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NANTWORKS, LLC and
NANT HOLDINGS IP, LLC

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

NANTWORKS, LLC, and NANT HOLDINGS IP, LLC,

Plaintiffs,

v.

NIANTIC, INC.,

Defendant.

Case No. 3:20-cv-06262

COMPLAINT FOR PATENT INFRINGEMENT

JURY TRIAL DEMANDED

Plaintiffs NantWorks, LLC ("NantWorks") and Nant Holdings IP, LLC ("Nant IP") (collectively, "Plaintiffs"), by and through their undersigned counsel, bring this action for patent infringement under 35 U.S.C. § 271 against defendant Niantic, Inc. ("Niantic" or "Defendant") alleging, based upon personal knowledge with respect to themselves and their own acts and on information and belief as to other matters, as follows:

INTRODUCTION

1. This is a civil action by plaintiffs NantWorks and Nant IP against defendant Niantic to stop its infringement of U.S. Patent Nos. 10,403,051 (the "'051 Patent"), 10,614,477 (the "'477 Patent"), and 10,664,518 (the "'518 Patent") (collectively, the "Asserted Patents"), which claim groundbreaking augmented reality ("AR") and gaming systems and methods for using them.

2. Plaintiffs develop various technologies to advance healthcare, commerce, and digital entertainment. NantWorks founder, Dr. Patrick Soon-Shiong, comes from a medical background, and has pioneered revolutionary new therapies for both cancer and diabetes by combining medical, engineering, and other disciplines. He is passionate about the innovative potential of converging disparate technologies and creative talents, and his inventions have been recognized by the issuance of hundreds of patents worldwide ranging from breakthrough cancer therapies to mobile location-based services. Dr. Soon-Shiong also is an avid investor in entrepreneurial companies with game-changing technologies in the fields of healthcare, education, science, and technology.

3. Through multiyear efforts, involving investments of tens of millions of dollars and the work of dozens of employees, Plaintiffs have developed a wide array of proprietary intellectual property relating to digital entertainment, including AR. As innovators, Plaintiffs safeguard their valuable intellectual property and have patented the cutting-edge features of their AR, image recognition, and gaming technologies that make digital entertainment products useful, efficient, and engaging for the end-user, including the Asserted Patents.

4. Defendant Niantic directly infringes the Asserted Patents by making, using, offering to sell, and/or selling in the United States and/or importing into the United States AR games (including its Pokémon Go Application ("Pokémon Go App") and its Harry Potter Application ("Harry Potter App")). When these AR games are downloaded onto mobile devices, permitted to interact with backend servers, and used by Niantic, its employees, or its agents, these games practice the inventions claimed in one or more claims

of each of the Asserted Patents, as detailed below.

5. Defendant Niantic also indirectly infringes the Asserted Patents by inducing its customers and/or consumer end-users to directly infringe the Asserted Patents. Niantic induces infringement by providing AR games, including its Pokémon Go App and its Harry Potter App, that when downloaded onto mobile devices, which devices are permitted to interact with backend servers, and used by customers and/or consumer end-users for AR gaming, as directed and intended by Niantic, cause those customers and/or end-users to practice the inventions claimed in one or more claims of the Asserted Patents, as detailed below.

6. Plaintiffs bring this suit to stop Niantic's free-riding on their patented technologies, and they seek damages and other relief for Niantic's infringement of the Asserted Patents.

THE PARTIES

7. Plaintiff NantWorks, LLC is a Delaware limited liability company with its principal place of business located at 9920 Jefferson Boulevard, Culver City, California 90232. NantWorks is the exclusive licensee of patents covering digital entertainment (such as AR and gaming technologies), including the Asserted Patents.

8. Plaintiff Nant Holdings IP, LLC is a Delaware limited liability company with its principal place of business located at 9920 Jefferson Boulevard, Culver City, California 90232. Nant IP owns patents covering digital entertainment (such as AR and gaming technologies), including the Asserted Patents.

9. Defendant Niantic, Inc. is a Delaware corporation with its principal place of business located at 2 Bryant Street, Suite 220, San Francisco, California 94105. Niantic maintains offices in San Francisco, California, operates and owns the websites located at www.nianticlabs.com and niantic.helpshift.com, and markets, offers, and distributes throughout the United States (including in California and within this District) AR gaming applications, including the Pokémon Go App and the Harry Potter App, that infringe the Asserted Patents as set out herein.

JURISDICTION AND VENUE

10. This is an action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq*. This Court has exclusive subject matter jurisdiction over this Complaint and the matters asserted herein under 28 U.S.C. §§ 1331 and 1338(a).

11. This Court has both general and specific personal jurisdiction over Niantic, who has established minimum contacts with this forum such that the exercise of jurisdiction over Niantic would not offend traditional notions of fair play and substantial justice. Niantic is registered to do business in the State of California (Registration No. C3815285). Niantic maintains regular and established places of business in California, including its principal place of business in this District, and conducts continuous and systematic business in California, including in this District and elsewhere in California. In addition, Niantic has committed, and continues to commit, acts that infringe the Asserted Patents in violation of 35 U.S.C. § 271 in California (including in this District) by, among other things, making, using, testing, offering to sell, selling, and/or importing products and services that infringe the Asserted Patents, as set forth herein. In conducting business in California and in this District, Niantic derives substantial revenue from the infringing products being used, offered for sale, sold, and/or imported in California and this District. These acts by Niantic have caused injury to Plaintiffs in California, including in this District.

12. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b), at least because Niantic has committed and continues to commit acts of direct and indirect patent infringement in this District giving rise to this action, regularly conducts business in this District, has a regular and established place of business in this District and employs engineers and/or other personnel within this District, including at its principal place of business in San Francisco, and is subject to personal jurisdiction in this District.

INTRADISTRICT ASSIGNMENT

13. This is an intellectual property action to be assigned on a district-wide

basis under Civil Local Rule 3-2(c).

BACKGROUND

NantWorks' Innovation

14. Although the potential of digital entertainment (including AR and gaming) was clear by 2011, developers faced daunting technical challenges in trying to incorporate these technologies into mobile devices. Digital entertainment products had to deliver on the promise of a fun and engaging experience at speeds and with a visual quality that was unknown at that time in mobile devices.

15. That same year NantWorks was founded and invested in Fourth Wall Studios, a Culver City, California-based company, to develop immersive storytelling techniques for gaming. This began a four-year effort toward developing original digital entertainment content to enable interaction with fictional worlds using mobile devices, browsers, and even social networks.

16. Nantworks' engineers initially began conceptualizing an AR game, which they would later call "Scavenger Hunt," and by December 2012 they had a fully operational application which allowed teams of Nantworks' employees to use their mobile devices and search for AR objects around the company's office during a NantWorks' holiday party.

17. By 2013, Nantworks' AR technologies had caught the attention of Jakks Pacific (a leading toy and consumer products company), which partnered with Nantworks to develop AR toys using Nantworks' groundbreaking image recognition technology to allow children to interact with associated AR characters using their mobile device's camera:

https://www.reuters.com/article/us-disneytoys/disney-joins-jakks-la-billionaire-to-bring-toys-to-life-idUSBRE9070CU20130108.

18. These early successes tangibly demonstrated AR's promise in many contexts (including not just gaming, but also in-store product promotion and even medicine). However, providing realistic AR on mobile devices has proven to be very difficult. Existing mobile platforms required development of proprietary intellectual property, which led to the '051 Patent and the '518 Patent. Efforts to develop AR-based games led to development of other proprietary intellectual property, including the '477 Patent.

19. Nant IP solely owns the Asserted Patents, and NantWorks is the exclusive licensee of the Asserted Patents (with the full and exclusive rights to bring suit to enforce the Asserted Patents), each of which is described below.

NantWorks' '051 Patent

20. U.S. Patent No. 10,403,051, entitled "Interference based augmented reality hosting platforms," was duly and legally issued by the U.S Patent and Trademark Office on September 3, 2019. A true and correct copy of the '051 Patent is attached as Exhibit A. The '051 Patent identifies Patrick Soon-Shiong as the inventor. The patent application from which the '051 Patent issued was filed on November 9, 2018. The '051 Patent claims priority through a series of applications to, *inter alia*, U.S. Provisional Appl. No. 61/473,324, filed April 8, 2011.

21. The '051 Patent explains that AR "represents a presentation of virtual

objects along side real-world elements." *See, e.g.*, '051 Patent, 1/32-33. In one prior AR system, users were given access to multiple, distinct, and separate AR layers, and users had to manually select which layer of AR content to see. *See, e.g., id.*, 1/53-61. The '051 Patent explains that "users should be able to seamlessly access or interact with [AR] content as naturally as they would interact with real-world elements." *See, e.g., id.*, 1/63-67.

22. Then, the '051 Patent explains that "[s]ome progress had been made towards creating a seamless integration between user and augmented reality environments." *See, e.g., id.*, 2/1-3. After introducing several existing AR systems that allow some AR content contextualization, the '051 Patent notes that these systems "fail to appreciate that objects within an environment or scene can interfere with each other to give rise to an augmented reality experience." *See, e.g., id.*, 2/3-29; *see also id.*, 2/37-41.

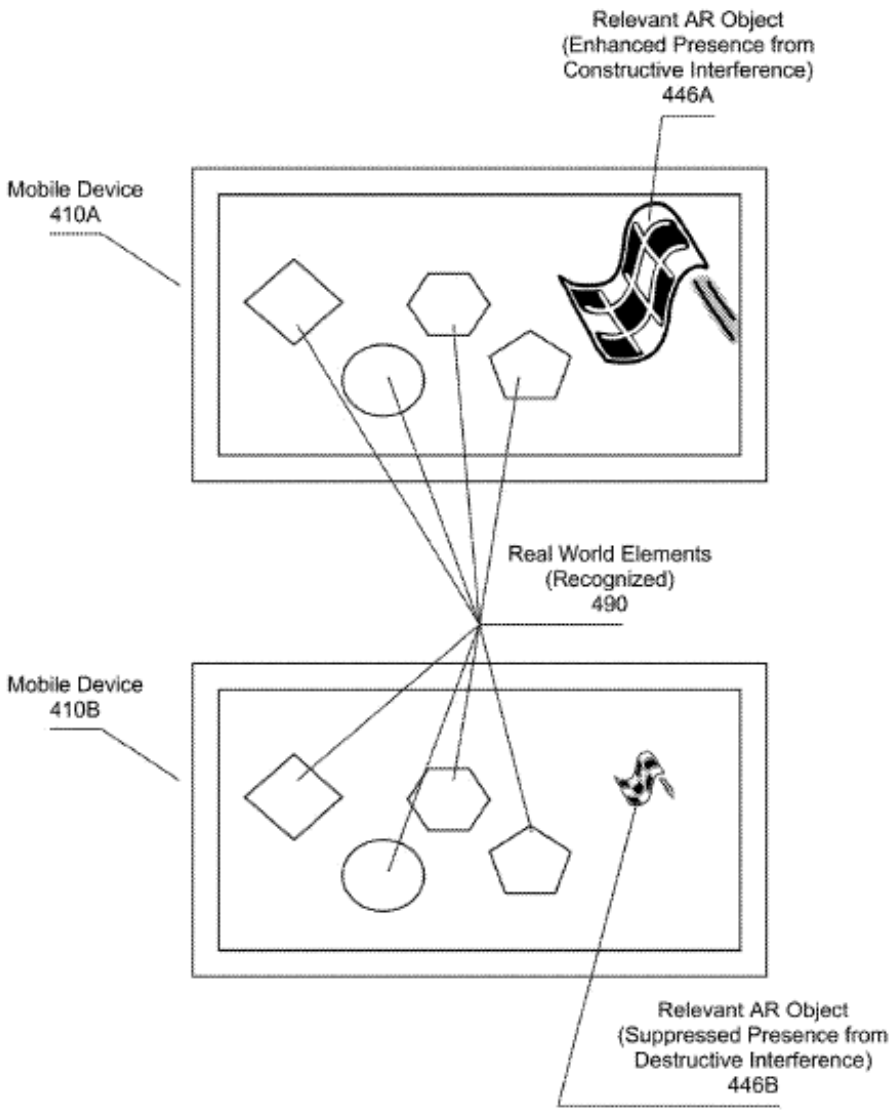
23. Also, "existing infrastructures fail to treat [AR] objects as distinct manageable objects in an infrastructure agonistic [sic agnostic] manner…." *See, e.g., id.*, 3/8-11. Without the ability provided by the '051 Patent, certain AR objects would always appear on top of all other AR objects and could not appear to go behind any other AR objects. For example, a gaming avatar (an AR object that is always visible) would not be able to go behind or around other AR objects.

24. As AR objects proliferate, "individuals still require presentation of relevant [AR] content especially when features, real or virtual, of an [AR] can interfere with each other." *See, e.g., id.*, 3/15-20.

25. The claims of the '051 Patent are directed to technological improvements in delivering a realistic AR experience with AR objects within an environment or scene that can interfere with each other. The claims of the '051 Patent relate to particular solutions that provide AR objects within an environment or scene that can interfere with each other. The '051 Patent, for example, discloses the use of at least one context related to the AR capable device and pertinent to the environment based at least on device location, identifying relevant AR objects representing available AR objects corresponding to the at least one context, and determining whether to alter presence of a

relevant AR object based on at least the device location and the virtual element attribute. *See, e.g.*, *id.*, 3/43-52; *see also id*,. 21/47-22/2. "Augmented reality context can now be used to determine how elements in a scene, a location relevant to an individual, can interfere with each other to give rise to relevant [AR] experiences." *See, e.g.*, *id.*, 3/49-52; *see also id*,. 3/30-34.

26. As the '051 Patent explains, relevant AR objects can have an altered presence due to interference among elements within a scene. *See, e.g.*, *id.*, 17/63-66. The nature of relevant AR objects, the context, and other factors relating to the scene can trigger enhanced or suppressed presence. *See, e.g.*, *id.*, 18/18-21; *see also id.*, 18/42-45. For example, Figure 4 of the '051 Patent shows that an AR object can be either an enhanced presence (reference numeral 446A below) or a suppressed presence (reference numeral 446B below):



The technology of the '051 Patent enables this type of interaction as well as others, allowing a much more compelling AR experience.

27. Exemplary claim 1 of the '051 Patent, for example, reads as follows:

1. An augmented reality (AR) platform system comprising:

an AR object repository storing available AR objects in a first non-transitory computer readable memory; and

an AR server coupled with the AR object repository and,

upon execution of software instructions stored in a second non-transitory computer readable memory by a processor, is configured to:

obtain digital data representative of an environment of an AR capable mobile device, the digital data including a device location of the AR capable device and a virtual element attribute;

determine at least one context related to the AR capable device and pertinent to the environment based at least on the device location;

identify relevant AR objects from the AR object repository representing available AR objects corresponding to the at least one context;

determine whether to alter presence of a relevant AR object based on at least the device location and the virtual element attribute; and

cause the AR capable device to render the relevant AR object according to its altered presence.

(*Id*., 21/47-22/2).

28. According to the U.S. Patent and Trademark Office ("USPTO") examiner, the best prior art was U.S. Patent Publication No. 2010/0017722 to Cohen ("Cohen"), which disclosed an AR gaming platform. '051 Patent File History, Notice of Allowance, April 10, 2019, at 2 – 3. However, Cohen lacked several claimed features of the '051 Patent, including among other features, "determin[ing] whether to alter presence of a relevant AR object based on at least the device location and a virtual element attribute" and "caus[ing] the AR capable device to render the relevant AR object according to its altered presence." *Id*. at 3 – 4.

29. AR platform systems that determined whether to alter presence of a relevant AR object based on at least the device location and the virtual element attribute were not common or conventional at the time of the '051 Patent.

30. The inventor of the '051 Patent recognized that prior AR systems

failed to deliver an experience with objects within an environment or scene that can interfere with each other to give rise to an AR experience. To the contrary, existing AR systems sought to avoid interference among elements of the augmented reality by simply forcing individuals to select which features to experience. *See, e.g.*, '051 Patent, 3/25-27. Also, interference among elements was not managed according to the properties or attributes of the specific AR elements. *See, e.g. ,id.*, 3/27-29.

31. As taught by the '051 Patent, the disclosed invention determines whether to alter presence of a relevant AR object based on at least the device location and the virtual element attribute. *See, e.g. ,id.*, Abstract, and 5/36-44.

32. Given the state of the art at the time of the invention of the '051 Patent, the inventive concepts of the '051 Patent were not conventional, well-understood, or routine. The '051 Patent discloses, among other things, an unconventional and technological solution to an issue arising specifically in the context of AR capable devices, and the delivery of AR content to such devices. The solution implemented by the '051 Patent provides a specific and substantial improvement over prior AR systems, resulting in an improved system for the delivery of AR to end-users. The '051 Patent achieves this result by determining at least one context related to the AR capable device and pertinent to the environment based at least on the device's location; identifying relevant AR objects from the AR object repository representing available AR objects corresponding to the at least one context; and determining whether to alter presence of a relevant AR object based on at least the device location and the virtual element attribute. *See, e.g., id.,* Abstract and 21/59-67.

33. Consistent with the problem addressed being rooted in providing AR for AR capable devices, the '051 Patent's solutions also are rooted in that same technology that cannot be performed with pen and paper or in the human mind. This technical context is reflected in the '051 Patent's claims. For example, claim 1 recites "an AR object repository storing available AR objects in a first non-transitory computer readable memory," "an AR server coupled with the AR object repository," and "an AR capable mobile device." *See id.,*

21/49-56.

34. A person having ordinary skill in the art at the time of the inventions of the '051 Patent would not have understood how the inventions could or would be performed solely using pen and paper or in the human mind. Using pen and paper would ignore the stated purpose of the '051 Patent of providing AR content to an AR capable mobile device and the problem it was specifically designed to address, which arose in the context of needing an improved system and method for delivering AR content to mobile devices. Doing so would also run counter to the inventor's detailed description of the inventions and the length of the claims, and be a practical impossibility.

NantWorks' '477 Patent

35. U.S. Patent No. 10,614,477, entitled "Subscription bill service, systems and methods," was duly and legally issued by the U.S Patent and Trademark Office on April 7, 2020. A true and correct copy of the '477 Patent is attached as Exhibit B. The '477 Patent identifies Patrick Soon-Shiong as the inventor. The patent application from which the '477 Patent issued was filed on May 24, 2019. The'477 Patent claims priority through a series of applications to, *inter alia*, U.S. Provisional Appl. No. 61/562,385, filed November 21, 2011.

36. The claims of the '477 Patent are directed to technological improvements in in-game transaction infrastructure technologies. *See, e.g.*, '477 Patent, 1/26-27. The '477 Patent explains that "existing transaction systems provide a single provider the ability to conduct a transaction with a single user" and "lack the ability to offer … consumers a system that can reconcile aspects of a transaction among multiple … user accounts." *See, e.g.*, *id*., 1/38-43, 1/62-64, and 1/67-2/2. Also, "existing transaction systems apparently fail to reconcile aspects of a transaction based at least in part on derived object attributes." *See, e.g.*, *id*., 1/64-67.

37. The claims of the '477 Patent disclose particular solutions to the technical problem of facilitating in-game transactions between two players. The '477 Patent, for example, discloses the use of determining, within a computer game, at least

one object attribute based on physical location data associated with a first player whose physical location has been acquired by a location sensor, determining transaction amounts of game points the accounts of two players based on a reconciliation matrix and the at least one object attribute based on the physical location data, and reconciling a game transaction, when a criterion based on the physical location data of the first player is met within the computer game, among the first account and the second account in accordance with the determined transaction amounts.

38. Exemplary claim 20 of the ’477 Patent, for example, reads as follows:

20. A reconciliation system, comprising:

at least one processor communicatively coupled with at least one memory storing instructions that, when executed by the at least one processor, cause the at least one processor to:

determine, within a computer game, at least one object attribute based on physical location data associated with a first player whose physical location has been acquired by a location sensor;

determine transaction amounts of game points for a first account of the first player and a second account of a second player, the transaction amounts being determined based on a reconciliation matrix and the at least one object attribute based on the physical location data; and

cause reconciliation of a game transaction, when a criterion based on the physical location data of the first player is met within the computer game, among the first account and the second account in accordance with the determined transaction amounts,

wherein the game transaction comprises a first transfer of at least a first amount of game points associated with the first

> *account based on at least a portion of the transaction attributed to a first entity associated with the first account and a second transfer of at least a second amount of game points associated with the second account based on at least a portion of the transaction attributed to a second entity associated with the second account.*

(*Id*., 34/1-27).

39. According to the USPTO examiner, the claims of the '477 Patent issued because, among other reasons, the prior art fails to teach the reconciliation step when a criterion based on the physical location data of the first player is met within the computer game. '477 Patent File History, Notice of Allowance, November 14, 2019, at 4.

40. Determining transaction amounts of game points based on a reconciliation matrix and the at least one object attribute based on the physical location data and then reconciling a game transaction, when a criterion based on the physical location data of the first player is met within the computer game was not common or conventional at the time of the '477 Patent.

41. The inventor of the '477 Patent recognized that prior transaction infrastructure technologies were ill-suited for on-line transactions because they only allowed a single provider the ability to conduct a transaction with a single user and lacked the ability to offer providers or consumers a system that can reconcile aspects of a transaction among multiple providers or user accounts.

42. Given the state of the art at the time of the inventions of the '477 Patent, the inventive concepts of the '477 Patent were not conventional, well-understood, or routine. The '477 Patent discloses, among other things, an unconventional and technological solution to an issue arising specifically in the context of computer gaming, and the ability of two players of the computer game to reconcile a transaction between themselves. The solution implemented by the '477 Patent provides a specific and substantial improvement over prior systems used for this purpose, resulting in an improved

system for reconciling in-game transactions between two players using mobile devices. Rather than relying on one-dimensional transaction systems that provide a set transactional price or value for a specific object, the '477 Patent inventor introduced the use of location and context to the process of reconciling in-game transactions in order to enhance the game experience. The '477 Patent achieves this result by reconciling a game transaction when a criterion based on the physical location data of the first player is met within the computer game. *See, e.g.*, '477 Patent, 31/51-53.

43. Consistent with the problem addressed being rooted in computer gaming, the '477 Patent's solutions also are rooted in that same technology that cannot be performed with pen and paper or in the human mind. This technical context is reflected in the '477 Patent's claims. For example, the claims recite "determin[ing], within a computer game, at least one object attribute based on physical location data associated with a first player whose physical location has been acquired by a location sensor," "determin[ing] transaction amounts of game points for a first account of the first player and a second account of a second player, the transaction amounts being determined based on a reconciliation matrix and the at least one object attribute based on the physical location data," and "caus[ing] reconciliation of a game transaction, when a criterion based on the physical location data of the first player is met within the computer game, among the first account and the second account in accordance with the determined transaction amounts." *See, e.g.*, *id*., 34/6-20.

44. A person having ordinary skill in the art at the time of the inventions of the '477 Patent would not have understood how the inventions could or would be performed solely using pen and paper or in the human mind. Using pen and paper would ignore the stated purpose of the '477 Patent of reconciling transactions within a computer game and the problem it was specifically designed to address, which arose in the context of needing an improved system and method for reconciling in-game transactions between two players. Doing so would also run counter to the inventor's detailed description of the inventions and the length of the claims, and be a practical impossibility.

NantWorks' '518 Patent

45. U.S. Patent No. 10,664,518, entitled "Wide Area Augmented Reality Location-Based Services," was duly and legally issued by the U.S Patent and Trademark Office on May 26, 2020. A true and correct copy of the '518 Patent is attached as Exhibit C. The '518 Patent identifies David McKinnon, Kamil Wnuk, Jeremi Sudol, Matheen Siddiqui, John Wiacek, Bing Song, and Nicholas J. Witchey as the inventors. The patent application from which the '518 Patent issued was filed on October 26, 2017. The '518 Patent claims priority through a series of applications to, *inter alia*, U.S. Provisional Appl. No. 61/892,238, filed October 17, 2013.

46. The claims of the '518 Patent are directed to improved AR service technologies. *See, e.g.*, '518 Patent, 1/15-16. The '518 Patent explains, with the popularization of AR, attempts had been made to employ object recognition and location tracking. *See, e.g., id.*, 1/26-31. One prior art system "schedule[s] content distribution to a mobile device by storing different locations, collecting user location data over a period of time, collecting wireless signal strength data, and scheduling pre-caching of content to the device if the user is predicted to be at a location with poor signal strength." *See, e.g., id.*, 1/48-55.

47. However, these known references "fail to consider that areas have various views of interest, and fail to differentiate between sub-areas based on AR content densities." *See, e.g., id.*, 2/1-5. Existing location-based AR systems "fail to contemplate segmenting an area into clusters based on what is viewable or what AR content is available." *See, e.g., id.*, 2/5-8.

48. The '518 Patent discloses particular solutions to the technical problem of providing AR content to mobile devices. The '518 Patent, for example, explains that "a device (e.g., a mobile device, a kiosk, a tablet, a cell phone, a laptop, a watch, a vehicle, a server, a computer, etc.)" is configured "to obtain at least a portion of the subset based on the tile map (e.g., based on the device's location in relation to the tiles of a tile map, etc.), and to present at least a portion of the AR content objects on a display of the device (e.g.,

instantiate the object, etc.)." *See, e.g., id.*, 3/54-61. "[T]he disclosed techniques provide many advantageous technical effects including providing augmented reality content to a user device based on a precise location of the user device relative to one or more tiles of a tessellated area associated with view(s) of interest." *See, e.g., id.*, 4/48-52; *see also id.*, 4/63-67 and 16/42-52. "Tessellated" refers to the area being composed of a pattern of repeated shapes that fit together closely without gaps or overlaps such as square ceramic tiles on a bathroom wall or rectangular brinks in a walkway.

49. Exemplary claim 1 of the '518 Patent, for example, reads as follows:

> *1. A device capable of rendering augmented reality (AR), the device comprising:*
> *at least one sensor, including a location sensor;*
> *a display;*
> *a non-transitory computer readable memory storing software instructions; and*
> *at least one processor coupled with the non-transitory computer readable memory, the at least one sensor, and the display; and,*
> *upon execution of the software instructions, is configurable to:*
> *obtain sensor data from the at least one sensor*
> *wherein the sensor data includes a device location obtained from the location sensor;*
> *obtain an area of interest via an area database based on at least the device location within the sensor data;*
> *access an area tile map of the area of interest,*
> *the area tile map represented by a set of tile subareas that includes one or more tessellated tiles from a tessellated tile map;*

identify a tile subarea from the set of tile subareas based at least in part on the device location relative to one or more locations of tile subareas from the set of tile subareas, wherein the identified tile subarea covers at least a portion of the area of interest, and

wherein one or more tessellated tiles within the identified tile subarea are associated with one or more AR content objects;

populate the non-transitory computer readable memory with at least one of the one or more AR content objects associated with the one or more tessellated tiles corresponding with the identified tile subarea; and

render the at least one of the one or more AR content objects that is associated with the identified tile subarea on the display based on a view of interest.

50. According to the USPTO examiner, the closest prior art was a combination of two references: U.S. Patent Publication No. 2012/0075342 to Choubassi ("Choubassi") and U.S. Patent Publication No. 2015/0172626 to Martini ("Martini"). The examiner said that Choubassi's AR content management device obtained an initial map of an area of interest, obtained AR content for a set of views from the area of interest, and then established AR experience clusters. '518 Patent File History, Notice of Allowance, January 21, 2020, at 2 – 3. Martini also was said to disclose an AR presentation system "in conjunction with a plurality of views of interest for an area of interest" and "discloses the generation of a tile map for detecting the presence of a real object within an image." '518 Patent File History, Notice of Allowance, January 21, 2020, at 3 – 4. However, the examiner concluded that the claims of the '518 Patent should issue because, among other reasons, "the closest prior art … fails to disclose and/or teach" all of the recited steps. '518 Patent File History, Notice of Allowance, January 21, 2020, at 4. Neither Chousbassi nor Martini used tessellated maps of an area of interest for binding AR content objects to the

tiles as subareas of interest, and both fail to disclose "an area tile map" with "a set of tile subareas that includes one or more tessellated tiles from a tessellated tile map"; and "one or more tessellated tiles within the identified tile subarea are associated with one or more AR content objects;" '518 Patent File History, Notice of Allowance, January 21, 2020, at 4.

51. Identifying a tile subarea based at least in part on the device location relative to one or more locations of tile subareas, having one or more tessellated tiles associated with one or more AR content objects, and populating the non-transitory computer readable memory with at least one of the one or more AR content objects associated with the one or more tessellated tiles corresponding with the identified tile subarea was not common or conventional at the time of the '518 Patent.

52. The inventors of the '518 Patent recognized that known AR rendering devices contemplate refining location identification or pre-caching content based on location information, but these prior references fail to contemplate segmenting an area into clusters based on what is viewable or what AR content is available. *See, e.g.*, '518 Patent, 2/1-8. As taught by the '518 Patent, the disclosed invention identifies a location of a device at or near a tile of a tessellated area of interest and auto-populates the device with pre-selected content objects based upon the identified location. *See, e.g., id.*, 4/63-67.

53. Given the state of the art at the time of the inventions of the '518 Patent, the inventive concepts of the '518 Patent were not conventional, well-understood, or routine. The '518 Patent discloses, among other things, an unconventional and technological solution to an issue arising specifically in the context of augmented reality for mobile devices, and the delivery of augmented reality content to such devices. The solution implemented by the '518 Patent provides a specific and substantial improvement over prior systems used for this purpose, resulting in an improved system for the delivery of augmented reality to mobile device users. The '518 Patent achieves this result by identifying a tile subarea based at least in part on the device location relative to one or more locations of tile subareas with one or more tessellated tiles associated with one or more AR content objects and populating the non-transitory computer readable memory

with at least one of the one or more AR content objects associated with the one or more tessellated tiles corresponding with the identified tile subarea.

54. Consistent with the problem addressed being rooted in AR for mobile devices, the '518 Patent's solutions also are rooted in that same technology that cannot be performed with pen and paper or in the human mind. This technical context is reflected in the '518 Patent's claims. For example, the claims recite "[a] device capable of rendering augmented reality," "a location sensor," "a display," "a non-transitory computer readable memory storing software instructions," and "at least one processor," and describe that the software instructions include "obtain[ing] an area of interest via an area database based on at least the device location within the sensor data," "access[ing] an area tile map of the area of interest," "identify[ing] a tile subarea … based at least in part on the device location relative to one or more locations of tile subareas" and "one or more tessellated tiles … associated with one or more AR content objects," and "populat[ing] the non-transitory computer readable memory with at least one of the one or more AR content objects associated with the one or more tessellated tiles corresponding with the identified tile subarea."

55. A person having ordinary skill in the art at the time of the inventions of the '518 Patent would not have understood how the inventions could or would be performed solely using pen and paper or in the human mind. Using pen and paper would ignore the stated purpose of the '518 Patent and the problem it was specifically designed to address, which arose in the context of needing an improved system and method for delivering augmented reality content to mobile devices. Doing so would also run counter to the inventors' detailed description of the inventions and the length of the claims, and be a practical impossibility.

Niantic's Direct Infringement of Plaintiffs' Patented Technologies

56. Niantic is a venture-backed private company that publishes location-based AR games for use on mobile devices, such as Android and iOS mobile phones or tablets. Niantic's Pokémon Go App has proven to be quite popular and made $3.6 billion in

global player spending during the first four years after it was released. https://sensortower.com/blog/pokemon-go-revenue-year-four. Some 105 million users downloaded the game onto their mobile devices in the United States over that time period. *Id*. This has been made possible by Niantic's illicit and unauthorized use of the proprietary technology set out in Plaintiffs' Asserted Patents.

57. Google first launched Niantic as an internal start-up, and in September 2012 its "Field Trip" app helped guide mobile phone users to interesting things around them. This AR guide relied on location information from the user's mobile device and allowed users to immediately access and know what others already knew about the area around the mobile device's location.

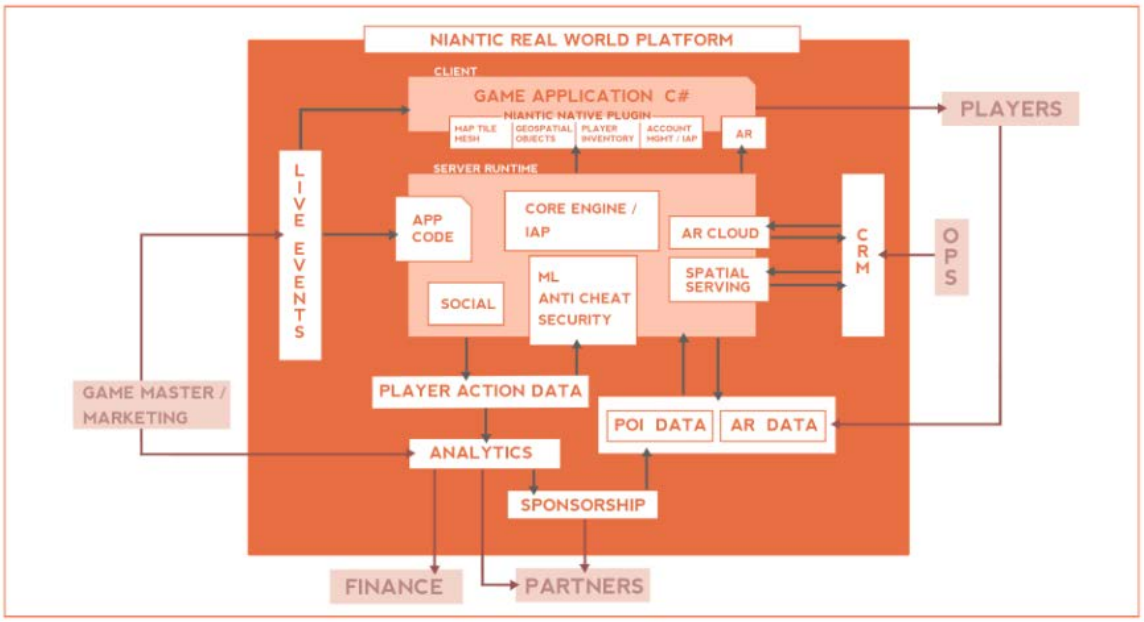
58. By 2014, Niantic had hired several former employees of Fourth Wall Studios, including Jim Stewartson and Elan Lee. While at Fourth Wall Studios (prior to joining Niantic), Stewartson had been involved in the development and/or testing of the "Scavenger Hunt" AR game discussed above (also internally called "Captify"), as well as a fantasy AR game called "Cathedral" and other digital entertainment technologies.

59. In October 2015, Niantic, Inc. was formally incorporated and spun out of Google.

60. In July 2016, Niantic launched its Pokémon Go App (an AR game for mobile devices) and sent people on scavenger hunts to collect Pokémon cartoon characters years after the priority dates of Plaintiffs' Asserted Patents. The Pokémon Go App is designed to be downloaded onto Android or iOS-based mobile devices. The Pokémon Go App uses the camera and GPS system of mobile devices as well as the "Niantic Real World Platform" (discussed further below) to digitally superimpose AR objects onto digital representations of the mobile devices' current surroundings.

61. In December 2017, Niantic introduced a dynamic weather feature for the Pokémon Go App that adjusts AR within the virtual environment based on the real-world weather in the vicinity of the mobile device ("Dynamic Weather"), again years after the priority dates of Plaintiffs' Asserted Patents.

62. In 2019, Niantic posted an entry on its blog entitled "Designing a planet-scale real-world AR platform" which describes the Niantic Real World Platform. https://nianticlabs.com/en/blog/nrwp-update/. Niantic admits that "this technology underpins the core server and client engines" of the Pokémon Go App and the Harry Potter App. That entry also contained a high-level schematic representation of that platform showing how players of Niantic's games use applications on their "client" devices to interact with Niantic's servers, AR cloud, and AR data repository:



63. In June 2019, Niantic formally released its Harry Potter App (another AR game for mobile devices), years after the priority dates of Plaintiffs' Asserted Patents. The Harry Potter App is designed to be downloaded onto Android or iOS-based mobile devices. The Harry Potter App uses the camera and GPS system of mobile devices as well as the Niantic Real World Platform (discussed above) to digitally superimpose AR objects onto digital representations of the mobile devices' current surroundings. The Harry Potter App had the Dynamic Weather feature when it was launched, again years after the priority dates of Plaintiffs' Asserted Patents.

64. The Pokémon Go App and the Harry Potter App are the primary games Niantic publishes in the United States. Niantic markets, offers, and distributes the infringing Pokémon Go App and the infringing Harry Potter App in and within the United

States, including through distribution platforms such as the Apple App Store, Google Android Play Store, and the Samsung Galaxy Store.

65. Niantic has directly infringed, and continues to directly infringe, the Asserted Patents by, for example, making, using, offering to sell, and/or selling in the United States, and/or importing into the United States without authority, products, equipment, software, and/or services that practice one or more claims of each of the Asserted Patents, including without limitation systems that include and/or interact with Android and iOS mobile devices (such as mobile phones and tablet computers) and the Pokémon Go App and the Harry Potter App. For example, Niantic tests, directs, or controls others to download its Pokémon Go App and its Harry Potter App onto various mobile devices and to test its Pokémon Go App and its Harry Potter App to ensure that these AR games are hardware and software compliant.

Niantic's Indirect Infringement of Plaintiffs' Patented Technologies

66. Niantic has indirectly infringed, and continues to indirectly infringe, the Asserted Patents by inducing third parties to directly infringe those patents. Niantic has induced, and continues to induce, direct infringement of the Asserted Patents by customers and/or end users of its Pokémon Go App and its Harry Potter App.

67. Niantic encourages users of Android and iOS mobile devices (such as mobile phones and tablet computers) in the United States to download and use the Pokémon Go App and the Harry Potter App, and such users do download and use the Pokémon Go App and the Harry Potter App in a manner that Niantic intends such applications to be used. Niantic also has designed, developed, tested, and used the Pokémon Go App and the Harry Potter App in and within the United States.

68. Niantic performs the acts that constitute induced infringement with knowledge of the Asserted Patents and with knowledge or willful blindness that the induced acts would constitute infringement. At the very latest, Niantic has had actual knowledge of the Asserted Patents, and has had actual knowledge of or has been willfully blind to its infringement of the Asserted Patents and the infringement of the Asserted Patents by its

customers and/or end users of the Pokémon Go App and the Harry Potter App as of the date that it was served with a copy of this Complaint.

69. Niantic knows the Pokémon Go App and the Harry Potter App in combination with mobile devices and its own back-end servers constitute infringement of the Asserted Patents.

70. Niantic advertises the Pokémon Go App and the Harry Potter App, publishes promotional literature encouraging customers and/or end users to operate the Pokémon Go App and the Harry Potter App, creates and/or distributes in-app support for the Pokémon Go App and the Harry Potter App that provides instruction and/or encourages infringing use, and offers technical assistance to its customers and/or end users that provide instructions on and/or encourage infringing use including on its websites: nianticlabs.com/en/support/pokemongo, nianticlabs.com/en/support/wizardsunite, niantic.helpshift.com/a/pokemon-go, and niantic.helpshift.com/a/hpwizardsunite.

71. Niantic encourages and facilitates its customers and/or end users to infringe the Asserted Patents by instructing them to download Niantic's Pokémon Go App and Niantic's Harry Potter App, instructing them to operate these programs on the customers' or end users' mobile devices, and providing access to the Niantic Real World Platform (including its backend servers and AR data).

72. Customers and/or end users of Niantic's Pokémon Go App and Niantic's Harry Potter App, pursuant to Niantic's instructions, indicators, and advertisements; thus each directly infringe the Asserted Patents. Niantic continues to encourage and facilitate the direct infringement of the Asserted Patents by customers and/or end users of the Pokémon Go App and the Harry Potter App.

COUNT I:INFRINGEMENT OF U.S. PATENT NO. 10,403,051

73. Plaintiffs incorporate by reference and re-allege all of the foregoing paragraphs as if fully set forth herein.

74. Pursuant to 35 U.S.C. § 282, the '051 Patent is valid and enforceable under United States Patent Laws.

75. Niantic has had actual notice of the '051 Patent at least as of the date that it was served with a copy of this Complaint, which identifies the '051 Patent.

76. Each of the Pokémon Go App and the Harry Potter App (the "'051 Accused Products"), including the use in accordance with the guidance and instructions that Niantic provides for these products, infringes at least claim 1 of the '051 Patent, either literally or under the doctrine of equivalents.

77. Exemplary claim 1 of the '051 Patent is reproduced above at paragraph 27.

78. The '051 Patent Accused Products operate, in part on Niantic customers' and/or end users' mobile devices, such as a mobile phones or tablets, which have processor(s) and storage memory. The '051 Patent Accused Products operate together with the Niantic Real World Platform (such as its backend servers) as an AR platform system as described below.

79. The '051 Patent Accused Products use the Niantic Real World Platform (shown above at paragraph 62), which includes a "SERVER RUNTIME" and "AR CLOUD" that interact with the game application software (either the Pokémon Go App or the Harry Potter App) on the user's mobile device. *See also* https://nianticlabs.com/en/blog/launch/ ("massively scalable server"). That platform includes stored "AR DATA," which is an AR object repository or database of available AR objects. The server is coupled to and can access the AR data.

80. The '051 Patent Accused Products operate to obtain digital data representative of an environment of an AR capable mobile device. For example, when the Pokémon Go App is operating (executed), it can display "a Map View" that depicts the real-world location around the mobile device running the Pokémon Go App, as shown below:

https://niantic.helpshift.com/a/pokemon-go/?p=web&s=getting-started&f=map-view. The digital data include the location of the mobile device (depicted above with the avatar #5) and nearby Pokémon (depicted above at #10). The specific Pokémon type is a virtual element attribute. Although not shown in the specific scene reproduced down, if a given Pokémon was located within that scene, it would be reproduced at its unique location (a virtual element attribute) and using its particular image (a virtual element attribute).

81. Similarly, when the Harry Potter App is operating (executed), it can display "an Overworld Map View" that depicts the real-world location around the mobile device running the Harry Potter App, as shown below:

https://gamepress.gg/wizardsunite/guide/wizards-unite-map-and-overworld-guide. The digital data include the mobile device location (depicted above with the green avatar) and nearby Foundables (colored discs) within the depicted scene. The specific Foundable type is a virtual element attribute. Its unique location is a virtual element attribute. Its particular image is a virtual element attribute.

82. The '051 Patent Accused Products operate to determine a context related to the AR capable device and pertinent to the environment based at least on the device location. For example, when the Pokémon Go App is operating (executed), it considers the real-world environment of the user's mobile device during game play, which changes in-game probability of encountering particular Pokémon types. Water-type Pokémon appear more frequently when the user's mobile device is near a body of water, such as a lake, ocean, etc. https://niantic.helpshift.com/a/pokemon-go/?p=web&s=getting-started&f=finding-catching-wild-pokemon&l=en ("Some wild Pokémon appear only in certain environments and climates. For example, some Pokémon may appear only near lakes, oceans, or other bodies of water."). Also, the current weather at the device's location

changes in-game probability of encountering particular Pokémon types. https://nianticlabs.com/en/blog/decdevupdate-weather/. The Pokémon Go App also tailors interactions with those Pokémon depending on the real-world environment, real-world time, and real-world weather (e.g., increasing user bonuses for capturing certain Pokémon). *See, e.g.*, https://nianticlabs.com/en/blog/decdevupdate-weather/ (Pokémon-types that are suited to the weather "yield bonus Stardust" and "are more likely to have greater potential in battle"); https://niantic.helpshift.com/a/pokemon-go/?p=web&s=finding-evolving-hatching&f=weather-boosts&l=en (Water-type Pokémon "tend to have higher CP and perform better in battle" in wet conditions).

83. Similarly, when the Harry Potter App is operating (executed), it considers the real-world environment of the user's mobile device during game play, which changes in-game probability of encountering particular Foundables. The Harry Potter App "pairs the weather and environmental conditions in the real world with the conditions [experienced] in the game." https://niantic.helpshift.com/a/hpwizardsunite/?p=web&s=getting-started&f=weather-conditions&l=en. For example, weather conditions affect the spawn (appearance) rate of certain Foundables in the game. https://www.imore.com/bad-weather-warnings-affecting-gameplay-harry-potter-wizards-unite-heres-fix.

84. The '051 Patent Accused Products also operate to identify relevant AR objects from the AR object repository representing available AR objects corresponding to the at least one context. For example, the Pokémon Go App identifies particular Pokémon that are available for in-game interaction and have certain attributes based on the context determined above. In particular weather conditions (e.g., sunny conditions), the Pokémon Go App identifies grass, ground, and fire-type Pokémon AR objects to spawn, or appear, more frequently near the user for display on Map View (available AR objects):

https://niantic.helpshift.com/a/pokemon-go/?p=web&l=en%2F&s=finding-evolving-and-hatching&f=weather-boosts. Grass, ground, and fire-type Pokémon share the attribute of being boosted when the current weather at the mobile device's location is sunny. *Id.*

85. Similarly, when the Harry Potter App is operating (executed), it identifies particular Foundables that are available for in-game interaction and have certain attributes based on the context determined above. "Some Foundables can only be found in certain weather conditions, time of day, or moon phases in the game. For example, you'll only be able to find a werewolf during or around the time of a full moon." https://www.imore.com/harry-potter-wizards-unite-beginners-guide. Thus, certain Foundable AR objects appear more frequently near the user for display on Map View (available AR objects) based on the context determined above.

86. The '051 Patent Accused Products also operate to determine whether to alter presence of a relevant AR object based on the device's location and the virtual element attribute. For example, when the Pokémon Go App is operating (executed), it determines whether to display a Pokémon based on the device's real-world location and the in-game location of the Pokémon AR object. If the user's avatar and the Pokémon AR object are close enough, the Pokémon AR object is displayed on the Map View:

https://nianticlabs.com/en/blog/pokemon-go-first-look/. The Squirtle AR object (blue turtle) is in proximity to the user's avatar and it is displayed, which other Pokémon AR objects are indicated as being nearby and others are not displayed at all. Particular Pokémon types (a virtual element attribute) appear more frequently or less frequently depending on the device's real-world location and/or the current weather at that real-world location (e.g., water type Pokémon are more common near bodies of water, and certain Pokémon only appear in particular areas of the world). https://niantic.helpshift.com/a/pokemon-go/?p=web&s=getting-started&f=finding-catching-wild-pokemon&l=en; https://nianticlabs.com/en/blog/pokemon-go-first-look/; https://nianticlabs.com/en/blog/decdevupdate-weather/. Also, Pokémon AR objects move during game play and their particular locations (a virtual element attribute) vary with time. https://niantic.helpshift.com/a/pokemon-go/?p=web&s=getting-started&f=finding-catching-wild-pokemon&l=en. In this way, the presence of a particular Pokémon AR object within a scene (*e.g.*, whether it is visible) and its size within that scene varies.

87. Similarly, when the Harry Potter App is operating (executed), it determines whether to display a Foundable based on the device's real-world location and the in-game location of the Foundable AR object. If the user's avatar and the Foundable AR object are close enough, the Foundable AR object is displayed on the Map View. Particular Foundable types (a virtual element attribute) appear more frequently or less frequently

depending on the device's real-world location and/or the current weather at that real-world location. https://www.imore.com/harry-potter-wizards-unite-beginners-guide. In this way, the presence of a particular Foundable AR object within a scene (*e.g.*, whether it is visible) and its size within that scene varies.

88. Further, the '051 Patent Accused Products operate to cause the AR capable device to render the relevant AR objects according to their altered presence. For example, when the Pokémon Go App is operating (executed), it causes the user's mobile device to display (or not display) at least some of the Pokémon AR objects:

https://nianticlabs.com/en/blog/pokemon-go-first-look/. In the image above, a Squirtle Pokémon AR object is depicted in the Map View on the user's device. If the Squirtle Pokémon AR object were more distant from the user's device or was located outside of the current viewing area (*e.g.*, behind the user), it would be depicted as being nearby or would not be displayed at all.

89. Similarly, when the Harry Potter App is operating (executed), it causes the user's mobile device to display (or not display) at least some of the Foundable AR objects:

https://gamepress.gg/wizardsunite/guide/wizards-unite-map-and-overworld-guide. In the image above, a Foundable, represented by the orange disc, is depicted in the Map View on the user's device. If that Foundable were more distant from the user's device or was located outside of the current viewing area (e.g., behind the user), it would not be displayed at all.

90. The '051 Accused Products are non-limiting examples, identified based on publicly available information, and Plaintiffs reserve the right to identify additional infringing activities, products, and services, including, for example, on the basis of information obtained during discovery.

91. Each element of the claimed systems exists in the United States. In violation of 35 U.S.C. § 271(a), Niantic has been and is directly infringing the '051 Patent, either literally or under the doctrine of equivalents, by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, without authority or license, the '051 Accused Products including the Pokémon Go App and the Harry Potter App as well as associated backend servers and systems and/or mobile devices.

92. In violation of 35 U.S.C. § 271(b), Niantic has been and is indirectly infringing the '051 Patent by inducing infringement of this patent by others, such as the users of the Pokémon Go App and the Harry Potter App in the United States by making the '051 Accused Products available for download onto Android and iOS mobile devices as well as associated backend servers and systems.

93. Niantic's affirmative act of making its Pokémon Go App and Harry Potter App, cause the '051 Accused Products to be used in a manner that infringes the '051 Patent. Niantic also provides guidance and instruction to third parties to use the '051 Accused Products in their normal and customary way to infringe the '051 Patent. Niantic further provides access to the Niantic Real World Platform to third parties to use the '051 Accused Products in their normal and customary way to infringe the '051 Patent.

94. Subject to discovery and review of Niantic's Pokémon Go App and Niantic's Harry Potter App, Plaintiffs anticipate that additional claims of the '051 Patent may be infringed by Niantic as well.

95. As the direct and proximate result of Niantic's conduct, Plaintiffs have suffered and will continue to suffer, unless Niantic is enjoined by this Court, competitive harm, irreparable injury, and damages in an amount to be proven at trial by Niantic's infringement of the '051 Patent. Plaintiffs are entitled to recover from Niantic all damages that Plaintiffs have sustained as a result of Niantic's infringement of the '051 Patent, including without limitation not less than a reasonable royalty.

COUNT II:INFRINGEMENT OF U.S. PATENT NO. 10,614,477

96. Plaintiffs incorporate by reference and re-allege all of the foregoing paragraphs as if fully set forth herein.

97. Pursuant to 35 U.S.C. § 282, the '477 Patent is valid and enforceable under United States Patent Laws.

98. Niantic has had actual notice of the '477 Patent at least as of the date that it was served with a copy of this Complaint, which identifies the '477 Patent.

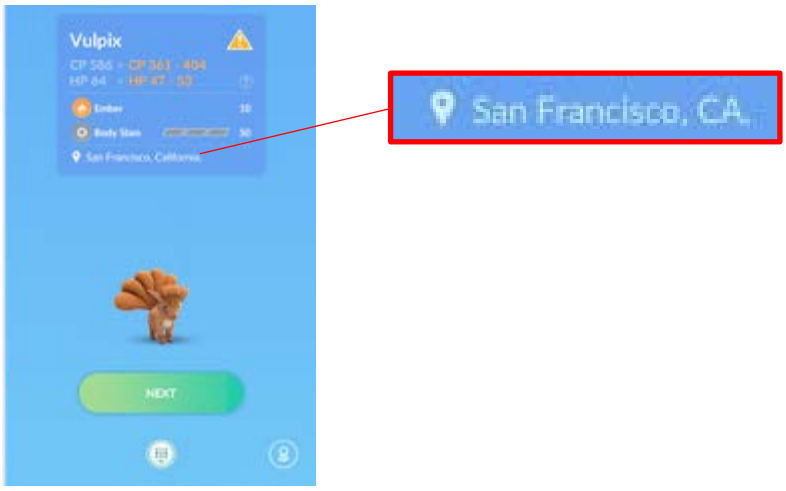
99. The Pokémon Go App (the "'477 Accused Product"), including the use in accordance with the guidance and instructions that Niantic provides for these products, infringes at least claim 20 of the '477 Patent, either literally or under the doctrine of equivalents.

100. Exemplary claim 20 of the '477 Patent is reproduced above at paragraph 38.

101. The '477 Patent Accused Product operates, in part on Niantic customers' and/or end users' mobile devices, such as a mobile phones or tablets, which have processor(s) and storage memory. The '477 Patent Accused Product operates together with the Niantic Real World Platform (such as its backend servers) to reconcile in-game transactions as described below.

102. The '477 Patent Accused Product operates to determine, within a computer game (Pokémon Go), at least one object attribute based on physical location data associated with a first player whose physical location has been acquired by a location sensor. For example, when the Pokémon Go App is operating (executed), it obtains location information from the Android or iOS device, which shows the device's current real-world location.

103. To do this, the Pokémon Go App obtains sensor data from the device's location sensor. When a particular Pokémon character is caught, that virtual object is tagged or associated with the user's real world location. For example, the Vulpix character shown below was captured in San Francisco, California:

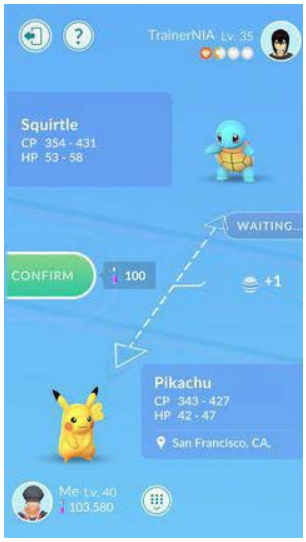


https://niantic.helpshift.com/a/pokemon-go/?p=web&s=friends-gifting-and-trading&f=trading-pokemon. The capture location of a particular Pokémon character is an object attribute that is based on physical location data associated with the player.

104. With Pokémon trading, the '477 Patent Accused Product operates to determine transaction amounts of game points for a transaction between two players (each

with their own account) based on a reconciliation matrix and the at least one object attribute based on the physical location data. For example, when the Pokémon Go App is operating (executed), after two players have selected particular Pokémon to trade, "[t]he amount of Stardust that is required for the trade will appear" and "the amount of Candy you've received through the trade" will be displayed, which is based "on the distance between where the two Pokémon were caught." https://niantic.helpshift.com/a/pokemon-go/?p=web&s=friends-gifting-trading&f=trading-pokemon&l=en.

105. In the Pokémon Go trade shown below, each player must pay 100 stardust to complete the trade transaction and each will receive a single candy.



First Player

Second Player

https://www.forbes.com/sites/davidthier/2018/06/25/heres-how-much-stardust-it-costs-to-trade-pokemon-by-friend-level-in-pokemon-go/#47c231dd15f7. The amount of stardust required for a trading transaction "varies depending on the Pokémon and the friendship level between the two players making the trade." https://www.imore.com/pokemon-go-trading. "The amount of Candy you earn depends on the distance between where the two Pokémon were caught." https://niantic.helpshift.com/a/pokemon-go/?p=web&s=friends-gifting-trading&f=trading-pokemon&l=en.

106. The '477 Patent Accused Product operates to cause game transactions to be reconciled when a criterion based on the physical location data of the first player is

met within the computer game among two user accounts. For example, in the Pokémon Go App, when a trade is completed, the first and second players pay the required amount of stardust and receive bonus candy. https://niantic.helpshift.com/a/pokemon-go/?p=web&s=friends-gifting-trading&f=trading-pokemon&l=en. The transfers of stardust and bonus candy are transfers of game points associated with a first account (the first player) and associated with a second account (the second player). "Players must be physically in the same location in order to trade." https://niantic.helpshift.com/a/pokemon-go/?p=web&s=friends-gifting-trading&f=trading-pokemon&l=en; https://www.gamesradar.com/pokemon-go-trading-guide/ (within 100m).

107. The '477 Accused Product is a non-limiting example, identified based on publicly available information, and Plaintiffs reserve the right to identify additional infringing activities, products, and services, including, for example, on the basis of information obtained during discovery.

108. Each element of the claimed systems exists in the United States. In violation of 35 U.S.C. § 271(a), Niantic has been and is directly infringing the '477 Patent, either literally or under the doctrine of equivalents, by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, without authority or license, the '477 Accused Product including the Pokémon Go App as well as associated backend servers and systems and/or mobile devices.

109. In violation of 35 U.S.C. § 271(b), Niantic has been and is indirectly infringing the '477 Patent by inducing infringement of this patent by others, such as the users of the Pokémon Go App in the United States by making the '477 Accused Product available for download onto Android and iOS mobile devices as well as associated backend servers and systems.

110. Niantic's affirmative act of making its Pokémon Go App, cause the '477 Accused Product to be used in a manner that infringes the '477 Patent. Niantic also provides guidance and instruction to third parties to use the '477 Accused Product in their normal and customary way to infringe the '477 Patent. Niantic further provides access to the

Niantic Real World Platform to third parties to use the '477 Accused Product in their normal and customary way to infringe the '477 Patent.

111. Subject to discovery and review of Niantic's Pokémon Go App, Plaintiffs anticipate that additional claims of the '477 Patent may be infringed by Niantic as well.

112. As the direct and proximate result of Niantic's conduct, Plaintiffs have suffered and will continue to suffer, unless Niantic is enjoined by this Court, competitive harm, irreparable injury, and damages in an amount to be proven at trial by Niantic's infringement of the '477 Patent. Plaintiffs are entitled to recover from Niantic all damages that Plaintiffs have sustained as a result of Niantic's infringement of the '477 Patent, including without limitation not less than a reasonable royalty.

COUNT III:INFRINGEMENT OF U.S. PATENT NO. 10,664,518

113. Plaintiffs incorporate by reference and re-allege all of the foregoing paragraphs as if fully set forth herein.

114. Pursuant to 35 U.S.C. § 282, the '518 Patent is valid and enforceable under United States Patent Laws.

115. Niantic has had actual notice of the '518 Patent at least as of the date that it was served with a copy of this Complaint, which identifies the '518 Patent.

116. Each of the Pokémon Go App and the Harry Potter App (the "'518 Accused Products"), including the use in accordance with the guidance and instructions that Niantic provides for these products, infringes at least claim 1 of the '518 Patent, either literally or under the doctrine of equivalents.

117. Exemplary claim 1 of the '518 Patent is reproduced above at paragraph 49.

118. The '518 Patent Accused Products operate, in part on Niantic customers' and/or end users' mobile devices, such as a mobile phones or tablets, which have location sensors (*e.g.*, GPS or Wi-Fi), displays, storage memory, and processor(s). The '518 Patent Accused Products operate together with the Niantic Real World Platform (such

as its backend servers) as a device capable of rendering AR, as described below.

119. The '518 Patent Accused Products operate to obtain sensor data from location sensor(s) that includes a device location. For example, when the Pokémon Go App is operating (executed), it obtains location information from the user's mobile device, which shows the device's location in the real world. Similarly, when the Harry Potter App is operating (executed), it obtains location information from the user's mobile device, which shows the device's location in the real world. In both of the '518 Patent Accused Products, by walking in the real world, the device user moves an in-game avatar. https://niantic.helpshift.com/a/pokemon-go/?s=getting-started&f=how-do-i-move-my-avatar&p=web; https://attackofthefanboy.com/guides/harry-potter-wizards-unite-how-to-walk-and-move-around/.

120. The '518 Patent Accused Products operate to obtain an area of interest via an area database based on at least the device location within the sensor data. For example, when the Pokémon Go App is operating (executed), it obtains geospatial data corresponding to the device's location in order to generate a digital representation of the real world location near the device (the area of interest). In the map depicted below, the user's location is represented by Avatar (#5), and the image shows a representation of the area close to the user's mobile device (*e.g.*, nearby streets):

https://niantic.helpshift.com/a/pokemon-go/?p=web&s=getting-started&f=map-view.

121. Similarly, when the Harry Potter App is operating (executed), it

obtains geospatial data for the device's location in order to generate a digital representation of the real world location near the device (the area of interest):

https://gamepress.gg/wizardsunite/guide/wizards-unite-map-and-overworld-guide; *see also* https://www.vg247.com/2019/03/11/harry-potter-wizards-unite-impressions/. The image shows a representation of the area close to the user's mobile device (*e.g.*, nearby streets):

122. The '518 Patent Accused Products operate to access an area tile map of the area of interest that is represented by a set of tile subareas and includes one or more tessellated tiles from a tessellated tile map. For example, when the Pokémon Go App is operating (executed), it accesses the OpenStreetMaps tile data for the area of interest (the vicinity of the user's phone). https://ag.hyperxgaming.com/article/3496/niantic-switches-to-openstreetmap-in-pokeacutemon-go. Similarly, when the Harry Potter App is operating (executed), it accesses the OpenStreetMaps tile data for the area of interest (the vicinity of the user's phone). These tile maps have a number of tile subareas arranged in a closely fitted together fashion without gaps or overlaps (tessellation) in order to depict a given area of interest. Maier, G. (2014) "OpenStreetMap, the Wikipedia Map," REGION, 1(1), pp. R3-R10.

123. The '518 Patent Accused Products also operate to identify a tile subarea from the set of tile subareas based at least in part on the device location relative to one or more locations of tile subareas from the set of tile subareas. That identified tile

subarea covers at least a portion of the area of interest, and tessellated tiles within the identified tile subarea are associated with one or more AR content objects. For example, the Pokémon Go App's Map View includes an avatar (#5) to show the device's location within the depicted area as well as virtual elements (e.g., particular Pokémon within the depicted area, Pokéstop, or Gym):

https://niantic.helpshift.com/a/pokemon-go/?p=web&s=getting-started&f=map-view. The Pokémon Go App identifies a tile subarea within the depicted scene that corresponds to the location of a particular virtual element within the in-game scene (Pokémon, Pokéstop, or Gym) relative to the device location. In the Map View image above, the Pokéstop (#4), which is an identified tile subarea, occupies a portion of the entire scene depicted (an area of interest). The tessellated tiles within the scene depicted for that particular location are associated with that Pokéstop (an AR content object).

124. Similarly, when the Harry Potter App is operating (executed), it identifies a tile subarea based at least in part on the device location relative to one or more locations of tile subareas that covers a portion of the area of interest, and tessellated tiles within that subarea are associated with AR content object(s). For example, to generate the Map View depicted below, the Harry Potter App identifies a tile subarea based on the device's location that covers a portion of the depicted scene (area of interest) and associates an orange Foundable with a tessellated tile corresponding to that particular location within the scene:

https://gamepress.gg/wizardsunite/guide/wizards-unite-map-and-overworld-guide.

125. The '518 Patent Accused Products also operate to populate the mobile device's memory with at least one of the one or more AR content objects associated with the one or more tessellated tiles corresponding with the identified tile subarea. For example, when the Pokémon Go App is operating (executed), it interacts with the Niantic Real World Platform (and its servers) in order to put into the mobile device's memory data associated with AR content objects (Pokémon, Pokéstops, and Gyms) that appear within an in-game scene. For example, if a particular Pokémon is within the depicted scene, its AR image is populated into the computer readable memory along with its corresponding tessellated tile location. Similarly, when the Harry Potter App is operating (executed), it interacts with the Niantic Real World Platform (and its servers) in order to put into memory data associated with AR content objects (e.g., Foundables, Inns, Ingredients) that appear within an in-game scene.

126. Further, the '518 Patent Accused Products operate to render the AR content object(s) associated with the identified tile subarea on the mobile device's display based on a view of interest. For example, when the Pokémon Go App is operating (executed), it depicts Pokémon, Pokéstop (#4) and Gyms (#2) on the mobile device's display based on a view of interest:

https://niantic.helpshift.com/a/pokemon-go/?p=web&s=getting-started&f=map-view. The Pokéstop (#4) is associated with the identified tile subarea within the depicted scene and it is displayed. If a particular Pokémon were associated with an identified tile subarea within the depicted scene, it is displayed.

127. Similarly, when the Harry Potter App is operating (executed), it depicts Foundables on the mobile device's display based on a view of interest.

https://gamepress.gg/wizardsunite/guide/wizards-unite-map-and-overworld-guide. The orange Foundable is associated with the identified tile subarea within the depicted scene and it is displayed.

128. The '518 Accused Products are non-limiting examples, identified based on publicly available information, and Plaintiffs reserve the right to identify

additional infringing activities, products, and services, including, for example, on the basis of information obtained during discovery.

129. Each element of the claimed devices exists in the United States. In violation of 35 U.S.C. § 271(a), Niantic has been and is directly infringing the '518 Patent, either literally or under the doctrine of equivalents, by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, without authority or license, the '518 Accused Products including the Pokémon Go App and the Harry Potter App as well as associated backend servers and systems and/or mobile devices.

130. In violation of 35 U.S.C. § 271(b), Niantic has been and is indirectly infringing the '518 Patent by inducing infringement of this patent by others, such as the users of the Pokémon Go App and the Harry Potter App in the United States by making the '518 Accused Products available for download onto Android and iOS mobile devices as well as associated backend servers and systems.

131. Niantic's affirmative act of making its Pokémon Go App and Harry Potter App, cause the '518 Accused Products to be used in a manner that infringes the '518 Patent. Niantic also provides guidance and instruction to third parties to use the '518 Accused Products in their normal and customary way to infringe the '518 Patent. Niantic further provides access to the Niantic Real World Platform to third parties to use the '518 Accused Products in their normal and customary way to infringe the '518 Patent.

132. Subject to discovery and review of Niantic's Pokémon Go App and Niantic's Harry Potter App, Plaintiffs anticipate that additional claims of the '518 Patent may be infringed by Niantic as well.

133. As the direct and proximate result of Niantic's conduct, Plaintiffs have suffered and will continue to suffer, unless Niantic is enjoined by this Court, competitive harm, irreparable injury, and damages in an amount to be proven at trial by Niantic's infringement of the '518 Patent. Plaintiffs are entitled to recover from Niantic all damages that Plaintiffs have sustained as a result of Niantic's infringement of the '518 Patent, including without limitation not less than a reasonable royalty.

REQUESTED RELIEF

WHEREFORE, Plaintiffs respectfully request that this Court enter judgment in their favor and grant the following relief against Niantic as follows:

A. Judgment that Niantic has directly infringed one or more claims of the Asserted Patents, either literally or under the doctrine of equivalents, in violation of 35 U.S.C. § 271(a);

B. Judgment that Niantic has induced infringement of one or more claims of the Asserted Patents in violation of 35 U.S.C. § 271(b);

C. Award Plaintiffs monetary damages, pursuant to 35 U.S.C. § 284, in an amount adequate to compensate for Niantic's infringement of the Asserted Patents (and, if necessary, related accountings), in an amount to be determined at trial, but no less than a reasonable royalty;

D. Order, pursuant to 35 U.S.C. § 285, deeming this to be an exceptional case and award Plaintiffs their reasonable attorneys' fees;

E. Award Plaintiffs their costs and expenses incurred in this suit;

F. Award Plaintiffs prejudgment and post-judgment interest at the maximum rates allowable under the law;

G. Order a post-judgment equitable accounting of damages for the period of infringement of the Asserted Patents following the period of damages established at trial; and

H. Award such further relief as the Court may deem just and appropriate under the circumstances.

JURY DEMAND

Pursuant to Federal Rules of Civil Procedure 38, Plaintiffs respectfully demand a trial by jury on all issues and claims so triable.

Dated: September 3, 2020

Respectfully submitted,

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