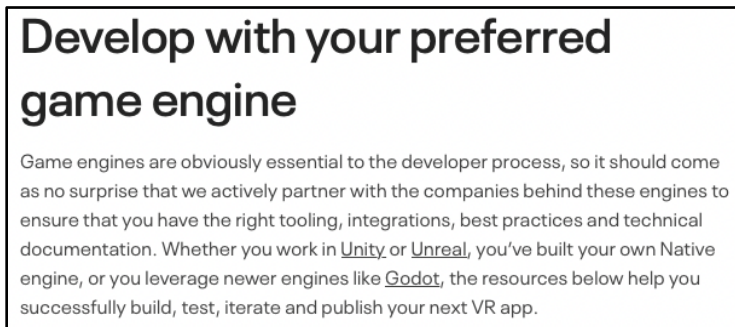
60. Further, the Quest 3 includes Touch Plus controllers that feature “TruTouch Haptics”⁴⁸ that can provide haptic feedback:



⁴⁷ See <https://github.com/oculus-samples/Unreal-SharedSpaces/blob/main-4.27/Documentation/SharedSpaces.md> (last visited November 8, 2023).

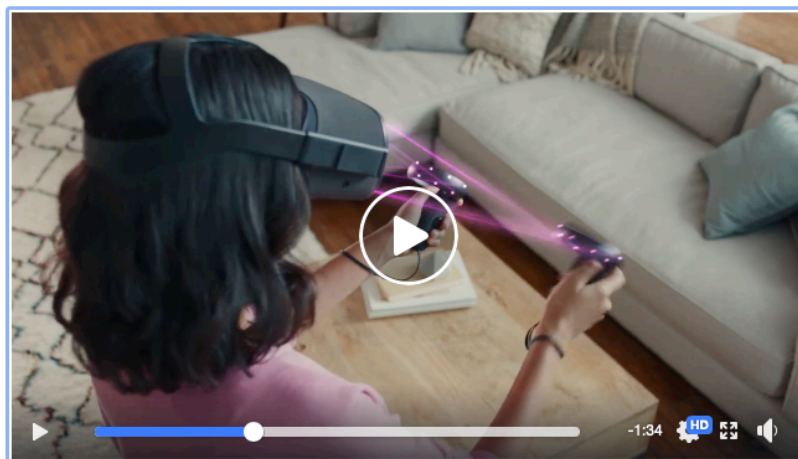
⁴⁸ See <https://www.meta.com/quest/quest-3/> (last visited November 8, 2023).

61. Further, the Quest 3 supports multiple game engines, including Unity, Unreal, and Native Development⁴⁹:



62. Accordingly, the Accused Instrumentalities meet the preamble of claim 11.

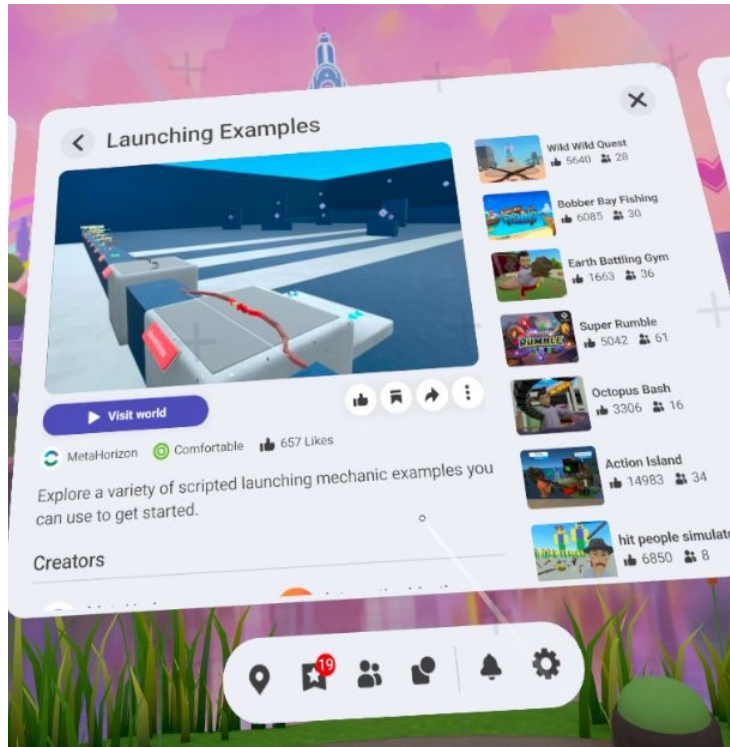
63. Limitation A requires “monitoring, on the one or more processors, performance of a control gesture by a user, wherein the control gesture is a gesture associated with a command input to the system, and includes an initial portion, a first intermediate portion, and an ending portion.” The Accused Instrumentalities through, for example and without limitation, Meta’s monitoring also meet all the requirements of limitation A of claim 11. For example, Oculus Insight, Facebook’s VR system, tracks the touch controllers⁵⁰:



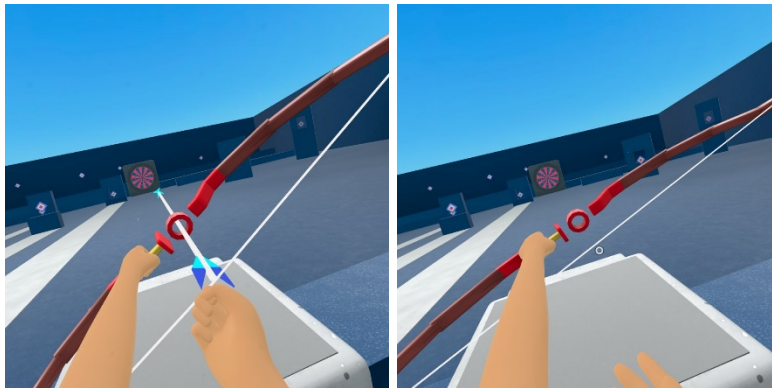
⁴⁹ See <https://developer.oculus.com/get-started-platform/> (last visited November 8, 2023).

⁵⁰ See <https://ai.meta.com/blog/powered-by-ai-oculus-insight/> (last visited November 8, 2023).

64. Further, the figures below are screenshots taken from a Quest 3 while testing this functionality. As explained in the figure below, the MetaHorizon creator published the *Launching Examples* world within *Horizon Worlds*, which allows users to explore a variety of scripting launching mechanic examples:⁵¹

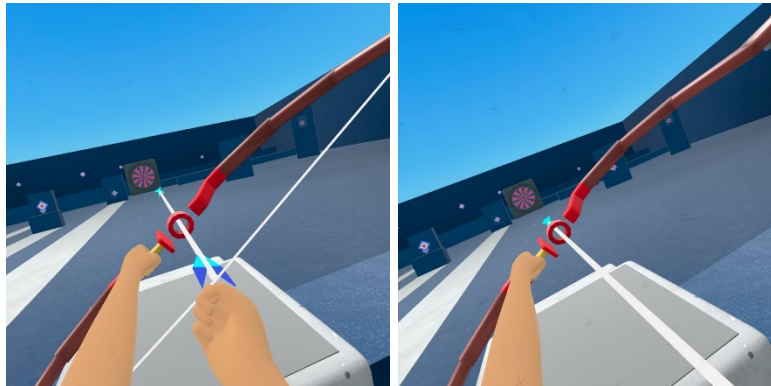


65. As one non-limiting example from *Launching Examples*, the Accused Instrumentalities allow users to grab a bow and arrow and grab the bowstring as depicted below:

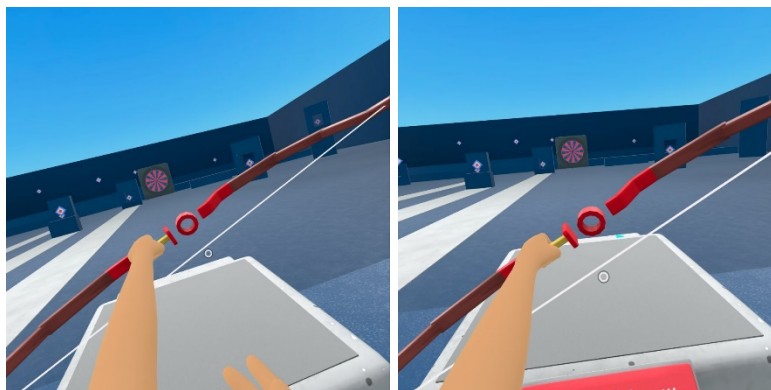


⁵¹ See generally <https://www.meta.com/experiences/2532035600194083/> (last visited November 8, 2023).

66. The Accused Instrumentalities then allow users to draw back the bowstring at different lengths as depicted below. The figure on the left depicts how the Accused Instrumentalities represent a bow that is partially drawn. The figure on the right depicts how the Accused Instrumentalities represent a bow that is more fully drawn.



67. The Accused Instrumentalities allow users to release the arrow at different pull lengths, resulting in different trajectories for where the arrow hits a target, which the Accused Instrumentalities depict as white circles, as shown in the figures below. The figure on the left depicts how the Accused Instrumentalities represent the release of a partially-drawn arrow. The figure on the right depicts how the Accused Instrumentalities represent the release of a more fully-drawn arrow.

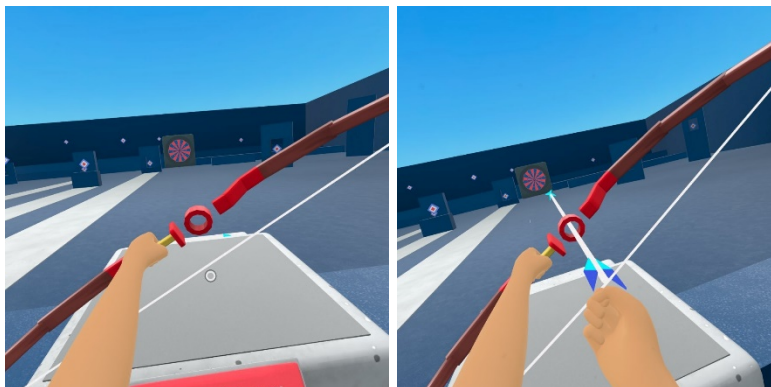


68. On information and belief, Meta’s dedicated game servers monitor these inputs to enforce the rules of these games and replicate relevant game objects across each connected client Quest 3.⁵²

69. Meta makes the Accused Instrumentalities, with which Meta performs the claimed step under Meta’s control for Meta’s benefit.

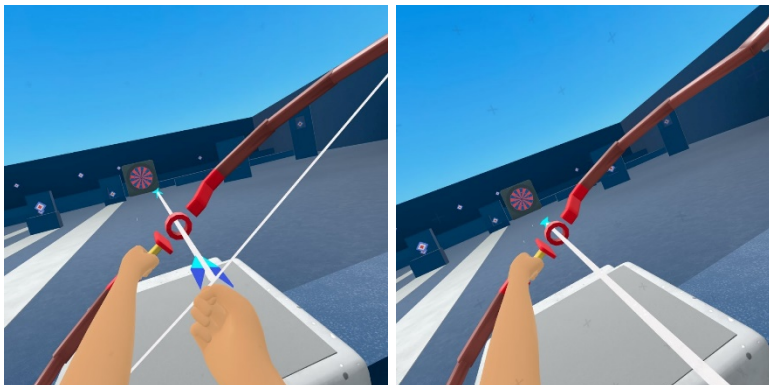
70. Accordingly, the Accused Instrumentalities perform limitation A of claim 11.

71. Limitation B requires “determining, on the one or more processors, haptic stimulation associated with performance of the control gesture to be generated for the user, wherein the haptic stimulation includes a first stimulation determined responsive to performance of the initial portion of the control gesture, and a second stimulation that is different from the first stimulation and is determined responsive to performance of the first intermediate portion of the control gesture.” The Accused Instrumentalities also meet all the requirements of limitation B of claim 11. For example, the *Launching Examples* world includes a bow and arrow, as described in limitation A. The figures below were taken from a Quest 3 device while testing this functionality. The Accused Instrumentalities allow users to grab a bow and arrow and first grab the bowstring, and the Accused Instrumentalities provide haptic confirmation accordingly:



⁵² See <https://github.com/oculus-samples/Unreal-SharedSpaces/blob/main-4.27/Documentation/SharedSpaces.md> (last visited November 8, 2023).

72. The Accused Instrumentalities then allow users to draw back the bowstring at different lengths. The figure on the left below depicts how the Accused Instrumentalities represent a partially drawn bow. The figure on the right depicts how the Accused Instrumentalities represent a more fully drawn bow. The Accused Instrumentalities provide a different haptic feedback during the draw.



73. Further, the Accused Instrumentalities can implement this infringing functionality in a number of ways. As just one example for how this infringing functionality could be implemented, the Unity Engine provides an interactable component that allows basic “grab” functionality, including with the following methods:⁵³

Grab()

Updates the state of the object due to being grabbed. Automatically called when entering the Select state.

Declaration

```
protected virtual void Grab()
```

See Also

[Drop\(\)](#)

Drop()

Updates the state of the object due to being dropped and schedule to finish the detach during the end of the frame. Automatically called when exiting the Select state.

Declaration

```
protected virtual void Drop()
```

⁵³ See

<https://docs.unity3d.com/Packages/com.unity.xr.interaction.toolkit@2.0/api/UnityEngine.XR.Interaction.Toolkit.XRGrabInteractable.html> (last visited November 8, 2023).

74. For example and without limitation, the Unity Engine further provides the following event handling methods to implement functionality, including haptic effect logic, on Select state changes:

OnSelectEntering(SelectEnterEventArgs)

The [XRInteractionManager](#) calls this method right before the Interactor first initiates selection of an Interactable in a first pass.

Declaration

```
protected override void OnSelectEntering(SelectEnterEventArgs args)
```

Parameters

Type	Name	Description
SelectEnterEventArgs	args	Event data containing the Interactor that is initiating the selection.

OnSelectExiting(SelectExitEventArgs)

The [XRInteractionManager](#) calls this method right before the Interactor ends selection of an Interactable in a first pass.

Declaration

```
protected override void OnSelectExiting(SelectExitEventArgs args)
```

Parameters

Type	Name	Description
SelectExitEventArgs	args	Event data containing the Interactor that is ending the selection.

75. Meta makes the Accused Instrumentalities, with which Meta performs the claimed step under Meta's control for Meta's benefit.

76. Accordingly, the Accused Instrumentalities perform limitation B of claim 11.

77. Limitation C requires "generating, with the haptic device, the determined stimulation during performance of the control gesture." The Accused Instrumentalities also meet all the requirements of limitation C of claim 11. For example, the user experiences the haptic stimulation described in limitation B, which indicates that the Accused Instrumentalities generate, with the haptic device, the determined stimulation during performance of the control gesture.

78. The Accused Instrumentalities can implement this infringing functionality in a number of ways. As just one example for how this infringing functionality could be implemented

with the Unity engine, Oculus developer documentation instructs developers on the following API for providing haptic feedback:⁵⁴

```
static void OVRInput.SetControllerVibration
( float frequency,
  float amplitude,
  Controller controllerMask )

Activates vibration with the given frequency and amplitude with the given controller mask.

Ignored on controllers that do not support vibration. Expected values range from 0 to 1.
```

79. Meta makes the Accused Instrumentalities, with which Meta performs the claimed step under Meta's control for Meta's benefit.

80. Accordingly, the Accused Instrumentalities perform limitation C of claim 11.

81. Thus, Meta directly infringes at least claim 11 of the '806 patent. For example, the Accused Instrumentalities with which Meta performs all of the claimed steps as described in the examples above are under Meta's control for Meta's benefit.

82. As a result of Meta's infringement of the '806 patent, Immersion has suffered and continues to suffer substantial injury and is entitled to recover all damages caused by Meta's infringement to the fullest extent permitted by the Patent Act, together with prejudgment and post-judgment interest and costs for Meta's wrongful conduct.

83. Meta became aware of the '806 patent and its infringement by the Accused Instrumentalities at least as early as May 26, 2022. Accordingly, and to the extent Meta continues to make, use, sell, offer to sell, and/or import any of the Accused Instrumentalities in violation of 35 U.S.C. §§ 271 et seq., including without limitation subsections 271(a), (b), (c) and/or (f), Meta's continued infringement of the '806 patent is intentional and willful.

⁵⁴ See https://developer.oculus.com/reference/unity/v38/class_ovr_input (last visited November 8, 2023).

84. Immersion has no adequate remedy at law to prevent future infringement of the '806 patent. Immersion suffers and continues to suffer irreparable harm as a result of Meta's willful patent infringement and is, therefore, entitled to injunctive relief to enjoin Meta's wrongful conduct.

SECOND CAUSE OF ACTION
(PATENT INFRINGEMENT UNDER 35 U.S.C. § 271 OF THE '217 PATENT)

85. Immersion re-alleges and incorporates by reference all of the foregoing paragraphs.

86. Meta has infringed and continues to infringe, either literally or under the doctrine of equivalents, one or more claims, including at least claim 1, of the '217 patent in violation of 35 U.S.C. § 271, et seq., including without limitation subsections 271(a), (b), (c), and/or (f), by (1) making, using, selling, offering for sale, and/or importing in this District and into the United States, without authority or license, certain products including, but not limited to those relating to the Accused Instrumentalities; (2) inducing and/or contributing to others' infringement; (3) supplying or causing to be supplied in or from the United States all or a substantial portion of the components of the Accused Instrumentalities as described in the claims of the '217 patent in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the '217 patent if such combination occurred within the United States; and/or (4) a component of the Accused Instrumentalities configured as described in the claims of the '217 patent that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial non-infringing use, where such component is uncombined in whole or in part, and Meta knows that such component is so made or adapted and intends that such component will be combined

outside of the United States in a manner that would infringe the '217 patent if such combination occurred within the United States.

87. Claim 1 of the '217 patent provides:

[Preamble] A system comprising:

[1A] a manipulatable input device movable through real space in at least three degrees of freedom, the manipulatable input device incorporating a haptic output device;

[1B] a processor in communication with the haptic output device;

[1C] a memory on which instructions executable by the processor are stored for causing the processor to:

[1D] receive one or more sensor signals indicating a position of the manipulatable input device in the at least three degrees of freedom and an identification of the manipulatable input device;

[1E] establish a communication pathway between the manipulatable input device and the processor;

[1F] after establishing the communication pathway, determine a feedback parameter based at least in part on the position of the manipulatable input device in the at least three degrees of freedom and the identification of the manipulatable input device; and

[1G] transmit a haptic signal to the haptic output device, the haptic signal configured to cause the haptic output device to output a haptic effect according to the feedback parameter.

88. Meta's Accused Instrumentalities meet all elements of at least claim 1 of the '217 patent.

89. Regarding the preamble of claim 1 of the '217 patent, to the extent the preamble is determined to be limiting, the Accused Instrumentalities comprise a system.

90. Limitation A requires "a manipulatable input device movable through real space in at least three degrees of freedom, the manipulatable input device incorporating a haptic output device." The Accused Instrumentalities also meet all the requirements of limitation A of claim 1.

For example, the Quest 3 includes two controllers that allow the user to “experience intuitive movement and precise input, as if the controller is a natural extension of your hands”⁵⁵:



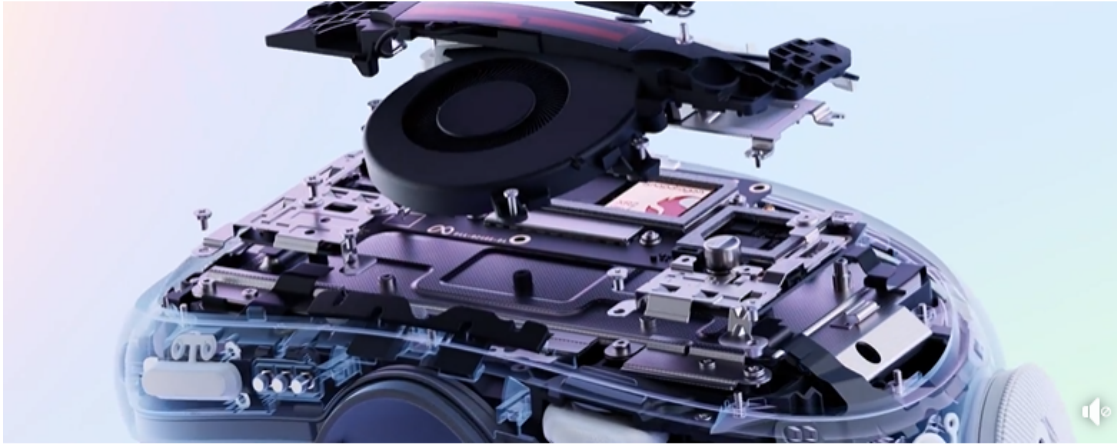
These controllers are movable through real space in at least three degrees of freedom and provide haptic feedback. Accordingly, the Accused Instrumentalities meet limitation A of claim 1.

91. Limitation B requires “a processor in communication with the haptic output device.” The Accused Instrumentalities also meet all the requirements of limitation B of claim 1. For example, the Quest 3 headset includes a Qualcomm Snapdragon XR2 Gen 2⁵⁶:

⁵⁵ See <https://www.meta.com/quest/quest-3/> (last visited November 8, 2023).

⁵⁶ *Id.*

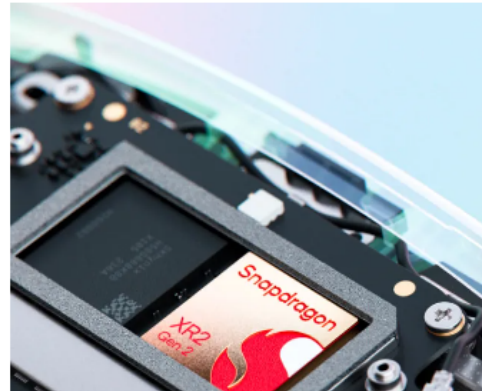
Processing Power



Next-level hardware

Lightning fast performance brings incredibly crisp details to life, thanks to double the graphic processing power of Quest 2.*

*Based on the graphic performance of the Qualcomm Snapdragon XR2 Gen 2 vs XR2 Gen 1 on Meta Quest 2.



Further, the Quest 3 includes Touch Plus controllers in communication with the Quest 3 headset that can provide haptic feedback⁵⁷:

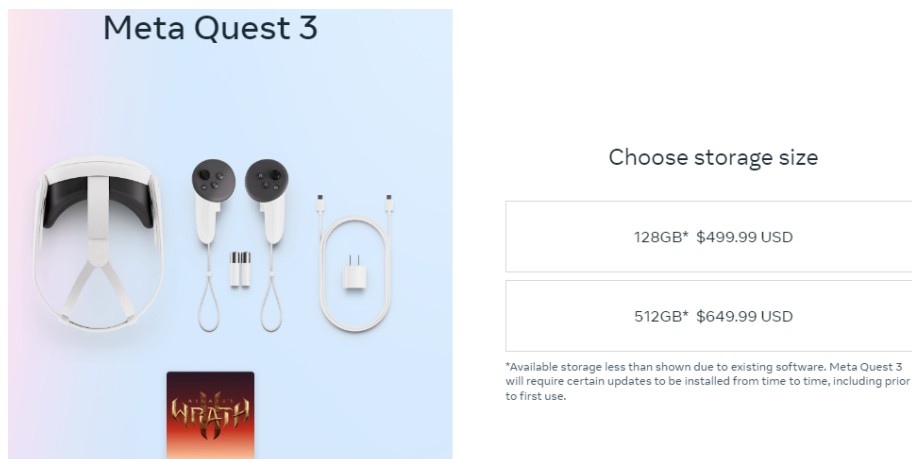


Accordingly, the Accused Instrumentalities meet limitation B of claim 1.

92. Limitation C requires “a memory on which instructions executable by the processor are stored for causing the processor to.” The Accused Instrumentalities also meet all the requirements of limitation B of claim 1. For example, Quest 3 devices have memory on which instructions are executable by the processor and are available in two sizes, 128 GB of memory or 512 GB of memory⁵⁸:

⁵⁷ See <https://www.meta.com/quest/quest-3/> (last visited November 8, 2023) (“New Touch Plus controllers enhance haptics for more sensations—so you can move and react intuitively”).

⁵⁸ See <https://www.meta.com/quest/quest-3/-specs> (last visited November 8, 2023).



93. Further, Quest 3 supports multiple game engines, including Unity, Unreal, and Native Development⁵⁹:

Develop with your preferred game engine

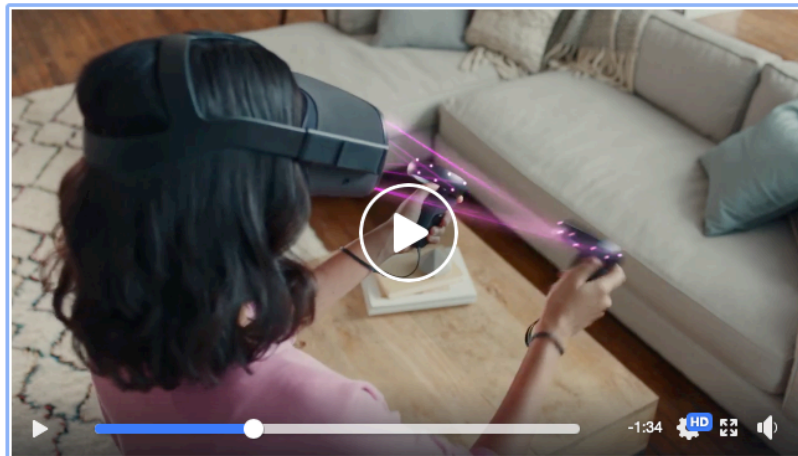
Game engines are obviously essential to the developer process, so it should come as no surprise that we actively partner with the companies behind these engines to ensure that you have the right tooling, integrations, best practices and technical documentation. Whether you work in Unity or Unreal, you've built your own Native engine, or you leverage newer engines like Godot, the resources below help you successfully build, test, iterate and publish your next VR app.

Accordingly, the Accused Instrumentalities meet limitation C of claim 1.

94. Limitation D reads: “receive one or more sensor signals indicating a position of the manipulatable input device in the at least three degrees of freedom and an identification of the manipulatable input device.” The Accused Instrumentalities also meet all the requirements of limitation D of claim 1. For example, Oculus Insight, Meta’s VR system, tracks each controller⁶⁰:

⁵⁹ See <https://developer.oculus.com/get-started-platform/> (last visited November 8, 2023).

⁶⁰ See <https://ai.meta.com/blog/powered-by-ai-oculus-insight/> (last visited November 8, 2023).





Accordingly, the Accused Instrumentalities receive one or more sensor signals indicating a position of the touch controllers in the at least three degrees of freedom and an identification of each touch controller, meeting limitation D of claim 1.

95. Limitation E reads: “establish a communication pathway between the manipulatable input device and the processor.” The Accused Instrumentalities also meet all the requirements of limitation E of claim 1. For example, the controllers are paired such that they automatically connect with the Quest 3 headset every time it is turned on⁶¹:

⁶¹ See <https://www.meta.com/help/quest/articles/getting-started/getting-started-with-quest-3/touch-plus-controllers/> (lasted visited November 8, 2023).

Setup and pairing

To pair your Touch Plus controllers to your Quest 3 headset:

1. Make sure your headset is powered on.
2. Turn on the left controller by pressing 
3. Turn on the right controller, by pressing 
4. After two seconds, you'll see an LED light indicating your controller is powered on.
5. Open the Meta Quest app on your phone.
6. Tap **Menu**.
7. Tap **Devices**.
8. Tap on the headset you want to pair controllers to.
9. Tap **Controllers**, then tap **Left** or **Right** to choose which controller you'd like to pair.
10. Follow the on-screen instructions to complete pairing.
11. Your controllers will show a blue and white blinking light when they are in pairing mode. A blue light will blink 3 times when your controller is successfully paired.

Once you've paired your controllers, the controllers will automatically connect to your headset each time you turn it on, if it's nearby.

Accordingly, the Accused Instrumentalities meet limitation E of claim 1.

96. Limitation F reads: “after establishing the communication pathway, determine a feedback parameter based at least in part on the position of the manipulatable input device in the at least three degrees of freedom and the identification of the manipulatable input device.” The Accused Instrumentalities also meet all the requirements of limitation F of claim 1. For example, the Quest 3 supports multiple game engines, including Unity, Unreal, and Native Development for implementing this functionality⁶²:

⁶² See <https://developer.oculus.com/get-started-platform/> (last visited November 8, 2023).

Develop with your preferred game engine

Game engines are obviously essential to the developer process, so it should come as no surprise that we actively partner with the companies behind these engines to ensure that you have the right tooling, integrations, best practices and technical documentation. Whether you work in Unity or Unreal, you've built your own Native engine, or you leverage newer engines like Godot, the resources below help you successfully build, test, iterate and publish your next VR app.

97. The Accused Instrumentalities can implement this infringing functionality in multiple ways. As just one example for how this infringing functionality could be implemented with the Unity engine, Oculus developer documentation instructs developers on the following API for providing haptic feedback after determining feedback parameters⁶³:

```
static void OVRInput.SetControllerVibration
( float frequency,
  float amplitude,
  Controller controllerMask )

Activates vibration with the given frequency and amplitude with the given controller mask.

Ignored on controllers that do not support vibration. Expected values range from 0 to 1.
```

98. This documentation further describes the possible values for the controller mask parameter referenced above, including⁶⁴:

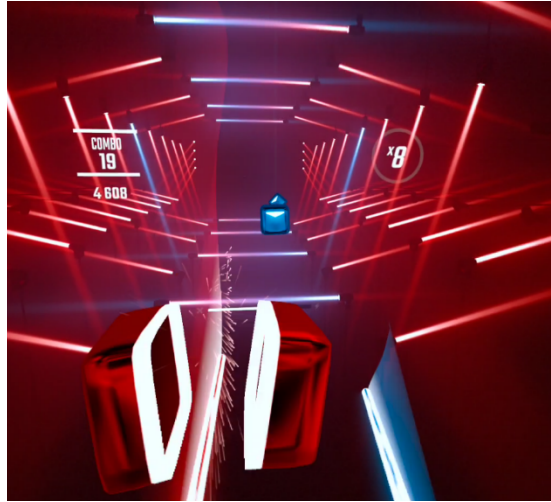
LTouch	Left Oculus Touch controller. Virtual input mapping differs from the combined L/R Touch mapping.
RTouch	Right Oculus Touch controller. Virtual input mapping differs from the combined L/R Touch mapping.

99. Accordingly, the Accused Instrumentalities meet limitation F of claim 1.

⁶³ See https://developer.oculus.com/reference/unity/v38/class_ovr_input (last visited November 8, 2023).

⁶⁴ See https://developer.oculus.com/reference/unity/v38/class_ovr_input_a5c86f9052a9cbb0b73779ff5704d60a8 (last visited November 8, 2023).

100. Limitation G reads: “transmit a haptic signal to the haptic output device, the haptic signal configured to cause the haptic output device to output a haptic effect according to the feedback parameter.” The Accused Instrumentalities also meet all the requirements of limitation G of claim 1. For example, in *Beat Saber*, a user may cut a note as seen below.⁶⁵ Upon a successful cut, a haptic effect is felt in the controller making the slice.



Accordingly, the Accused Instrumentalities meet limitation G of claim 1.

101. Thus, Meta directly infringes at least claim 1 of the '217 patent. For example, by integrating these exemplary game engines and providing the underlying infrastructure that implements the documented APIs, Meta makes the Accused Instrumentalities. As another example, because the Accused Instrumentalities are products under Meta's control for Meta's benefit, Meta uses the Accused Instrumentalities. As another example, Meta sells, offers for sale, and/or imports in this District and into the United States the Accused Instrumentalities.

102. As a result of Meta's infringement of the '217 patent, Immersion has suffered and continues to suffer substantial injury and is entitled to recover all damages caused by Meta's infringement to the fullest extent permitted by the Patent Act, together with prejudgment and

⁶⁵ See <https://www.meta.com/experiences/2448060205267927/> (last visited November 8, 2023).

post-judgment interest and costs for Meta's wrongful conduct.

103. Meta became aware of the '217 patent and its infringement by the Accused Instrumentalities at least as early as May 26, 2022. Accordingly, and to the extent Meta continues to make, use, sell, offer to sell, and/or import any of the Accused Instrumentalities in violation of 35 U.S.C. §§ 271 et seq., including without limitation subsections 271(a), (b), (c), and/or (f), Meta's continued infringement of the '217 patent is intentional and willful.

104. Immersion has no adequate remedy at law to prevent future infringement of the '217 patent. Immersion suffers and continues to suffer irreparable harm as a result of Meta's willful patent infringement and is, therefore, entitled to injunctive relief to enjoin Meta's wrongful conduct.

THIRD CAUSE OF ACTION
(PATENT INFRINGEMENT UNDER 35 U.S.C. § 271 OF THE '298 PATENT)

105. Immersion re-alleges and incorporates by reference all of the foregoing paragraphs.

106. Meta has infringed and continues to infringe, either literally or under the doctrine of equivalents, one or more claims, including at least claim 1, of the '298 patent in violation of 35 U.S.C. § 271, et seq., including without limitation subsections 271(a), (b), (c), and/or (f), by (1) making, using, selling, offering for sale, and/or importing in this District and into the United States, without authority or license, certain products including, but not limited to those relating to the Accused Instrumentalities; (2) inducing and/or contributing to others' infringement; (3) supplying or causing to be supplied in or from the United States all or a substantial portion of the components of the Accused Instrumentalities as described in the claims of the '298 patent in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the '298 patent if such combination occurred within the

United States; and/or (4) a component of the Accused Instrumentalities configured as described in the claims of the '298 patent that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial non-infringing use, where such component is uncombined in whole or in part, and Meta knows that such component is so made or adapted and intends that such component will be combined outside of the United States in a manner that would infringe the '298 patent if such combination occurred within the United States.

107. Claim 1 of the '298 patent provides:

[Preamble] A system comprising:

[1A] a processor; and;

[1B] a memory device comprising program code that is executable by the processor to cause the processor to:

[1C] display a virtual environment via an electronic display;

[1D] detect an interaction with a virtual object in the virtual environment based on a peripheral being at a particular position in free space with respect to the virtual object; and

[1E] based on detecting the interaction:

[1F] determine a first feedback parameter that depends on an identifier of the peripheral and a second feedback parameter that depends on the particular position of the peripheral in free space; and;

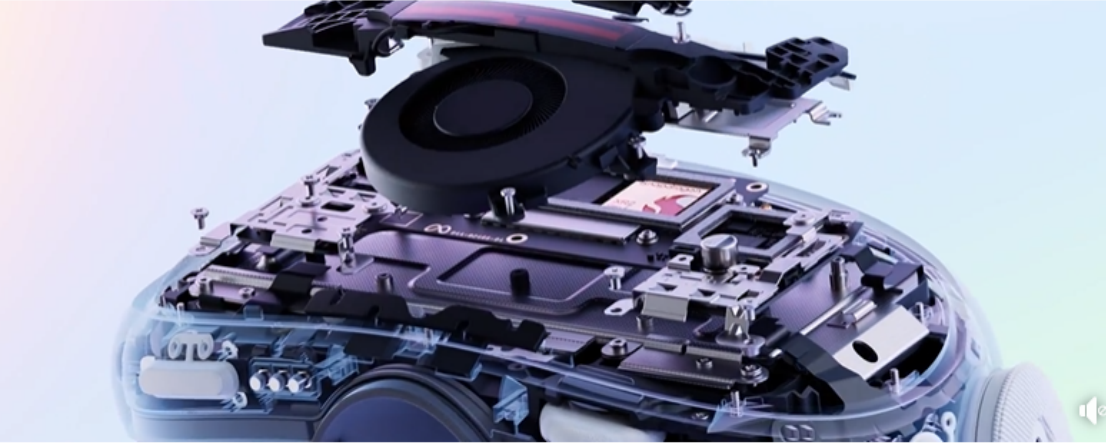
[1G] transmit a haptic signal configured to cause a haptic output device to output haptic feedback in accordance with the first feedback parameter and the second feedback parameter.

108. Meta's Accused Instrumentalities meet all elements of, and therefore infringe, at least claim 1 of the '298 patent.

109. Regarding the preamble of claim 1 of the '298 patent, to the extent the preamble is determined to be limiting, the Accused Instrumentalities comprise a system.

110. Limitation A requires “a processor.” The Accused Instrumentalities meet all of the requirements of limitation A of claim 1. For example, the Quest 3 headset includes a Qualcomm Snapdragon XR2 Gen 2⁶⁶:

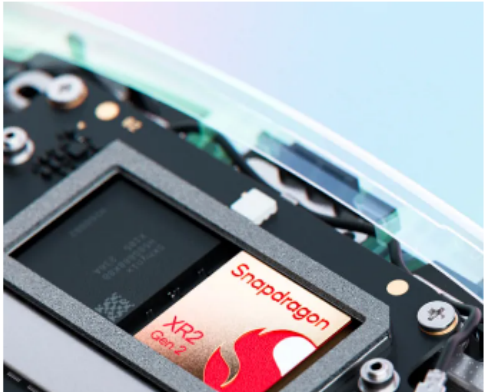
Processing Power ×



Next-level hardware

Lightning fast performance brings incredibly crisp details to life, thanks to double the graphic processing power of Quest 2.*

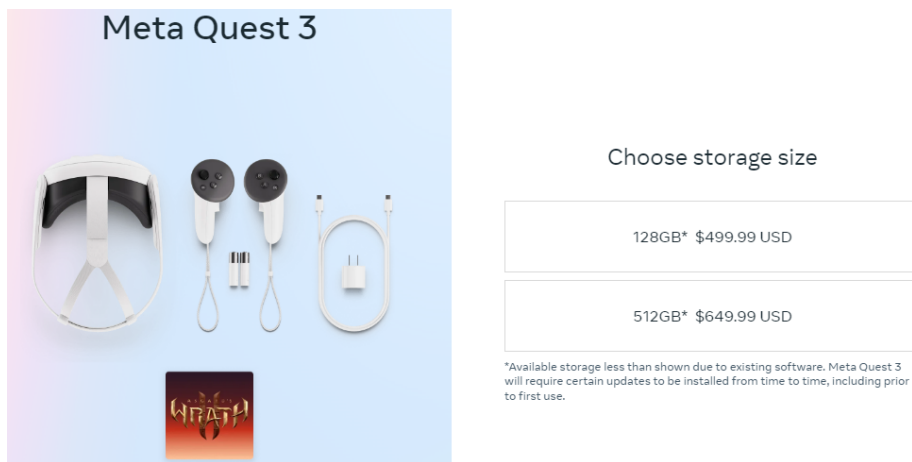
*Based on the graphic performance of the Qualcomm Snapdragon XR2 Gen 2 vs XR2 Gen 1 on Meta Quest 2.



111. Limitation B requires “a memory device comprising program code that is executable by the processor.” The Accused Instrumentalities also meet all the requirements of limitation B of claim 1. For example, Quest 3 devices have a memory device comprising

⁶⁶ See <https://www.meta.com/quest/quest-3/> (last visited November 8, 2023).

program code that is executable by the processor and are available in two sizes, 128 GB of memory or 512 GB of memory⁶⁷:

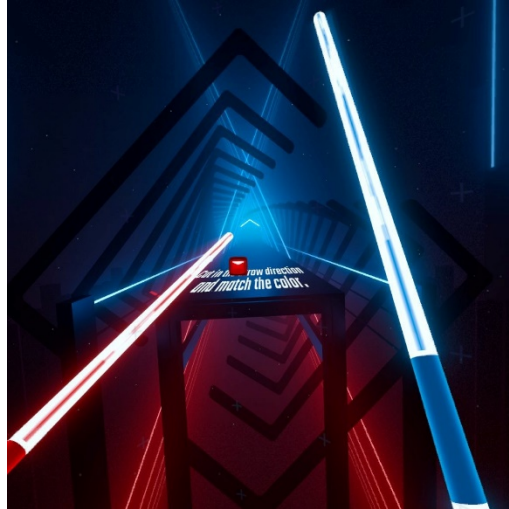


112. Further, the program code on the processor is executable by the processor to cause the processor to meet limitations C and D of claim 1 of the '298 patent, which are discussed below.

113. Limitation C requires the processor to “display a virtual environment via an electronic display.” The Accused Instrumentalities also meet all the requirements of limitation C of claim 1. For example, *Beat Saber* also displays a virtual environment via the Quest 3 headset display.⁶⁸

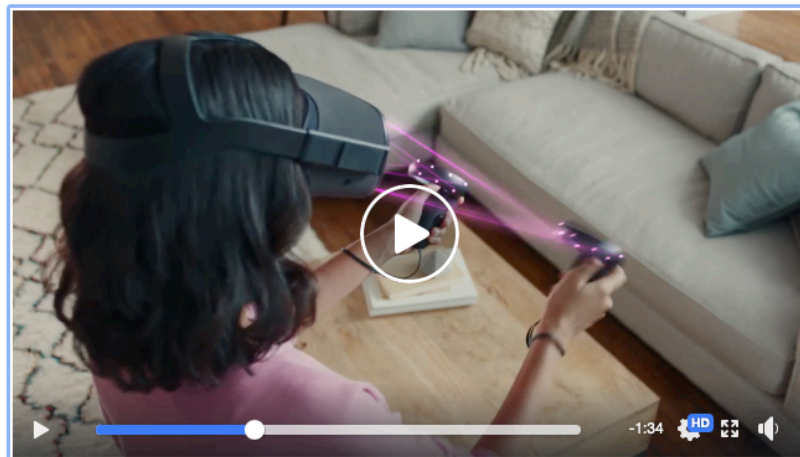
⁶⁷ See <https://www.meta.com/quest/quest-3/#specs> (last visited November 8, 2023).

⁶⁸ See <https://www.meta.com/experiences/2448060205267927/> (last visited November 8, 2023).



Accordingly, the Accused Instrumentalities meet limitation C of claim 1.

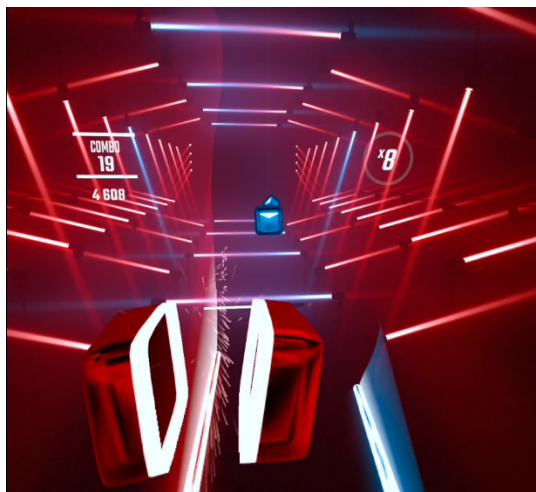
114. Limitation D requires the processor to “detect an interaction with a virtual object in the virtual environment based on a peripheral being at a particular position in free space with respect to the virtual object.” The Accused Instrumentalities also meet all the requirements of limitation D of claim 1. For example, Oculus Insight, Facebook’s VR system, tracks the touch controllers⁶⁹:



115. The figures below are screenshots taken from a Quest 3 while testing this functionality. For example, in *Beat Saber*, the Accused Instrumentalities detect an interaction

⁶⁹ See <https://ai.meta.com/blog/powered-by-ai-oculus-insight/> (last visited November 8, 2023).

with a virtual object based on the particular position of the controller in free space with respect to the virtual object.⁷⁰



116. Further, Quest 3 supports multiple game engines, including Unity, Unreal, and Native Development for implementing this functionality⁷¹:

Develop with your preferred game engine

Game engines are obviously essential to the developer process, so it should come as no surprise that we actively partner with the companies behind these engines to ensure that you have the right tooling, integrations, best practices and technical documentation. Whether you work in Unity or Unreal, you've built your own Native engine, or you leverage newer engines like Godot, the resources below help you successfully build, test, iterate and publish your next VR app.

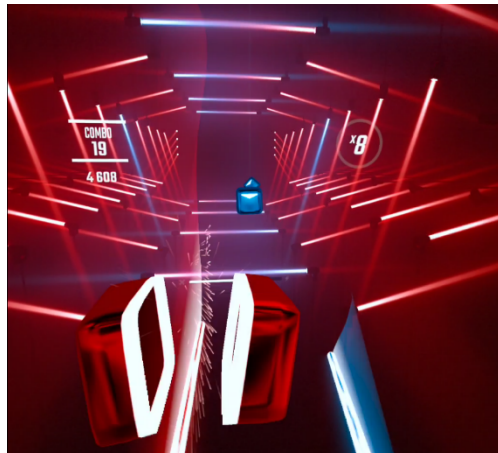
117. Accordingly, the Accused Instrumentalities meet limitation D of claim 1.

118. Limitation E requires limitations F and G to occur “based on detecting the interaction” of limitation D. The Accused Instrumentalities also meet all the requirements of limitation E, F, and G of claim 1 as discussed below.

⁷⁰ See <https://www.meta.com/experiences/2448060205267927/> (last visited November 8, 2023).

⁷¹ See <https://developer.oculus.com/get-started-platform/> (last visited November 8, 2022).

119. Limitation F requires the processor of limitation A, based on detecting the interaction of limitation D, to “determine a first feedback parameter that depends on an identifier of the peripheral and a second feedback parameter that depends on the particular position of the peripheral in free space.” The Accused Instrumentalities also meet all the requirements of limitation F of claim 1. For example, in the *Beat Saber* application, described in limitation A, users can cut notes. The figure below was taken from a Quest 3 device while performing this task. Testing on the Quest 3 confirms that users experience haptic feedback when cutting the note:



120. The Accused Instrumentalities can implement this infringing functionality in multiple ways. As just one example for how this infringing functionality could be implemented with the Unity engine, Oculus developer documentation instructs developers on the following API for providing haptic feedback after determining feedback parameters⁷²:

⁷² See https://developer.oculus.com/reference/unity/v38/class_o_v_r_input (last visited November 8, 2023).

```
static void OVRInput.SetControllerVibration
(float frequency,
float amplitude,
Controller controllerMask )

Activates vibration with the given frequency and amplitude with the given controller mask.

Ignored on controllers that do not support vibration. Expected values range from 0 to 1.
```

121. This documentation further describes the possible values for the controller mask parameter referenced above, including:⁷³

LTouch	Left Oculus Touch controller. Virtual input mapping differs from the combined L/R Touch mapping.
RTouch	Right Oculus Touch controller. Virtual input mapping differs from the combined L/R Touch mapping.

122. Accordingly, the Accused Instrumentalities meet limitation F of claim 1.

123. Limitation G requires the processor of limitation A, based on detecting the interaction of limitation D, to “transmit a haptic signal configured to cause a haptic output device to output haptic feedback in accordance with the first feedback parameter and the second feedback parameter.” The Accused Instrumentalities also meet all the requirements of limitation G of claim 1. For example, testing on a Quest 3 confirms that users experience the haptic feedback described in limitation F, which indicates that the Accused Instrumentalities transmit a haptic signal configured to cause a haptic output device to output haptic feedback in accordance with the first feedback parameter and the second feedback parameter. Accordingly, the Accused Instrumentalities meet limitation G of claim 1.

124. Thus, Meta directly infringes at least claim 1 of the ’298 patent. For example, by integrating these exemplary game engines and providing the underlying infrastructure that

⁷³ See id.

implements the documented APIs, Meta makes the Accused Instrumentalities. As another example, because the Accused Instrumentalities are products under Meta's control for Meta's benefit, Meta uses the Accused Instrumentalities. As another example, Meta sells, offers for sale, and/or imports in this District and into the United States the Accused Instrumentalities.

125. As a result of Meta's infringement of the '298 patent, Immersion has suffered and continues to suffer substantial injury and is entitled to recover all damages caused by Meta's infringement to the fullest extent permitted by the Patent Act, together with prejudgment and post-judgment interest and costs for Meta's wrongful conduct.

126. Meta became aware of the '298 patent and its infringement by the Accused Instrumentalities at least as early as May 26, 2022. Accordingly, and to the extent Meta continues to make, use, sell, offer to sell, and/or import any of the Accused Instrumentalities in violation of 35 U.S.C. §§ 271 et seq., including without limitation subsections 271(a), (b), (c), and/or (f), Meta's continued infringement of the '298 patent is intentional and willful.

127. Immersion has no adequate remedy at law to prevent future infringement of the '298 patent. Immersion suffers and continues to suffer irreparable harm as a result of Meta's willful patent infringement and is, therefore, entitled to injunctive relief to enjoin Meta's wrongful conduct.

FOURTH CAUSE OF ACTION
(PATENT INFRINGEMENT UNDER 35 U.S.C. § 271 OF THE '222 PATENT)

128. Immersion re-alleges and incorporates by reference all of the foregoing paragraphs.

129. Meta has infringed and continues to infringe, either literally or under the doctrine of equivalents, one or more claims, including at least claim 1, of the '222 patent in violation of 35 U.S.C. § 271, et seq., including without limitation subsections 271(a), (b), (c), and/or (f), by

(1) making, using, selling, offering for sale, and/or importing in this District and into the United States, without authority or license, certain products including, but not limited to those relating to the Accused Instrumentalities; (2) inducing and/or contributing to others' infringement; (3) supplying or causing to be supplied in or from the United States all or a substantial portion of the components of the Accused Instrumentalities as described in the claims of the '222 patent in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the '222 patent if such combination occurred within the United States; and/or (4) a component of the Accused Instrumentalities configured as described in the claims of the '222 patent that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial non-infringing use, where such component is uncombined in whole or in part, and Meta knows that such component is so made or adapted and intends that such component will be combined outside of the United States in a manner that would infringe the '222 patent if such combination occurred within the United States.

130. Claim 1 of the '222 patent provides:

[Preamble] A system comprising:

[1A] a wearable device;

[1B] a second device remote from and in communication with the wearable device;

[1C] a processor configured to generate at least a first control signal and a second control signal representative of a first event and a second event, respectively, occurring in an environment related to the wearable device and/or the second device, the first event and the second event being different events; and

[1D] a haptic output device configured to provide a first haptic feedback signal and a second haptic feedback signal based on the first control signal and the second control signal, respectively.

131. Meta’s Accused Instrumentalities meet all elements of, and therefore infringe, at least claim 1 of the ’222 patent.

132. Regarding the preamble of claim 1 of the ’222 patent, to the extent the preamble is determined to be limiting, the Accused Instrumentalities comprise a system.

133. Limitation A requires “a wearable device.” The Accused Instrumentalities meet all of the requirements of limitation A of claim 1. For example, Quest 3 comprises a wearable headset⁷⁴:

Redesigned to help you find the perfect fit

Discover the setup that works best for you, including options that let you wear your headset over glasses—or accommodate different hairstyles and face shapes.



134. Limitation B requires “a second device remote from and in communication with the wearable device.” The Accused Instrumentalities meet all of the requirements of limitation B

⁷⁴ See <https://www.meta.com/quest/quest-3/> (last visited November 8, 2023).

of claim 1. For example, Quest 3 comprises Touch Plus controllers featuring “TruTouch haptics”⁷⁵:

Touch Plus controllers for experiences you can feel

Feel like you're actually swinging a saber or casting a fishing line with TruTouch haptics that let you react to every experience as if you're physically there.





135. The Touch Plus controllers are remote from the headset, and are in communication with the headset because, for example, they are paired such that they automatically connect with the headset every time it is turned on⁷⁶:

⁷⁵ *Id.*

⁷⁶ See <https://www.meta.com/help/quest/articles/getting-started/getting-started-with-quest-3/touch-plus-controllers/> (lasted visited November 8, 2023).

Setup and pairing

To pair your Touch Plus controllers to your Quest 3 headset:

1. Make sure your headset is powered on.
2. Turn on the left controller by pressing 
3. Turn on the right controller, by pressing 
4. After two seconds, you'll see an LED light indicating your controller is powered on.
5. Open the Meta Quest app on your phone.
6. Tap **Menu**.
7. Tap **Devices**.
8. Tap on the headset you want to pair controllers to.
9. Tap **Controllers**, then tap **Left** or **Right** to choose which controller you'd like to pair.
10. Follow the on-screen instructions to complete pairing.
11. Your controllers will show a blue and white blinking light when they are in pairing mode. A blue light will blink 3 times when your controller is successfully paired.

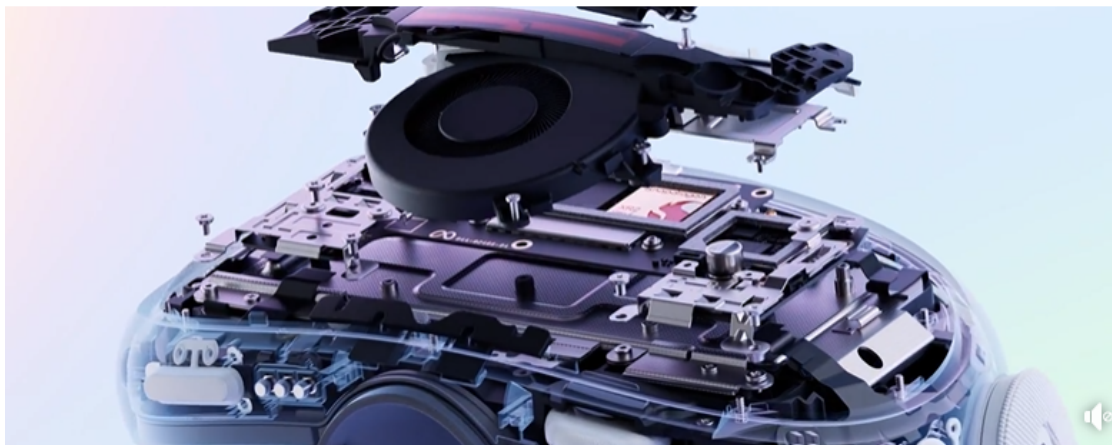
Once you've paired your controllers, the controllers will automatically connect to your headset each time you turn it on, if it's nearby.

Accordingly, the Accused Instrumentalities meet limitation B of claim 1.

136. Limitation C requires “a processor configured to generate at least a first control signal and a second control signal representative of a first event and a second event, respectively, occurring in an environment related to the wearable device and/or the second device, the first event and the second event being different events.” The Accused Instrumentalities also meet all the requirements of limitation C of claim 1. For example, the Quest 3 headset includes a Qualcomm Snapdragon XR2 Gen 2⁷⁷:

⁷⁷ See <https://www.meta.com/quest/quest-3/> (last visited November 8, 2023).

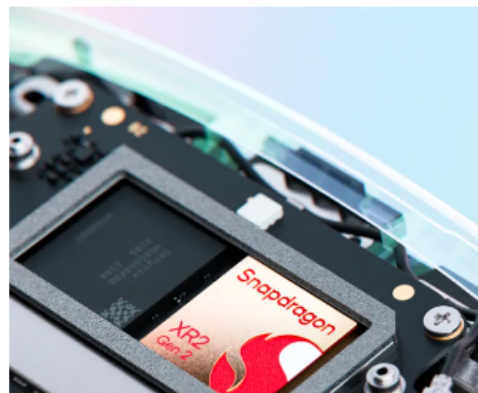
Processing Power



Next-level hardware

Lightning fast performance brings incredibly crisp details to life, thanks to double the graphic processing power of Quest 2.*

*Based on the graphic performance of the Qualcomm Snapdragon XR2 Gen 2 vs XR2 Gen 1 on Meta Quest 2.

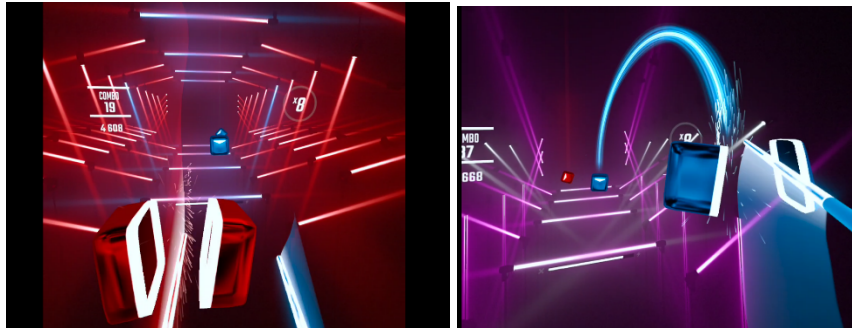


137. Further, a processor generates a first control signal and a second control signal representative of a first event and a second event, respectively, occurring in an environment related to the wearable device and/or the second device, when the Accused Instrumentalities operate an application such as *Beat Saber*.⁷⁸ For example, *Beat Saber*, developed and published for Quest devices subject to Meta’s requirements by Beat Games, allows users to cut a note and to also cut an “arc note.”⁷⁹ The figure below is a screenshot taken from a Quest 3 while testing this functionality. The image on the left shows how the Accused Instrumentalities detect when a

⁷⁸ See <https://www.meta.com/experiences/2448060205267927/> (last visited November 8, 2023).

⁷⁹ See id.

player cuts a note. The image on the right shows how the Accused Instrumentalities further detect when a player cuts an “arc note.”



138. Accordingly, the Accused Instrumentalities meet limitation C of claim 1.

139. Limitation D requires “a haptic output device configured to provide a first haptic feedback signal and a second haptic feedback signal based on the first control signal and the second control signal, respectively.” The Accused Instrumentalities also meet all the requirements of limitation D of claim 1. For example, Quest 3 supports multiple game engines, including Unity, Unreal, and Native Development for implementing this functionality⁸⁰:

Develop with your preferred game engine

Game engines are obviously essential to the developer process, so it should come as no surprise that we actively partner with the companies behind these engines to ensure that you have the right tooling, integrations, best practices and technical documentation. Whether you work in [Unity](#) or [Unreal](#), you’ve built your own Native engine, or you leverage newer engines like [Godot](#), the resources below help you successfully build, test, iterate and publish your next VR app.

140. The Accused Instrumentalities can implement this infringing functionality in multiple ways. As just one example for how this infringing functionality could be implemented

⁸⁰ See <https://developer.oculus.com/get-started-platform/> (last visited November 8, 2023).

with the Unity engine, Oculus developer documentation instructs developers on the following API for providing haptic feedback:⁸¹

```
static void OVRInput.SetControllerVibration
( float frequency,
  float amplitude,
  Controller controllerMask )

Activates vibration with the given frequency and amplitude with the given controller mask.

Ignored on controllers that do not support vibration. Expected values range from 0 to 1.
```

141. The Accused Instrumentalities output a first haptic feedback signal to both touch controllers when the player strikes the two boxes described above, and a second haptic feedback signal to the left touch controller when striking the single box described above. Accordingly, the Accused Instrumentalities meet limitation D of claim 1.

142. Thus, Meta directly infringes at least claim 1 of the '222 patent. For example, by integrating these exemplary game engines and providing the underlying infrastructure that implements the documented APIs, Meta makes the Accused Instrumentalities. As another example, because the Accused Instrumentalities are products under Meta's control for Meta's benefit, Meta uses the Accused Instrumentalities. As another example, Meta sells, offers for sale, and/or imports in this District and into the United States the Accused Instrumentalities.

143. As a result of Meta's infringement of the '222 patent, Immersion has suffered and continues to suffer substantial injury and is entitled to recover all damages caused by Meta's infringement to the fullest extent permitted by the Patent Act, together with prejudgment and post-judgment interest and costs for Meta's wrongful conduct.

144. Meta became aware of the '222 patent and its infringement by the Accused Instrumentalities at least as early as May 26, 2022. Accordingly, and to the extent Meta

⁸¹ See https://developer.oculus.com/reference/unity/v38/class_o_v_r_input (last visited November 8, 2023).

continues to make, use, sell, offer to sell, and/or import any of the Accused Instrumentalities in violation of 35 U.S.C. §§ 271 et seq., including without limitation subsections 271(a), (b), (c), and/or (f), Meta's continued infringement of the '222 patent is intentional and willful.

145. Immersion has no adequate remedy at law to prevent future infringement of the '222 patent. Immersion suffers and continues to suffer irreparable harm as a result of Meta's willful patent infringement and is, therefore, entitled to injunctive relief to enjoin Meta's wrongful conduct.

FIFTH CAUSE OF ACTION
(PATENT INFRINGEMENT UNDER 35 U.S.C. § 271 OF THE '143 PATENT)

146. Immersion re-alleges and incorporates by reference all of the foregoing paragraphs.

147. Meta has infringed and continues to infringe, either literally or under the doctrine of equivalents, one or more claims, including at least claim 1, of the '143 patent in violation of 35 U.S.C. § 271, et seq., including without limitation subsections 271(a), (b), (c), and/or (f), by (1) making, using, selling, offering for sale, and/or importing in this District and into the United States, without authority or license, certain products including, but not limited to those relating to the Accused Instrumentalities; (2) inducing and/or contributing to others' infringement; (3) supplying or causing to be supplied in or from the United States all or a substantial portion of the components of the Accused Instrumentalities as described in the claims of the '143 patent in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the '143 patent if such combination occurred within the United States; and/or (4) a component of the Accused Instrumentalities configured as described in the claims of the '143 patent that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial non-

infringing use, where such component is uncombined in whole or in part, and Meta knows that such component is so made or adapted and intends that such component will be combined outside of the United States in a manner that would infringe the '143 patent if such combination occurred within the United States.

148. Claim 1 of the '143 patent provides:

[Preamble] A system comprising:

[1A] a position sensor;

[1B] a processor; and

[1C] a non-transitory computer-readable medium comprising program code that is executable by the processor to cause the processor to:

[1D] output first interactive content to a display, the first interactive content comprising a virtual environment;

[1E] receive one or more sensor signals from the position sensor;

[1F] determine a position of a peripheral in real space based on the one or more sensor signals, the peripheral configured to be worn on a user's head;

[1G] output second interactive content to the display based on the position of the peripheral in real space, the second interactive content being different from the first interactive content;

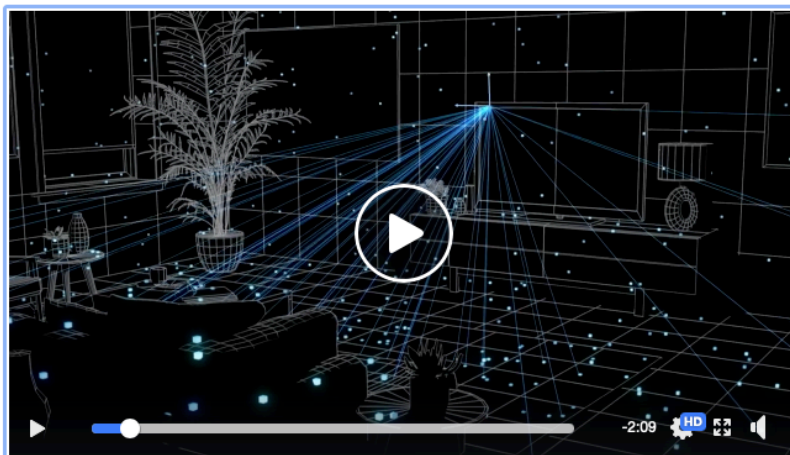
[1H] determine a haptic signal based on the position of the peripheral in real space and the second interactive content; and

[1I] transmit the haptic signal to a haptic output device, the haptic output device being configured to receive the haptic signal and output haptic feedback.

149. Meta's Accused Instrumentalities meet all elements of, and therefore infringe, at least claim 1 of the '143 patent.

150. Regarding the preamble of claim 1 of the '143 patent, to the extent the preamble is determined to be limiting, the Accused Instrumentalities comprise a system.

151. Limitation A requires “a position sensor.” The Accused Instrumentalities also meet all the requirements of limitation A of claim 1. For example, Oculus Insight, Facebook’s VR system, uses visual-inertial SLAM to track the position of a user’s head⁸²:



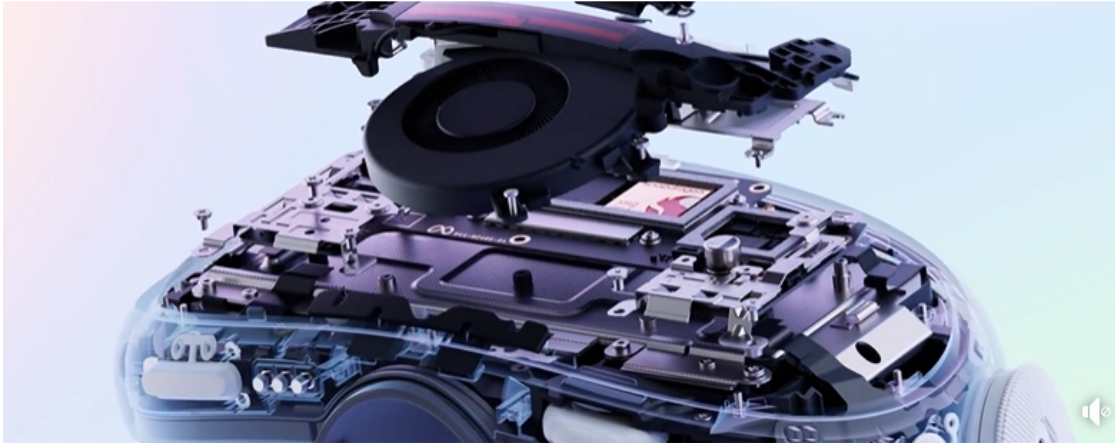
Accordingly, the Accused Instrumentalities meet limitation A of claim 1.

152. Limitation B requires “a processor.” The Accused Instrumentalities also meet all the requirements of limitation B of claim 1. For example, the Quest 3 headset includes a Qualcomm Snapdragon XR2 Gen 2⁸³:

⁸² See <https://ai.meta.com/blog/powered-by-ai-oculus-insight/> (last visited November 8, 2023).

⁸³ See <https://www.meta.com/quest/quest-3/> (last visited November 8, 2023).

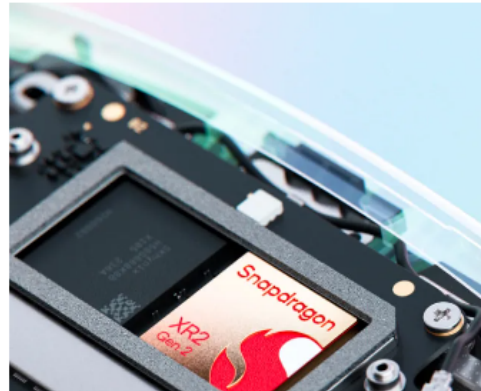
Processing Power



Next-level hardware

Lightning fast performance brings incredibly crisp details to life, thanks to double the graphic processing power of Quest 2.*

*Based on the graphic performance of the Qualcomm Snapdragon XR2 Gen 2 vs XR2 Gen 1 on Meta Quest 2.



153. Accordingly, the Accused Instrumentalities meet limitation B of claim 1.

154. Limitation C requires “a non-transitory computer-readable medium comprising program code that is executable by the processor to.” The Accused Instrumentalities also meet all the requirements of limitation C of claim 1. For example, Quest 3 supports multiple game engines, including Unity, Unreal, and Native Development for implementing this functionality⁸⁴:

⁸⁴ See <https://developer.oculus.com/get-started-platform/> (last visited November 8, 2023).

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Game engines are obviously essential to the developer process, so it should come as no surprise that we actively partner with the companies behind these engines to ensure that you have the right tooling, integrations, best practices and technical documentation. Whether you work in Unity or Unreal, you've built your own Native engine, or you leverage newer engines like Godot, the resources below help you successfully build, test, iterate and publish your next VR app.

Accordingly, the Accused Instrumentalities meet limitation C of claim 1.

155. Limitation D requires causing a processor to “output first interactive content to a display, the first interactive content comprising a virtual environment.” The Accused Instrumentalities also meet all the requirements of limitation D of claim 1. For example, in *Resident Evil 4*, the Accused Instrumentalities provide a first interactive content comprising a virtual environment, which includes enemy characters that approach the user and prepare for attacks.⁸⁵ On information and belief, Armature Studio published *Resident Evil 4*, which is a VR survival horror game that, among other things, allows a user to wield a variety of weapons against numerous enemies.⁸⁶ On further information and belief, Armature Studio was acquired by Meta in or about October 2022.⁸⁷

⁸⁵ See <https://www.meta.com/experiences/2637179839719680/> (last visited November 8, 2023).

⁸⁶ See, generally, <https://www.meta.com/experiences/2637179839719680/> (last visited November 8, 2023).

⁸⁷ See, e.g., <https://www.ign.com/articles/meta-acquires-resident-evil-4-vr-developer-armature-studio> (last visited November 8, 2023).

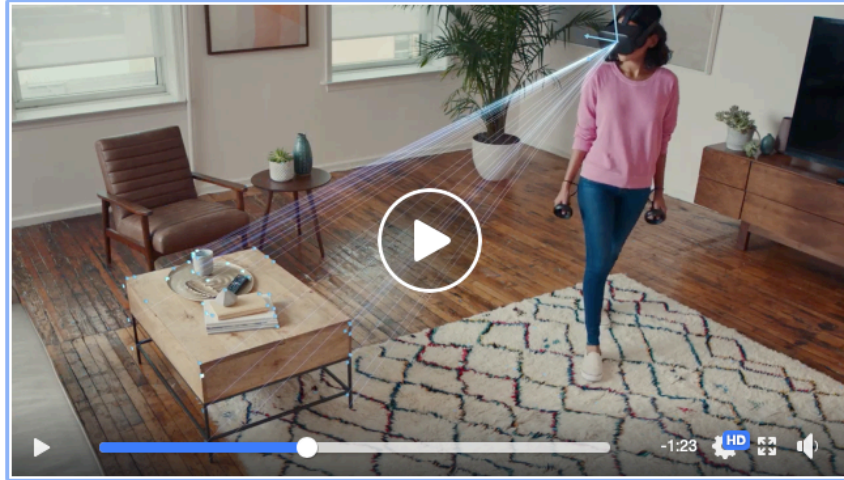


156. Accordingly, the Accused Instrumentalities meet limitation D of claim 1.

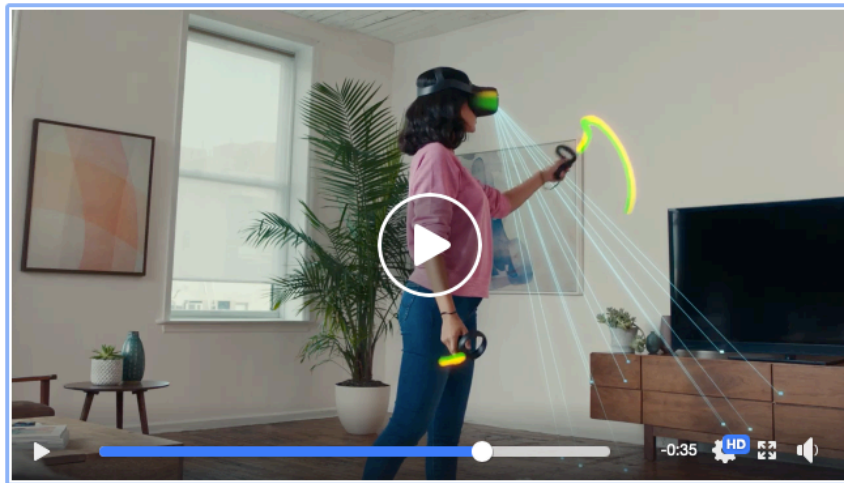
157. Limitation E requires causing a processor to “receive one or more sensor signals from the position sensor.” The Accused Instrumentalities also meet all the requirements of limitation E of claim 1. For example, as mentioned in limitation A, Oculus Insight uses visual-inertial SLAM to track the position of a user’s head, which indicates that the processor receives one or more sensor signals from the position sensor. Accordingly, the Accused Instrumentalities meet limitation E of claim 1.

158. Limitation F requires causing a processor to “determine a position of a peripheral in real space based on the one or more sensor signals, the peripheral configured to be worn on a user’s head.” The Accused Instrumentalities also meet all the requirements of limitation F of claim 1. For example, Oculus Insight detects unique image features in the real space and triangulates those points in 3D⁸⁸:

⁸⁸ See <https://ai.meta.com/blog/powered-by-ai-oculus-insight/> (last visited November 8, 2023).



159. Further, Oculus Insight uses visual-inertial SLAM to track the position of a user's head in real space (relative to detected objects) and the Quest 3 headset on the user's head:



See "Powered by AI: Oculus Insight."⁸⁹

160. Further, the Accused Instrumentalities can implement this infringing functionality in multiple ways. As just one example for how this infringing functionality could be implemented with the Unity engine, Oculus developer documentation instructs developers on the OVRCameraRig as described below:⁹⁰

⁸⁹ See <https://ai.meta.com/blog/powered-by-ai-oculus-insight/> (last visited November 8, 2023).

⁹⁰ See <https://developer.oculus.com/documentation/unity/unity-add-camera-rig> (last visited November 8, 2023).

Add Camera Rig Using OVRCameraRig



The Oculus Integration SDK contains the **OVRCameraRig** prefab that provides the transform object to represent the Oculus tracking space. It contains a tracking space game object to fine-tune the relationship between the head tracking reference frame and your world. Under the tracking space object, you will find a center eye anchor, which is the main Unity camera, two anchor game objects for each eye, and left and right hand anchors for controllers. It also contains a custom VR camera, which replaces Unity's conventional camera.

How Does This Work?

When you enable VR support in Unity, your headset automatically passes the head and positional tracking reference to Unity. This lets the camera position and orientation finely match with the user position and orientation in the real world. The head-tracked pose values overrides the camera's transform values, which means the camera is always in a position relative to the player object.

161. Accordingly, the Accused Instrumentalities meet limitation F of claim 1.

162. Limitation G requires causing a processor to “output second interactive content to the display based on the position of the peripheral in real space, the second interactive content being different from the first interactive content.” The Accused Instrumentalities also meet all the requirements of limitation G of claim 1. For example, in *Resident Evil 4*, the Accused Instrumentalities spawn new enemy characters that move towards the user's location as defined by the headset's location. Getting hit by an enemy depends on collision detection that depends on the user's location as defined by the headset's location. The second interactive content differs from the first interactive content as it may include newly spawned enemy characters. Additionally, getting hit by an enemy results in haptic effects and multiple visual effects,

including blacking out the screen, blurring the outer edges of the visible screen, and showing a health indicator warning if applicable.



Accordingly, the Accused Instrumentalities meet limitation G of claim 1.

163. Limitation H requires causing a processor to “determine a haptic signal based on the position of the peripheral in real space and the second interactive content.” The Accused Instrumentalities also meet all the requirements of limitation H of claim 1. For example, Quest 3 supports multiple game engines, including Unity, Unreal, and Native Development for implementing this functionality⁹¹:

Develop with your preferred game engine

Game engines are obviously essential to the developer process, so it should come as no surprise that we actively partner with the companies behind these engines to ensure that you have the right tooling, integrations, best practices and technical documentation. Whether you work in [Unity](#) or [Unreal](#), you’ve built your own Native engine, or you leverage newer engines like [Godot](#), the resources below help you successfully build, test, iterate and publish your next VR app.

⁹¹ See <https://developer.oculus.com/get-started-platform/> (last visited November 8, 2023).

164. The Accused Instrumentalities can implement this infringing functionality in multiple ways. As just one example for how this infringing functionality could be implemented with the Unity engine, Oculus developer documentation instructs developers on the following API for providing haptic feedback based on the position of the peripheral in real space and the second interactive content:⁹²

```
static void OVRInput.SetControllerVibration
( float frequency,
  float amplitude,
  Controller controllerMask )

Activates vibration with the given frequency and amplitude with the given controller mask.

Ignored on controllers that do not support vibration. Expected values range from 0 to 1.
```

165. For example, in *Resident Evil 4*, when a user physically avoids certain enemy attacks (e.g., stabbing or thrown projectiles) by moving their headset, there is no haptic feedback upon a successful dodge. When the user deliberately places themselves (via the headset location) in the path of the oncoming attack and gets hit, testing on the Quest 3 shows a resulting haptic effect. This demonstrates that the Accused Instrumentalities’ generation of haptic effects is based upon the peripheral’s real-world placement and the interactive content being experienced.

166. Accordingly, the Accused Instrumentalities meet limitation H of claim 1.

167. Limitation I requires causing a processor to “transmit the haptic signal to a haptic output device, the haptic output device being configured to receive the haptic signal and output haptic feedback.” The Accused Instrumentalities also meet all the requirements of limitation I of claim 1. Testing on the Quest 3 of *Resident Evil 4* shows that users experience haptic feedback, which necessarily requires the transmission of a haptic signal to a haptic output device (i.e., the Quest 3 controllers), and that the haptic output device is configured to receive the haptic signal

⁹² See https://developer.oculus.com/reference/unity/v38/class_o_v_r_input (last visited November 8, 2023).

and output haptic feedback. Accordingly, the Accused Instrumentalities meet limitation I of claim 1.

168. Thus, Meta directly infringes at least claim 1 of the '143 patent. For example, by integrating these exemplary game engines and providing the underlying infrastructure that implements the documented APIs, Meta makes the Accused Instrumentalities. As another example, because the Accused Instrumentalities are products under Meta's control for Meta's benefit, Meta uses the Accused Instrumentalities. As another example, Meta sells, offers for sale, and/or imports in this District and into the United States the Accused Instrumentalities.

169. As a result of Meta's infringement of the '143 patent, Immersion has suffered and continues to suffer substantial injury and is entitled to recover all damages caused by Meta's infringement to the fullest extent permitted by the Patent Act, together with prejudgment and post-judgment interest and costs for Meta's wrongful conduct.

170. Meta became aware of the '143 patent and its infringement by the Accused Instrumentalities at least as early as May 26, 2022. Accordingly, and to the extent Meta continues to make, use, sell, offer to sell, and/or import any of the Accused Instrumentalities in violation of 35 U.S.C. §§ 271 et seq., including without limitation subsections 271(a), (b), (c), and/or (f), Meta's continued infringement of the '143 patent is intentional and willful.

171. Immersion has no adequate remedy at law to prevent future infringement of the '143 patent. Immersion suffers and continues to suffer irreparable harm as a result of Meta's willful patent infringement and is, therefore, entitled to injunctive relief to enjoin Meta's wrongful conduct.

PRAYER FOR RELIEF

WHEREFORE, Immersion respectfully requests judgment against Meta as follows:

A. That this Court adjudge that Meta, to the extent not enjoined, infringes the '806 patent, the '217 patent, the '298 patent, the '222 patent, and the '143 patent;

B. that the Court enter an injunction prohibiting Meta and its agents, officers, servants, employees, and all persons in active concert or participation with Meta from deploying, operating, maintaining, testing, and using the Accused Instrumentalities, and from otherwise infringing any of the Patents-in-Suit;

C. that this Court ascertain and award Immersion damages under 35 U.S.C. § 284 sufficient to compensate for Meta's willful infringement, including but not limited to infringement occurring before the filing of this lawsuit, increased damages for willful infringement, and costs;

D. that this Court ascertain and award Immersion any post-judgment ongoing royalties under 35 U.S.C. § 284 as may be appropriate;

E. that this Court enter judgment that this case is exceptional under 35 U.S.C. § 285 and enter an award to Immersion of its costs and attorneys' fees;

F. that this Court award Immersion any applicable prejudgment and post-judgment interest; and

G. that this Court award Immersion such other relief at law or in equity as the Court deems just and proper.

JURY DEMAND

Immersion requests that all claims and causes of action raised in this Complaint against Meta be tried to a jury to the fullest extent possible.

Date: November 10, 2023

Respectfully submitted,

FOLIO LAW GROUP PLLC

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